

Tobacco use and looked-after children: Developing a complex intervention to address smoking in residential care

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Abstract

Levels of tobacco smoking among looked-after children (LAC) substantially exceed those reported among the general youth population. Research highlights that smoking is common among LAC, further increasing the health and social inequality experienced by this vulnerable group. However, there is limited research evidence about smoking and the factors that influence tobacco use in residential units, and if opportunities exist to address tobacco use in residential care. The overall purpose of this thesis was to develop a theory- and evidence-based intervention to address tobacco use in residential units for LAC.

This thesis adopted both quantitative and qualitative methods in a pragmatic mixed-methods design, and followed the developmental phase of the United Kingdom Medical Research Council framework for the development and evaluation of complex interventions. It comprised three stages. The first stage comprised a review of published articles describing interventions that aimed to address the lifestyle behaviours of residentially accommodated LAC. The purpose of the review was to assess the status of the literature, identify existing effective interventions, and to explore implementation issues in residential settings. Four articles describing two interventions targeting lifestyle behaviours among residentially accommodated LAC were identified. None of the articles specifically targeted tobacco use. However, descriptions of the implementation issues likely to be encountered were provided.

To complement the existing evidence, two primary research studies were conducted. First, a quantitative retrospective case-note evaluation of statutory health assessment documentation (*n*=31) was carried out to assess prevalence and characteristics of residentially accommodated LAC, including those who smoke and to identify current smoking-related practice. According to statutory health assessment documentation enquiries about smoking were made in 23 (77%) instances. Twelve (52%) of those children who had participated in the health assessment and who

received enquiries about smoking were identified as smokers. Smoking was found to be significantly more common among LAC over the age of 15 years [*p*=0.043, OR3.33, (95%CI 0.91-12.27)] and more frequently reported among LAC with mental health disorder (58%). Nine (75%) smokers were recorded as engaging in discussions about their smoking and as being offered treatment for tobacco dependence. Just two of the nine (22%) smokers accepted a referral for treatment.

Second, a sequential, mixed-methods study comprising a cross-sectional survey of Residential Care Officers (RCOs) in the East Midlands (*n*=42) and semi-structured interviews with RCOs and residential unit managers (*n*=14) to explore and understand the use of tobacco in residential units, from the perspective of residential carers. Survey data were analysed descriptively and findings informed the development of a schedule of topics for discussion during the subsequent interviews. Qualitative data were analysed using a thematic framework approach. Forty-two RCOs (18% response rate) completed the survey, and 14 participants took part in the interviews. Despite reporting substantial awareness of smoke-free policies, a lack of adherence and enforcement became apparent, and levels of reported training in relation to smoking and smoking cessation were low (21%). Potential problems relating to wider tobacco-related harms, such as exploitative relationships; a reliance on tacit knowledge; and pessimistic attitudes towards LAC quitting smoking, were reported.

Stage two synthesised the findings from the case-note evaluation and the mixed-methods study using an existing socioecological model, to identify 33 factors as influencing tobacco use in residential units for LAC, across seven interacting levels. A consultation with four local authority and community health stakeholders identified behaviours to target with an intervention and explored challenges and enablers to implementation. Strategies that address the wider harms of tobacco use by LAC, facilitate the implementation of completely smoke-free residential units, and those which encourage and support smoking cessation among LAC were

prioritised by stakeholders, achieving mean scores of 4.5 (SD 0.57), 3.25 (SD 1.25), and 3.0 (SD 1.41) from a maximum of five points, respectively. Stakeholders identified 16 barriers and five facilitators to behavioural change and 13 implementation issues. Nine behaviours were identified as being amenable to change.

In stage three, an exercise to develop potential intervention components involved mapping behavioural change targets and implementation issues to the Theoretical Domains Framework and the Diffusion of Innovation in Service Organisations model in order to identify and select behavioural change techniques and mode of intervention component delivery using the behavioural change technique taxonomy. Seven behavioural change techniques and ten modes of intervention delivery were selected from the behavioural change technique taxonomy to address target behaviours. The behavioural change techniques and modes of delivery were then modelled into an intervention comprising five components (stakeholder meeting, local leader engagement, a tobacco training programme, a smoke-free co-ordinator, and resources and tools). Finally, two social care professionals reviewed the intervention components and confirmed its relevance and utility to residential carers and their practice.

In conclusion, the studies undertaken in this thesis have widened the understanding of tobacco use among LAC and has led to the development of a potential intervention to address this concern. While the intervention requires refinement and piloting before effectiveness can be determined, nonetheless, this thesis has addressed calls from successive governments, third-sector organisations, and health and social care professionals to examine and address the health needs of LAC. It is hoped that this research will lead to better awareness of the risks of smoking among LAC, and ultimately improve the health and social outcomes of LAC. Recommendations for further research are also made.

Publications arising from this thesis

Peer Reviewed Publications

Huddlestone. L.., Pritchard C., Ratschen E. Smoking and LAC: A Mixed-Methods Study of Policy, Practice, and Perceptions Relating to Tobacco Use in Residential Units. Int. J. Environ Res Public Health 2016, 13, 593

Huddlestone. L., Pritchard. C., Ratschen. E. Identification and treatment of tobacco dependence among young people in residential homes during the statutory annual health assessment: a retrospective case-note review. The Lancet 2015; 386, Supplement 2:S45 (publication following conference presentation; abstract).

Publications in preparation

Huddlestone. L., Pritchard. C., Ratschen. E. Understanding the influences on tobacco use in children's homes: A social ecological framework.

Huddlestone. L., Pritchard. C., Ratschen. E. Development of a theory and evidence informed intervention to address tobacco use in children's homes.

Conference presentations

Huddlestone. L., Pritchard. C., Ratschen. E. Reducing tobacco use among children in care: policy and pitfalls. In: Society for Research on Nicotine and Tobacco (Europe) Conference; Prague. 8-10 Sep 2016. Poster.

Huddlestone. L., Pritchard. C., Ratschen. E. Tobacco use in children's homes: negotiating policy and practice. In: UK Nicotine and Smoking Cessation Conference; London. 9-10 Jun 2016. Poster.

Huddlestone. L., Pritchard. C., Ratschen. E. Identification and treatment of tobacco dependence among young people in residential homes during the statutory annual health assessment: a retrospective case-note review. In: Public Health Science Conference; London. 13 Nov 2015. Poster.

Huddlestone. L. Towards addressing smoking in child and adolescent mental health services and residential care homes for looked-after children: Findings from exploratory research. In: Society for Research on Nicotine and Tobacco (Europe) Conference; Maastricht. 19-21 Sep 2015. Oral presentation.

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List of Abbreviations

ADCS	Association of Directors of Children's Services
ADHD	Attention Deficit Hyperactivity Disorder
ASSIA	Applied Social Sciences Index and Abstracts
ASH	Action on Smoking and Health
BAAF	British Association of Adoption and Fostering
BCT	Behavioural Change Technique
BCTt	Behaviour Change Technique taxonomy (Version 1.0)
CAMHS	Child and Adolescent Mental Health Services
CASER	Clinical Audit, Standards, Effectiveness and Research
CCG	Clinical Commissioning Group
CI	Confidence interval
CSE	Child Sexual Exploitation
DISO	Diffusion of Innovations within Service Organisations
DoPHER	Database Promoting Health Effectiveness Reviews
FCTC	Framework Convention on Tobacco Control
GCP	Good Clinical Practice
GCSE	General Certificate of Secondary Education
HSI	Heaviness of Smoking Index
ICD-10	International Classification of Disease – version 10
IHA-YP	Initial Health Assessment – Young Person
IQR	Interquartile Range
LAC	Looked-after children
MRC	Medical Research Council
NCSCT	National Centre for Smoking Cessation Training
NHS	National Health Service
NIHR	National Institute for Health Research
NICE	National Institute for Health and Clinical Excellence
NRT	Nicotine Replacement Therapy
NSPCC	National Society for the Prevention of Cruelty of Children
OFSTED	Office for Standards in Education, Children's Services and Skills

ONS	Office for National Statistics
OR	Odds Ratio
PoS	Point of Sale
R and D	Research and Development
RCO	Residential Care Officer
REC	Research Ethics Committee
RCT	Randomised Control Trial
RHA-YP	Review Health Assessment – Young Person
RGF	Research Governance Framework
SD	Standard Deviation
SDD	Smoking, Drinking, and Drug use among young people survey
SDQ	Strengths and Difficulties Questionnaire
SPSS	Statistical Package for the Social Sciences
TDF	Theoretical Domains Framework
TRoPHIE	Trials Register of Promoting Health Interventions
UK	United Kingdom
WHO	World Health Organisation
WIDER	Workgroup for Intervention Development and Evaluation Research

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Chapter One: Introduction

Despite the success of tobacco control policies in reducing overall smoking prevalence, rates of smoking across a number of often disadvantaged groups have not declined. Disparities in tobacco use remain a concern, and efforts to address this inequality through individual, population, and policy interventions continue. Looked-after children (LAC) are one such at-risk group, as maltreatment and neglect in childhood are strongly associated with smoking, and independent of other known risk factors such as parental smoking. Despite this disparity, little attention has been paid to investigating and addressing tobacco use in this vulnerable group. Several international studies in the last decade have investigated the smoking-related behaviours of children in care, and note the influence of residential care settings, relationships with carers, and ease of access to tobacco and opportunities to smoke.

In this thesis, I focus on the UK, exploring the use of tobacco in residential units and how it is addressed from the perspective of residential carers and other corporate parents. Using empirical research, I explore what factors influence the use of tobacco in residential units and investigate how children are identified and treated for tobacco dependence. I also examine where opportunities exist to improve the smoking cessation support offered to LAC accommodated in residential units. I then develop the components of an intervention to address tobacco use in residential units. This research, therefore, offers important insight into the use and impact of tobacco in residential care settings and highlights ways that children in care may be discouraged from taking up smoking and supported in quitting.

This introductory chapter, provides a background to this thesis, explaining why I chose tobacco use among LAC as the focus of this research, and why research on this topic can be considered timely. I also provide an outline of the structure of the thesis, as it differs in some ways from more traditional

structures, partly because it has multiple foci. It not only incorporates the use of tobacco in residential units, but also the factors that influence smoking in those settings, and intervention development. By briefly explaining the structure of this thesis, I hope to offer the reader some signposts of what to expect in the following chapters.

1.1 Why this research is important

According to the World Health Organisation's (WHO) Global Report on Trends in Prevalence of Tobacco Smoke 2015, smoking is the most common preventable cause of death worldwide, costing the lives of an estimated six million people each year.[1] This estimate includes the 600,000 people who die each year as a result of exposure to second-hand smoke.[1] In England, during 2015 an estimated 78,000 adults aged 35 years and older died as a result of smoking and according to data issued by Hospital Episode Statistics 474,600 adults were admitted to hospital for conditions attributable to smoking.[2] Smoking-related illness in England is estimated to cost the NHS £5.17 billion each year.[3]

Large disparities in smoking status are found across groups based on age and socioeconomic status.[2,4-6] Smoking prevalence tends to be higher among populations with lower socioeconomic status, and the odds of being a smoker among the most deprived groups (those with low levels of education, manual occupations, and low incomes) is three times greater than among the most affluent groups.[7-9] In response to this, the UK government has developed tobacco control policies which aim to reduce health inequalities.[10,11] In principle these policies are neo-liberal, promoting the role of the individual in adopting responsibility for their health.[12] However, such approaches are criticised for neglecting the social, cultural, and economic determinants that are associated with behaviour.[13] As a researcher, I believe that although tobacco control policies are important in addressing the behavioural antecedents of health in the general population, they are limited in their ability to impact the

behaviours of disadvantaged populations. Therefore, a need exists to develop tailored interventions to support tobacco control strategies which take into consideration both the individual and the wider context.

1.2 Motivation and background for this research

My interests lie in health services research and implementation science and I am keen to develop interventions to assist individuals to improve their health. I have experience of working in tobacco control research, in particular, the development of complex interventions to address tobacco dependence among vulnerable populations. My motivation to undertake this PhD stemmed from research to develop tailored smoking cessation support for young people accessing Child and Adolescent Mental Health Services (CAMHS), and the increased prevalence identified among LAC, especially those living in residential units. I defined the research topic 'tobacco use in residential units for LAC' applied for and was awarded a funded studentship within the UK Centre for Tobacco and Alcohol Studies in the Division of Epidemiology and Public Health at the University of Nottingham.

Through research I conducted within a Child and Adolescent Mental Health Service which aimed to develop tailored smoking cessation support for young people, I became aware of the high numbers of LAC who smoked and the challenges encountered in promoting and supporting quitting. For the purposes of this thesis, LAC are children who have been placed in the care of local authorities by the courts. The number of children in care is now at its highest level since 1985 and it is expected to continue to rise[14]. The UK government and local authorities have a parental responsibility for the health and well-being of LAC. Yet, for some time it has been of concern that children in care have some of the worst health outcomes of any group.[15-17] Children and young people are correctly identified as a target for health promotion; their age means that there is time to prevent harmful behaviours and attitudes from developing, and to help them to

develop and establish patterns for managing life-long health. However, due to a variety of reasons, for many years health services have struggled to meet the health and health information needs of LAC.

Smoking among LAC in the UK substantially exceeds that reported among youth aged 11 to 15 years in the general population (8%), with 32% of all LAC aged 11 to 17 years, and 69% of those accommodated in residential units reporting current smoking.[2,18] Despite sustained policy efforts to improve outcomes for LAC and national tobacco control strategies for LAC limited research indicates tobacco use by LAC accommodated in residential units remains unaddressed.[19-22] In fact, smoking adds to the disparity this already disadvantaged population experiences.

Initially, the focus of this thesis was to understand the factors that influence the use of tobacco in residential units LAC. However, during preliminary conversations with local authority stakeholders, it was suggested that recruitment of individual councils and residential units would be facilitated if the research resulted in a "meaningful" and "practical" outcome, which could be used in practice. Thus, in the spirit of reciprocity, the initial research design was amended to include an additional study, which would develop components of an intervention which once operationalised would address the use of tobacco in residential units.

1.3 Organisation of the thesis

Conducting research on health behaviours such as smoking requires a multi-disciplinary approach. Thus, such an approach is used throughout this thesis and evidence from many disciplines, such as tobacco control, epidemiology, public health and health promotion is drawn upon. Given the scarcity of literature concerning LAC and smoking, the tobacco-related literature will be supplemented by research relevant to disciplines associated with the children in care, including psychology, social work,

psychiatry, and social policy. The quality of this thesis has been enhanced through the use of evidence from multiple approaches, rather than relying on individual disciplines. However, navigating, interpreting, and synthesising the findings of many different research disciplines required a substantial level of understanding about the various methodologies and analytical techniques.

The thesis is organised into nine chapters. This introductory chapter has sought to justify the conduct of the research. The literature review in Chapter Two highlights how the inequality experienced by LAC is intensified by tobacco smoking. First, information on the care population and residential units for LAC is provided and research concerning the use of tobacco among vulnerable youth populations is described. A description of UK tobacco control policies and public health interventions relevant to youth is also provided. Smoking cessation services are an important support used by the UK government to assist all smokers to quit and therefore a detailed overview is given about the use of such services by young people. A key focus of Chapter Two is to explore in detail what factors may influence the use of tobacco by LAC. The aims and objectives of the research are also presented.

In Chapter Three, the theoretical frameworks that contribute to the development of a proposed intervention to address tobacco use in residential units are detailed. Firstly I outline the overarching Medical Research Council (MRC) framework. I then explain how additional theory is utilised in the design of an evidence- and theory-based intervention. The methodological approach and methods are highlighted and explained in Chapter Four. I outline how the pragmatic, multiple methods approach used throughout this thesis best addressed the research questions. In this chapter, I also explain how the research was designed and explore any changes that became necessary during the recruitment of participants. Finally, I describe and reflect upon the ethical and practical issues related to the conduct of research in the context of children's social care. In

Chapter Five, I present a narrative review of the published literature describing interventions targeting lifestyle behaviours LAC accommodated in residential units in the UK and implementation issues relevant to this setting and population.

Chapters Six, Seven, and Eight describe primary research conducted in the context of this work. In Chapter Six, I evaluate the extent to which residentially accommodated young people are identified and treated for tobacco dependence using statutory health assessment documentation. The characteristics of young people who smoke are also identified. Chapter Seven explores the use and impact of tobacco in residential units from the perspective of residential carers along with an investigation of carer knowledge, attitudes, and practice related to addressing smoking and supporting cessation among LAC. In Chapter Eight, I describe the development of an intervention to address smoking in residential units. First, I determine those factors influencing the use of tobacco in residential units, based on findings from previous chapters. Next, behaviours to target with an intervention were identified and prioritised by stakeholders and implementation issues considered. Finally, I carried out a component mapping exercise to determine the function and modes of delivery of interventional components. I conclude Chapter Eight with a description of the proposed intervention.

I end this thesis with Chapter Nine. The purpose of this chapter is to integrate the research as a whole and examine the key findings of the thesis in light of wider research. In addition, I consider the contribution of this research and highlight implications for related policy, practice, and research. I also suggest steps to extend the current work and discuss the practicalities of conducting similar research.

Chapter Two: Looked-after children, smoking, and smoking cessation

In this chapter, I introduce the importance of this thesis by illustrating how the inequality experienced by LAC is intensified by tobacco smoking. Firstly, I will show how increased rates of smoking among LAC, particularly those accommodated in residential units, are unchallenged and unaddressed by corporate parents. Next, given the scarcity of published literature concerning the use of tobacco in residential units, a number of gaps in the evidence base are emphasised. In the second part of the chapter, I will highlight LAC as a population vulnerable to inequality and poor health and social outcomes. I then examine, the smoking- and cessation-related behaviour of disadvantaged youth populations, in order to identify factors that may be of relevance to LAC population. I end this chapter with an evaluation of current areas of uncertainty and present the aims and objectives of the thesis.

2.1 Smoking by looked-after children

Tobacco use among LAC in residential units is an almost entirely unexplored topic in the literature, yet it warrants attention given concerns regarding poor health and social outcomes for children in care and care leavers. Smoking prevalence among LAC in the UK substantially exceeds that reported among youth aged 11 to 15 years in the general population (8%), with 32% of all children in care aged 11 to 17 years reporting current smoking.[2,18] Even further increased rates of smoking are observed among LAC diagnosed with mental health problems (51%) and those accommodated in residential units (69%).[18] Reports of never smoking are less frequent among children accommodated in residential units when compared to those living in foster placements (15% versus 41%).[18]

Despite substantial efforts by successive UK governments to improve outcomes for children in care and comprehensive national tobacco control

strategies, underpinned by the Framework Convention on Tobacco Control (FCTC) and the MPOWER package (discussed in Section 2.3.4.1), limited research indicates tobacco use by LAC accommodated in residential units remains unaddressed.[19-22] For example, findings from a single Scottish study conducted in 2007 highlighted a culture within residential units for LAC which promotes tobacco use.[19] The authors also found smoking prevalence among residential care staff to be 36%, and in excess of levels in the general population in Scotland (25%).[19,23] Furthermore, among staff who smoked, the majority claimed to smoke in the outside grounds of the unit and 30% admitted smoking in sight of young people.[19] In an observational study exploring the experiences of LAC living in residential units in England, permissive and sometimes facilitating tobacco-related staff attitudes and practice among residential staff were reported.[20] From a limited evidence base, contradictory findings are reported on the cessation behaviour of children in care. One study reported that over half of smokers desired help to stop smoking, another study found children in residential units to be less likely to report quitting smoking than their foster placed peers (12% compared to 27%).[18,24]

Clear gaps in knowledge relating to the use of tobacco by residentially accommodated LAC have been identified from the limited literature. First, while some studies have documented prevalence, these data were generated over a decade ago. Importantly, no studies have investigated issues such as the extent to which LAC are identified and treated for tobacco dependence, the factors that influence tobacco smoking by children in care, and their engagement with cessation support. Furthermore, just one study has specifically investigated the use of tobacco in residential units and while this study identified a lack of adherence to smoke-free policies, the reasons for granting such exemptions were not explored.[19] The study was conducted in 2006 and as such may misrepresent the status-quo, particularly in light of the implementation of smoke-free laws in 2007 and more recent tobacco control legislation.

Finally, it is likely that smoking among LAC will be influenced by a multitude of factors, many of which will not differ significantly from their peers in the general population, but the importance of these influences, however, is suggested to be greater given their increased vulnerability.[25]

The next two sections of this chapter, therefore, will review the existing literature in relation to LAC and tobacco use and smoking cessation among disadvantaged youth in order to: provide a background to the population and topic under investigation in this thesis; locate LAC in the context of current tobacco control policy; and establish the rationale for the development of an intervention to address tobacco use in residential units for LAC.

2.2 Looked-after children in England

2.2.1 Legal status of looked-after children in England

LAC are defined in Section 22 of the Children's Act 1989 as "*children or young people under the age of 18 who are: a) in local authority care; or provided with accommodation by the local authority under any function of the Children's Act*".[26] Children and young people under the age of 18, may be looked after by local authorities under a number of legal arrangements(Figure 2.1).[26]

Figure 2.1 Legal routes in to care

Section of Children's Act 1989	Order type
Section 20	Parental voluntary agreement
Section 21	Compulsory detention
Section 31	Care order
Section 38	Interim care order
Section 44	Emergency placement order
Section 46	Emergency protection order

The majority of children and young people in the care of local authorities are accommodated on a voluntary basis (Section 21) or under a care order (Section 31).[27] The accommodation of children in care under Section 20 of the Children's Act is underpinned by co-operative working between local authorities, the child, and parents since the courts have not ordered the

child to be looked after. The local authority does not acquire parental responsibility, although they undertake day-to-day responsibility for the child on behalf of the child's parents.

A care order under Section 31 of the Children's Act will be granted by the courts if the child concerned meets the threshold criteria of (1) suffering or likely to suffer significant harm and (2) if the harm is attributable to the care given to that child, or likely to the care given if the order was not made, or not being what it is reasonable to expect a parent to give, or if the child is beyond parental control.[26] Once a care order is granted, the local authority obtains parental responsibility for the concerned child, in addition to other individuals who have parental responsibility.

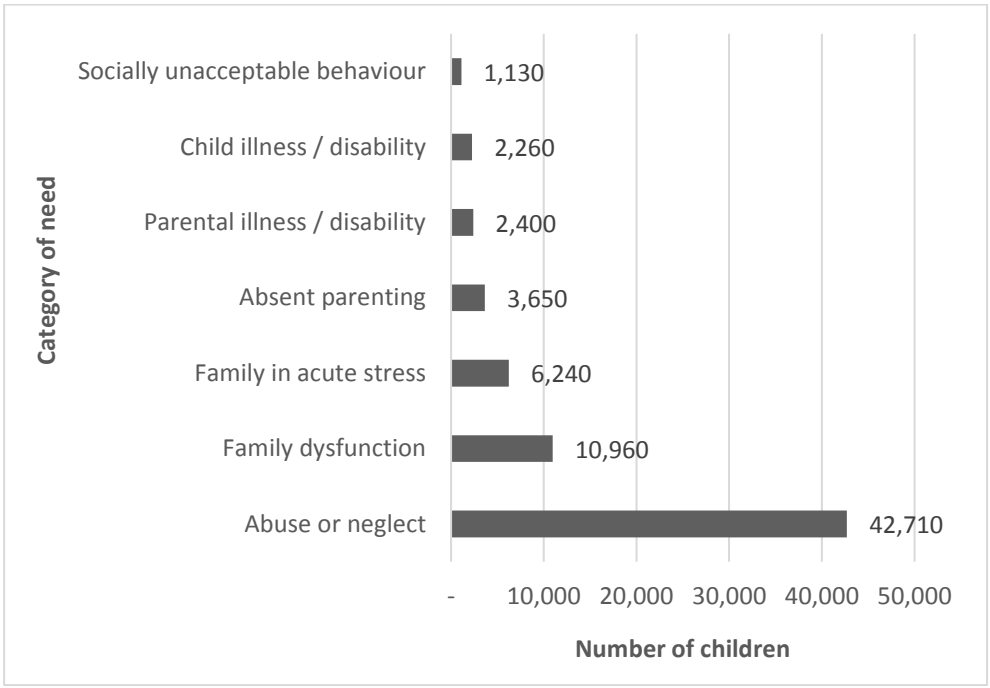
In England, set out by the Children's Act 2004, the term *'Corporate Parent'* refers to the collective responsibility of all individuals and agencies involved with LAC to provide the best possible care and protection and to act in the same way as any 'good parent' would.[26] Individuals within a local authority who have corporate parenting responsibilities include elected members; senior officers in social and educational services; head teachers and teachers; health care professionals; social workers; and foster carers and residential care staff.[28]

2.2.2 Characteristics of looked-after children in England

On 31 March 2015, 69,500 children (60 per 100,00 children) were looked after by the state in England.[27] The number of children in care is currently at its highest level for 20 years, partly due to a rise in the number of children taken into care, following the reporting of the abuse and subsequent death of 'Baby P' in 2007.[14] The majority (61%) of LAC are accommodated under a care order and 28% are looked-after under a voluntary arrangement.[27] Children enter care for a variety of reasons, with many (60%) having experienced abuse and neglect; a proportion that has remained stable over the past five years.[27] Entering care, however, is also associated with relationship breakdowns, and parental or child disability or

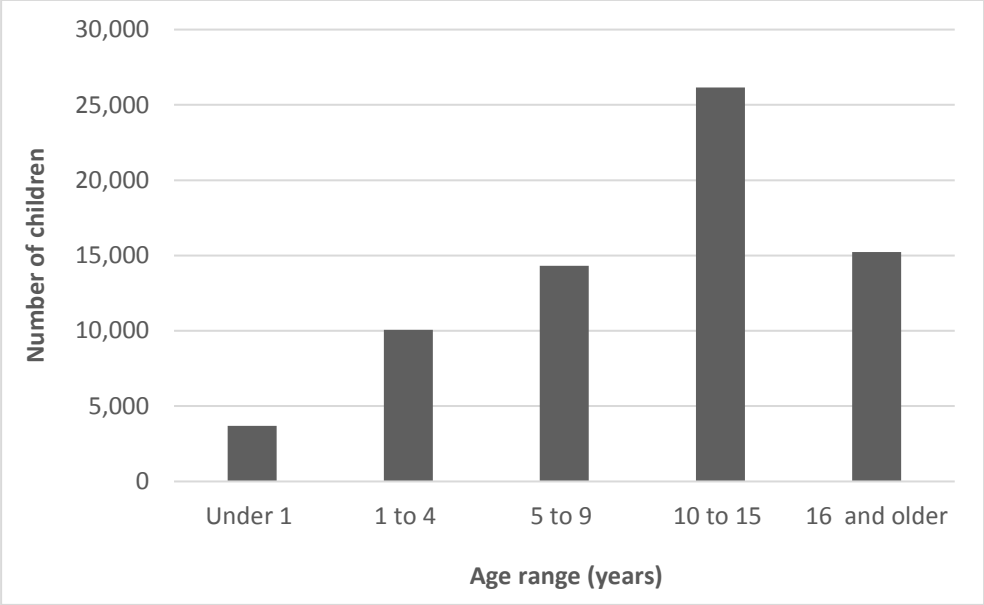
ill health.[27] Figure 2.2 details the category of need (reasons children are taken into care) for the year ending 31 March 2015.

Figure 2.2 Category of need of children entering care in the year ending 31 March 2015, adapted from Children looked after in England including adoption: 2014 to 2015.[27]



Over one-third (37%) of LAC enter care between the ages of ten and 15 (Figure 2.3) and the population comprises slightly more boys (55%) than girls (45%).[27] Almost three-quarters (73%) of LAC identify as White British in ethnic origin.[27]

Figure 2.3 Age ranges of children entering care during the year ending 31 March 2015, adapted from Children looked after in England including adoption: 2014 to 2015.[27]

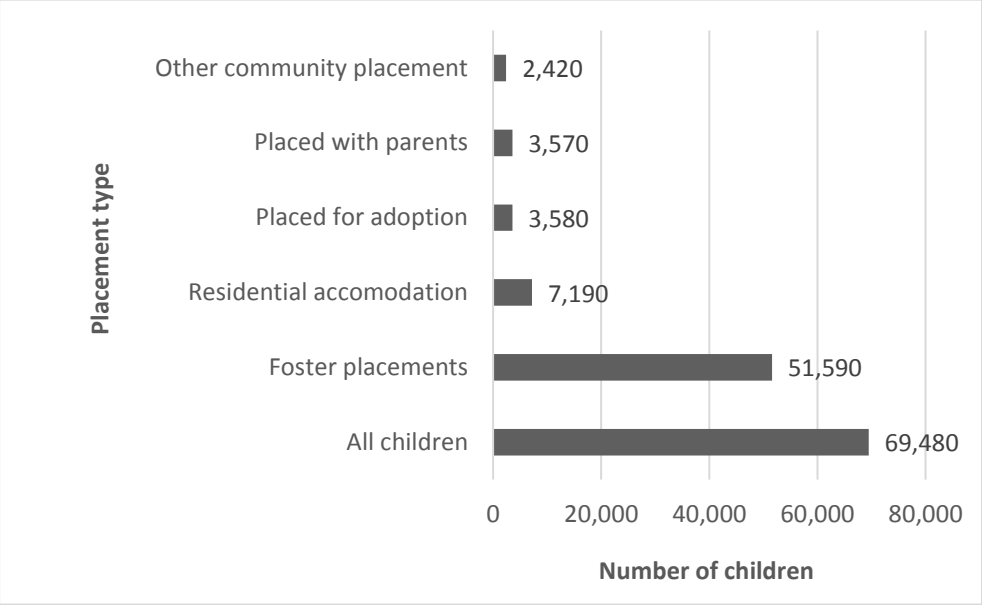


2.2.3 Accommodating looked-after children

A range of placement options are available to local authorities for the accommodation of LAC, depending on needs and the type of placement required.[14] Local authorities may utilise their own or commission private or third-sector operated foster or residential services.[14] Some children in care may also remain in the parental home with social work supervision or where appropriate, may move to semi-independent community accommodation, be accommodated in residential schools, or be detained in secure estates[1]. The main placement types and the numbers of children accommodated are shown in Figure 2.4.

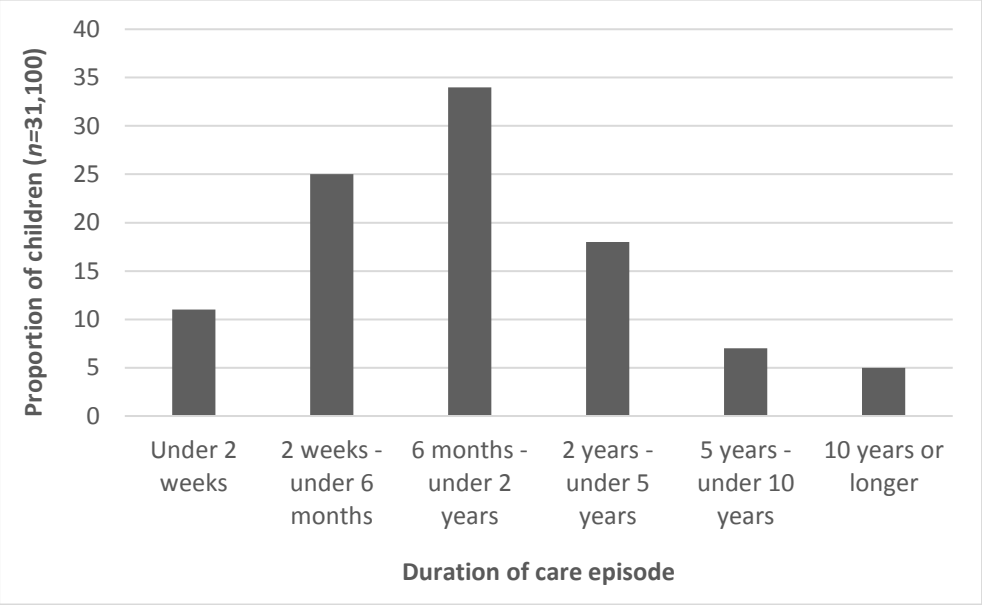
[1] Secure estates are residential units which provide secure care, education, and specialist intervention. The majority of secure estates, are available to the Ministry of Justice for the detention of children and young people.

Figure 2.4 Number of LAC accommodated, by placement type in the year ending 31 March 2015, adapted from Children looked after in England including adoption: 2014 to 2015.[27]



According to statistics released by the Department for Education, the most frequently utilised placement option is foster care which accounted for 74% of placements in 2015.[27] By comparison, just over 10% of LAC were accommodated in residential settings.[27] The data indicate that among the 31,100 children whose care episode ended in 2015, the average duration of being accommodated was 785 days.[27] Figure 2.5 provides further details of the duration of care episodes. Among the children ceasing to be looked after during the year ending 31 March 2015, half were looked after under Section 20 of the Children's Act and approximately one-quarter (7,390) left care on reaching adulthood.[27]

Figure 2.5 Duration of care episode for all placements ceasing during the year ending 31 March 2015, adapted from Children Looked After in England.[27]



2.2.4 Outcomes for looked-after children

A large body of research has investigated the outcomes of LAC across a variety of areas and consistently confirms them to be among the most disadvantaged groups in society.[15] Michael Rutter stated that *"it is quite likely that, for both genetic and environmental reasons, the children are likely to have come into care with an increased vulnerability to risk experiences*".[29] In the UK, there has been an increased focus on the outcomes that services achieve for LAC and at present, comparisons are drawn between those in care and children from the general population in terms of physical health, mental health, lifestyle factors, and education.[30,31] In addition, the collection of such data by outcomes tend to be considered in a linear way (i.e. poor educational outcomes are assumed to reflect educational issues), which leads to interventions and funding being targeted accordingly to address issues within a single service perspective.[30]

This approach is useful in highlighting the looked-after population as vulnerable, however, it is less helpful when considering how best to intervene to influence outcomes for children in care. In spite of the

significant issues that impact the well-being of LAC, it is also clear from the literature that some children make satisfactory or good progress across a range of measures when compared to their peers.[32] It is likely that there may be sub-groups of children who are particularly vulnerable and who skew datasets.[30] The following sub-sections detail findings from the literature in relation to physical and mental health, education, offending, and outcomes for care leavers.

2.2.4.1 Physical health

Meltzer et al., on the findings of an English survey (1,039 participants), carried out in 2002, by the Office for National Statistics (ONS), and which asked carers and parents to rate the general health of the children they cared for, found that children living with foster carers were more likely to have very good health (69%) compared to those living in residential care (41%).[18] These findings are similar to those of Ward and Skuse's report on the study '*Looking After Children: Using Data as Management Information'* which identified that for the period 1 April 1998 to 30 September 2000, slightly over half of all children in care experienced a health problem that required outpatient treatment, with one-quarter experiencing more than one problem requiring treatment.[33] The authors also identified that while rates of asthma were similar to that found in the general population, the incidence of learning disability, epilepsy, and hearing and visual impairment among the sample exceeded that found in the general population.[33] Other research, for example, the ONS survey in England, found that two-thirds of LAC had at least one physical complaint; the most common physical complaints were: eye or eyesight problems (16%); speech and language problems (14%); enuresis (bedwetting) (13%); co-ordination difficulties (10%); and asthma (10%).[18]

In addition to poor health, a number of factors related to the circumstances of LAC mean they are at considerable risk of missing out on routine health surveillance, health care, and health promotion. For example, Williams et al., conducted a case-control study, comparing

children and young people who had been in the care of the Welsh local authorities for at least six months during 1997 and their non-looked-after peers.[34] From a total of 261 interviews (119 controls and 142 children in care), the authors found LAC to be significantly less likely to be fully immunised for their age, less likely to have attended a dentist and more likely to require treatment when they did, than the control group.[34] In a Scottish review, Scott et al., consistently observed among LAC issues including obesity, dental caries, and vision and hearing problems to be higher than those found in the general population.[35] However recent data released on the health of children and young people continually looked after for at least 12 months, showed 88% to be up to date with immunisations, 86% have had a dental check-up, and 90% have received an annual health assessment.[27]

2.2.4.2 Mental health

Mental health difficulties among all children in care are widely reported, with over half suggested to meet the diagnostic criteria for a psychiatric disorder; a rate that is significantly higher than for children raised in birth families and among those families at increased social risk.[17,18,36] A review of the health needs of children in care in a county in the south of England, conducted in 2004 identified emotional and behavioural disorders, depression, and self-harming behaviours to be the most commonly reported.[37] Meanwhile, Butler and Vostanis described the most common reason for LAC to be referred to a NHS Child and Adolescent Mental Health service (CAMHS), in Birmingham as deliberate self-harm and suicidality in the context of depressive disorder and mixed affective-conduct disorders.[37,38]

Meltzer et al. in a 2003 ONS survey of the mental health of LAC identified that two-thirds of children and young people accommodated in residential placements were assessed as experiencing a mental disorder.[18] Children accommodated in residential units were found to be twice as likely as those in foster care to experience emotional disorders (20% compared to

9%) and more likely to report conduct disorders than those living in foster care (56% compared with 33%).[18] Mental health problems were found to be associated with a greater number of placement changes (1.4 compared to 1.0) and shorter placement duration (2.4 compared to 3.0 years).[17] While pre-care experiences contribute to mental health problems among LAC, the risk of mental health problems derives from a wide range of potentially bio-psycho-social factors, which potentially interact with maltreatment experiences.[39] Furthermore, evidence has also shown that experiences of placement instability can both cause and worsen psychological distress and mental health problems, and in the most extreme cases can lead to a cycle of worsening mental health and numerous placement breakdowns, with escalating costs when children become more difficult to place.[40,41]

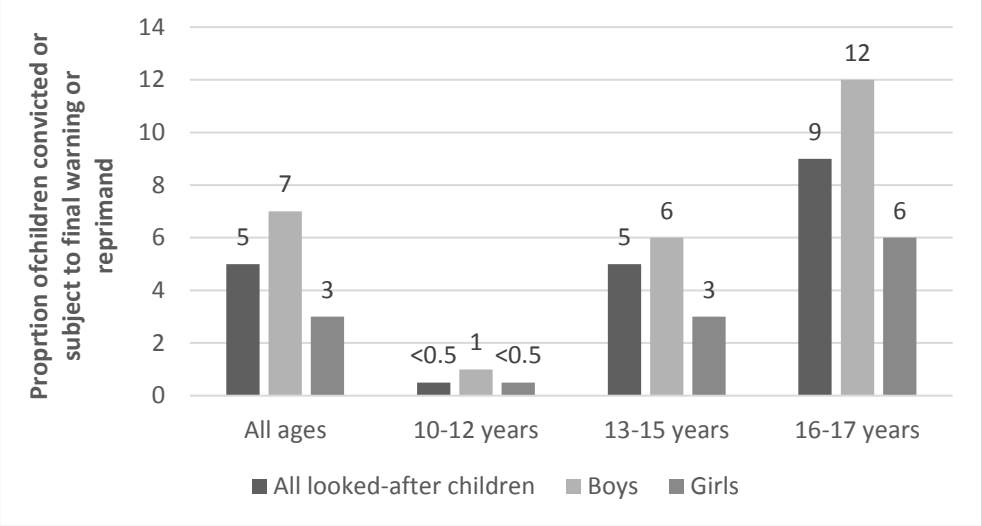
2.2.2.3 Education

The educational attainment of LAC is of longstanding national concern. Statistics for the year ending 31 March 2015, report that just 14% of children in care achieved five or more General Certificate of Secondary Education (GCSE's) qualifications, including English and Maths, compared to 53% of their non-looked after peers.[42] Additionally, special educational needs are more frequently reported among LAC than all children (61% compared to 15%) and LAC are twice as likely to be permanently excluded from school and ten times as likely to receive a fixed-term exclusion.[42] However, the length of time children spent in care was identified by Sebba et al., in a 2015 report on the educational outcomes of LAC in England, to be a protective factor, with early entry and longer care durations associated with consistently better educational outcomes.[43] Despite this, the positive effects of care on educational outcome were not found among younger (those aged 0-5 years) first-time entrants and those who had re-entered care by age 14 to 16 years.[43] In qualitative data from the same study, LAC reported the overall beneficial effect of care on education.[43]

2.2.2.4 Offending

Data released by the Ministry of Justice and published by the Department for Education for the year ending 31 March 2015, identified that among LAC aged ten to 17 years (*n*=31,820), 5% had been convicted or subject to a final warning or reprimand during the year.[27] While comparable figures for all children of the same age range are not available for 2015, data released in the previous years (2013 and 2014) shows that just 1% of children in the general population were convicted or subject to a final warning or reprimand.[27] As Figure 2.6 shows rates of offending are higher among older LAC and boys.

Figure 2.6 Rates of offending among LAC, by age and gender during the year ending 31 March 2015, adapted from Children Looked After in England including adoption: 2014 to 2015.[27]



Many of the factors associated with entry into care are also associated with offending behaviour.[44] Examples include: coming from disadvantaged neighbourhoods; poor housing; low parental income; parental neglect; family conflict and disruption; low school achievement; truancy; and conduct disorder.[45] While these factors may not result in a child being admitted into care, in some circumstances criminal behaviour may result in a young person being taken into care, and conversely being taken into care may 'intensify', create, or promote criminal behaviour.[46,47] However,

Darker et al. in a longitudinal study of offending by LAC found no evidence that care promoted criminal behaviours.[45] Rather the authors suggest that factors such as drug misuse, truancy, or conduct problems significantly contribute to offending by LAC and that such behaviours, are likely to have become entrenched prior to entry into care, and which increase the possibility of exclusion from education; which its self is a well-known factor in increasing the likelihood of offending.[45]

2.2.2.5 Care Leavers

Among people with histories of care, a variety of adverse social outcomes are reported. Recent national statistics released on the outcomes of 26,330 former care leavers (age 19, 20, or 21 years) who had entered care after the age of 14 and whose care episode had ended after the age of 16, found 39% were not in education, employment, or training.[27] Indeed, just 6% of care leavers attend university, compared to just over 50% of young people in the general population.[27] Care leavers were also found to have poorer employment prospects and health outcomes, and are over-represented in the homeless and prison populations.[48] Other authors have identified adverse outcomes in relation to substance misuse, a risk of early pregnancy, and poor sexual health when compared to peers who have not been looked after.[49-51]

2.2.2.6 Factors influencing health outcomes for looked-after children

Children become looked-after for a variety of reasons, with the majority being admitted to care due to a complex interplay of vulnerabilities arising from the child's needs and the parent's ability to meet these needs.[52] The local authority manages the rights and duties of care invested in them by the state by dividing and distributing them among various groups of individuals with a responsibility for the individual child or young person, including birth parents, foster carers, residential carers, social workers, and managers.[53] The organisational context, in which the local authority manages the duty of care invested in them by the state and its division of

responsibility between birth and corporate parents, in conjunction with local commissioning priorities and available resources results in variations in the type and quality of care provided to LAC, both within and between local authorities.[54]

Coming from a background of disadvantage predicts a higher prevalence of chronic poor health.[17,55,56] However, for LAC several other potential reasons for this disparity exist, including rapid and often frequent changes of caregivers and poor communication between carers; frequent changes in location that result in the disruption of community services such as primary or mental health care or school-based health promotion.[34,57] Furthermore, each time a child joins a new placement, a period of time is required for carers to 'get to know' the young person and appreciate their needs, particularly if background information is limited.

When children and young people move to different geographical areas, there is a likelihood of experiencing gaps in treatment or support or having to re-join waiting lists for local services. Frequent placement changes, therefore make access to and consistency of health services problematic for LAC.[58] Moreover, the potential for medical records being lost is increased, leading to longer-term consequences for LAC.[58] Children with incomplete medical histories may be ignorant of the potential for health complications resulting from hereditary conditions or familial predispositions, which may have important implications for both them and any future children they may have.

With most health education taking place in schools, poor school attendance or frequent placement moves mean that many LAC miss opportunities for discussions surrounding health behaviours, contraception, and the likely consequences of risk-taking behaviours, such as the use of drugs, including alcohol and tobacco.[58] Qualitative studies conducted in residential units have identified health promotion information needs among LAC which the young people considered could be

best addressed with written information.[59] In addition, low self-esteem often prevents LAC from caring about the future, and thus makes this population more likely to adopt risky health behaviours.[60]

Research reports the case files of LAC often lack accurate and up-to-date information on health needs and access to health care or health promotion.[58] Ward et al., for example reported limited record keeping of health promotion activities among children in care.[58] Indeed, the compensatory mechanisms, such as annual health assessments which aim protect and promote the health of LAC, frequently demonstrate that health promotion topics are often overlooked by professionals or that discussions of such topics is resented by LAC.[60] Furthermore, processes and practices designed to standardise and improve the recording of health information are not uniformly implemented. Indeed, many social workers do not regard the gathering of routine health information as forming part of their professional practice, rather they consider it to detract from more pressing responsibilities.[58] Ward and Skuse also identified substantial evidence that indicators of poor health are not adequately shared or acknowledged by professionals and these failures, particularly in relation to mental health are often related to the low expectations held about children in care.[58]

For some children entry into care is a welcome relief from abuse or maltreatment; however, for others, it is resisted. These experiential factors influence how LAC engage and interact with carers, social workers, and the support offered.[61] Similarly, family and parental context can influence how children and young people may engage with new parenting environments. For example, Devaney identifies that influence of birth families on LAC may serve to undermine the support that LAC engage with while in care.[62]

Taking a child into care, Biehal and Wade suggest, is an event that can cause a child to experience high anxiety about the well-being of a parent. This anxiety is often compounded when children have experienced a

reversal of roles, for instance taking responsibility for the parent or siblings, and which can result in children and young people engaging in strategies to increase the proximity to their parent (i.e. absconding) or adopting behaviours to escape emotional distress (self-harm, substance use etc.) caused in relation to their ability to influence the welfare of their parent.[63] Furthermore, in residential care settings, the dynamics that occur within and between the carers and children are also noted to influence outcomes.[64] Blower and colleagues conducted interviews with residentially accommodated young people in order to assess mental health needs.[36] The authors found that while LAC felt well cared for, they described how their lives were unusual from general family life and clearly differentiated professional carers from family care.[36] Anxiety among LAC was reported in relation to placement permanence, which was believed to be dependent upon the young people's own efforts (e.g. maintaining good behaviours) and for some young people a fear of abuse while in care meant that close relationships with carers and peers were avoided.[36]

Services for children in care provided by and between wider social-services, health, and CAMHS are known to influence the outcomes for LAC. Callaghan and colleagues described a number of intra-agency factors that can limit LAC's access to CAMHS, including narrow referral criteria, a reluctance to apply labels of pathology to children, placement (in)stability, and poor past experiences with CAMHS.[65] Limited or lacking inter- or intra-agency collaboration can result in children and young people not accessing the services needed in a timely way. Importantly, inter-departmental disagreements were found to hamper children in care's access to services.[53]

2.2.5 Policy relating to the health and well-being of looked-after children

In response to the reportedly poor health and social outcomes among LAC successive governments have sought to minimise the impact of care

experiences and promote health and well-being. A number of key pieces of legislation and guidance set out how local authorities may achieve this aim.

2.2.5.1 Promoting the health and well-being of looked-after children

'*Promoting the health and well-being of LAC: statutory guidance for local authorities, clinical commissioning groups and NHS England*' was issued in March 2015 by the Department for Education and Department of Health.[21] The new guidance reflected the changes to the NHS following reforms under the Health and Social Care Act in 2012, changes in the special educational needs legislative framework, and the cross-governmental strategy to ensure parity between physical and mental health.[21] This statutory guidance stipulates the duty that the responsible local authority, Clinical Commissioning Group (CCG), and NHS England has to ensure the welfare of LAC, including health assessments, education placements, and the planning of services for LAC.[21]

2.2.5.2 Care planning regulations

The care planning regulations set out the duty of local authorities to ensure that LAC are provided with access to appropriate health care services, treatment, and advice on health, personal care, and health promotion issues.[66] As part of this responsibility, local authorities are required to make arrangements for a registered or designated health professional to carry out a statutory health assessment on the child or young person's health status and provide a written report of the assessment.[66]

2.2.5.3 NICE public health guidance 28 (looked-after children and young people)

This guidance focuses on how organisations, professionals, and carers can work collaboratively to ensure that LAC achieve their full potential and enjoy the same life opportunities as their peers.[67]

2.2.5.4 Looked-after children: Knowledge, skills, and competence of healthcare staff

This document was developed in partnership between the Royal College of Nursing, the Royal College of Paediatrics and Child Health, and the Royal College of General Practitioners and provides a framework for healthcare professionals to understand their role and responsibilities in meeting the needs of children in care.[67,68] It details the knowledge, skills, attitudes, and values required to improve the life experiences of LAC.[68]

2.2.6 Statutory health assessments

Statutory guidance issued for local authorities, CCGs, and NHS England on promoting the health and well-being of LAC, first issued in 2009 and subsequently updated in 2015, states that every child should have an initial health assessment on entry into care and periodically depending on age, while in care, carried out by a registered medical professional.[21,69] The initial statutory health assessment should assess and address areas including current health (including physical, emotional, and mental health); health history and development; existing arrangements for healthcare (including routine monitoring, prevention such as vaccination and immunisation); screening for visual or hearing defects; health promotion; any planned changes to arrangements or professionals, or carers.[21] The initial health assessment should also pay attention to any conditions that may be more prevalent among LAC (such as foetal alcohol syndrome or attachment disorders) or which may have otherwise been misdiagnosed.[21]

The statutory health assessment review must be undertaken at least twice yearly for children under five and at least annually for children and young people aged five and older.[21] The statutory guidance places a duty on the responsible local authority to take all reasonable steps to ensure that LAC receive the health care services recommended and as set out in the health plan.[21] The positive benefits of the statutory health assessment for LAC were highlighted by Croft in 2014.[70]

2.2.7 Residential units in England

2.2.7.1 History of residential care

The development of the residential care system in England has been influenced by shifts in ideas regarding the purpose of the system, often driven by scandals and their impact on public opinion.[71] Prior to the Second World War provision for children unable to live with their parents had principally evolved from the 1834 Poor Law.[71] However, the death of a child, Denis O'Neill who had suffered abuse and neglect while in foster care, prompted review and reform of the system.[71] Since this time policy has progressed and regressed between attempts to improve the care system and to prevent children from entering care.[71]

The use of residential care for LAC peaked in the mid-1970, during which time local authorities accommodated approximately 40,000 (40%) children and young people.[20] However, by the mid-1980s the use of residential declined and continues to decline today. While residential units are considered part of a range of services for LAC, foster care is considered to be a placement of first choice.[20] The emphasis placed on foster placements has meant that residential units are increasingly thought of as placements of last resort, used for the care of older children with more significant difficulties, and for those who have experienced often multiple foster placement breakdowns.[20]

2.2.7.2 Types of residential care

The term residential care refers to settings such as specialist or non-specialist residential units, residential schools, secure units, and unregulated residential units and hostels. Figure 2.7 provides a description of the purpose of each type of residential provision.

Figure 2.7 Residential care placement types for LAC

Provision	Description
Residential units	*Provide both short and longer-term care and accommodation for children in care. Children may be placed for a few day or weeks or potentially until reaching the age of 18.*
Specialist disability	*Provide specialised long-term provision that can address care, educational, and health needs, often in one setting.*
Therapeutic	*Provide a participative, group-based approach to treat issues such as mental disorder, attachment disorder, and substance addiction.*
Short-break	*Provide respite care for children with disability.*
Specialist schools	*Provide education and addresses the disabilities and/or social, emotional, psychological and behavioural needs of children.*
Secure units	*Provide care, education, assessment, and therapeutic work. These units are the only residential provision which are legally permitted to prevent a child leaving or absconding.*

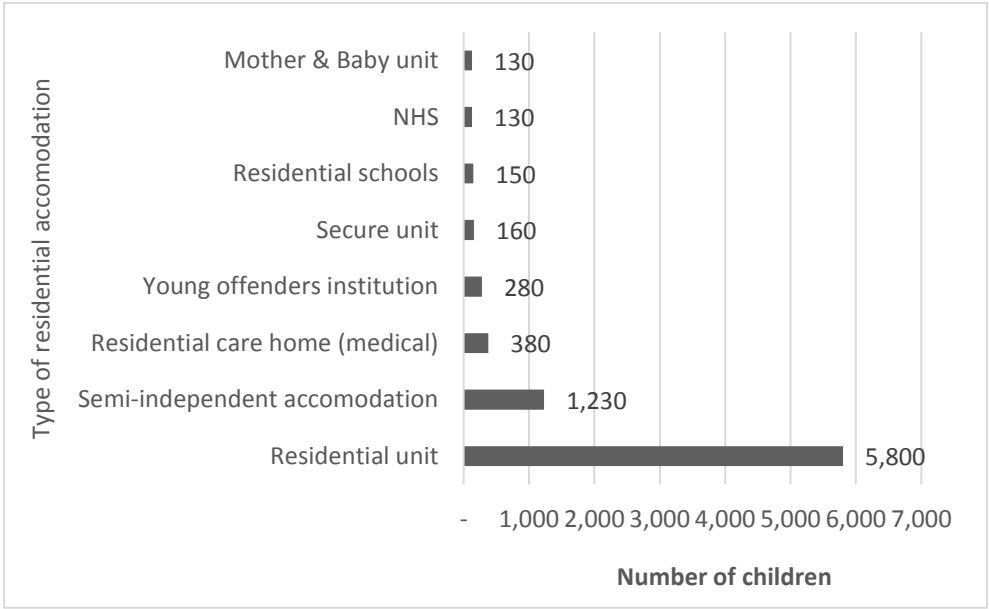
On 31 March 2015, 8,260 children and young people were accommodated in residential settings at an estimated annual cost of £1 billion.[14,27] Figure 2.8 details the numbers of LAC accommodated in each of the different types of residential settings. The work in this thesis focuses on non-specialist (mainstream) residential units.

2.2.7.3 Characteristics of children living in residential units

The most recent statistics released by the Department for Education on residentially accommodated LAC, relate to the year ending 31 March 2014.[72] They show that 5,800 (8%) children were accommodated by local authorities in residential units and the mean age of LAC in these placements was 14.7 years.[72] Furthermore, considerably more boys (64%) were placed in residential units compared to girls (36%) and proportionately boys under the age of 12 are more likely to be placed in residential units than girls of the same age (16% compared to 9%).[72] Mental health problems are frequently reported among residentially accommodated LAC.[18] Ford and colleagues combined the findings of three surveys of LAC in the UK and one survey of children from private

households, and identified that 71% of children in residential care had a diagnosed mental health problem.[17]

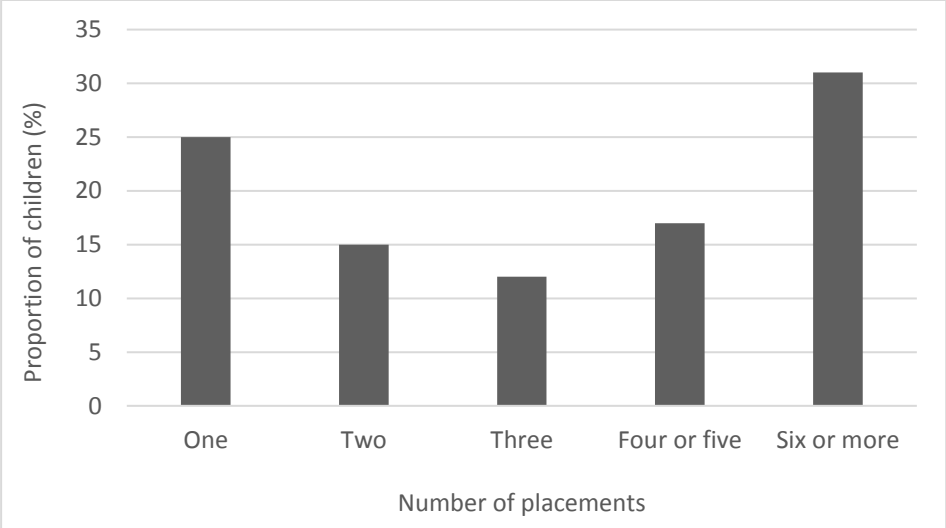
Figure 2.8 Number of children placed in residential accommodation in England, in the year ending 31 March 2015, adapted from Children looked after in England including adoption: 2014 to 2015.[27]



2.2.7.4 Placement stability

Placement instability is known to be more common among young people accommodated in residential settings.[73] Statistics show that among the 38,180 LAC continually accommodated between April 2013 and March 2014, 12% were placed residential units at some point during that period, and for one-quarter of these residential units were their first placement.[72] Among the 4,800 LAC placed in residential units for the whole year (2013-2014), 31% experienced six or more placement moves (Figure 2.9).[72]

Figure 2.9 Number of placement changes experienced by residentially placed children and young people during the year ending 31 March 2014, adapted from the Children's Home Data Pack, 2014.[72]

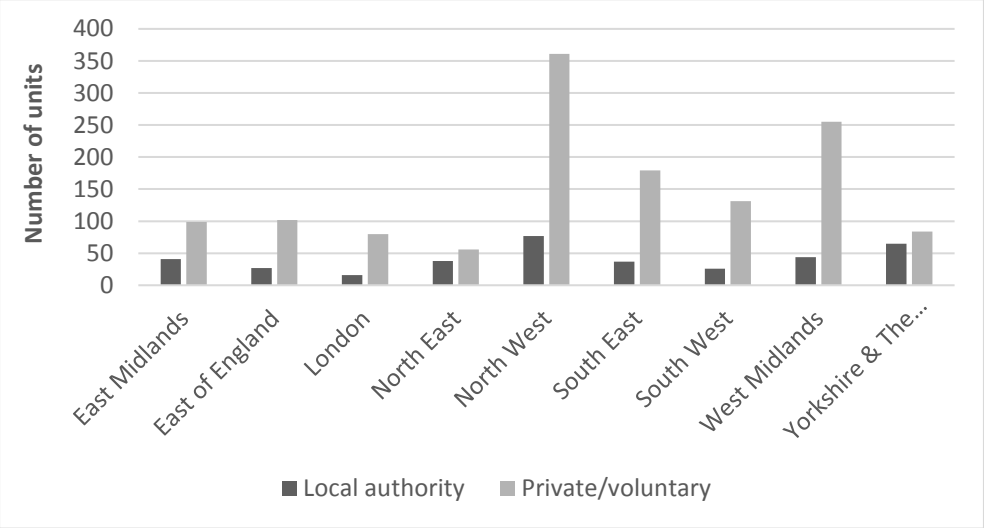


2.2.7.5 Placement providers and costs

The most recently available statistics (for the year ending 31 March 2014) found 1,760 residential units in England were registered with the Office for Standards in Education, Children's Services, and Skills (OFSTED). The data identified that local authorities operated 370 (21%) units, private organisations operated 1,293 (73%), and 97 (6%) were run by voluntary or third sector organisations.[72] During the reporting period residential units were shown to be disproportionately located in certain areas of the country with London having just 5% compared to the North West region that had 25% of the national provision (Figure 2.10).[72]

Residential unit placements for LAC are reported to cost between £1,750 and £6,400 per week with the lowest costs paid by local authorities with block contracts with providers.[74] The Department for Education Children's Homes Data Pack reports that placement costs are comparable across service providers at an average weekly cost of £2,900.[72]

Figure 2.10 Local authority and private residential care provision in England, by region for the year ending 31 March 2014, adapted from the Children's Home Data Pack, 2014.[72]



2.2.7.6 Workforce

Little information is available on the characteristics of the residential care workforce in England. However, a recent census conducted between 2013 and 2014 describes the demography and qualifications of residential carers[2].[75] The findings of the census estimated that 20,000 carers worked across local authority and private residential provision.[75] The majority of the workforce were female and aged between 25 and 54 years and almost all (92%) of the non-managerial staff (Residential Care Officers) reported having achieved a level 3 qualification, half of whom reported completion of the National Vocational Qualification Level 3 in Caring for Children and Young People as prescribed in the Children's Homes Regulation 2001 (amended in 2014).[75,76] The census in agreement with research identified the significant experience of residential carers finding that despite the challenges of working in children's residential care the majority of staff have many years of experience, with one study finding over two-thirds

[2] The term residential carer refers to both the residential unit management team and the staff employed within those units.

working in the sector for six years or more and almost one-third for more than ten years.[25,20]

2.2.7.7 Ensuring quality residential provision

In order for children and young people accommodated in residential care to achieve aspirational and positive outcomes a number of underpinning requirements are placed on those responsible for the operation of residential units.[77] The Children's Home (England) Regulations include nine quality standards which residential units are expected to achieve, with accountability placed with the "registered person".[77]

The registered person may be the registered provider, which in the context of this work would be the local authority representative or the registered manager of the residential unit. The regulations state that residential care should be a positive choice for LAC and when children are placed in residential units it is the best placement to meet their individual needs.[77] The regulations set out nine quality standards, including those relating to health and well-being, the protection of children, and care planning, all of which must be met by all residential units.[77] Each standard contains an overarching, aspirational, and child-focused outcome statement, which includes a set of measurable outcomes which must be met in order for the standard to be achieved.[77] The registration, regulation and inspection of residential units is the responsibility of Ofsted.[14]

2.3 Tobacco smoking and cessation among disadvantaged youth

2.3.1 Smoking as a public health burden

According to the World Health Organisation's Global Report on Trends in Prevalence of Tobacco Smoke 2015, smoking is the most common preventable cause of death worldwide, costing the lives of an estimated six million people each year.[1] This estimate includes the 600,000 people who die each year as a result of exposure to second-hand smoke.[1] Tobacco

smoke is composed of almost 5,000 chemicals and many of them are pharmacologically active and have toxic or carcinogenic effects.[78] Smoking has been linked to the development of cancers (notably that of the lung, head, and neck), respiratory diseases, cardiovascular disease, and other serious health conditions.[78] A strong dose-response relationship has been identified between heavy smoking, duration of smoking, and early uptake of smoking, and higher rates of smoking-related disease and mortality, with conservative estimates suggesting that smoking kills approximately one-half of all persistent users.[79]

Substantial burdens to health result from exposure to environmental tobacco smoke or passive smoking.[80] Passive exposure to tobacco smoke among adults increases the risk of lung cancer, heart disease and exacerbates symptoms of asthma, bronchitis, coughing, and eye irritation.[80,81] Exposure to tobacco smoke during pregnancy as a result of the mothers smoking has a number of impacts on the foetus including an increased risk of prematurity and low birth weight.[82] Among women who do not smoke, exposure to passive smoking during pregnancy means that they are more likely to experience stillbirth or delivery of a child with congenital malformations.[83] Children, in particular, are vulnerable to environmental tobacco smoke and exposure to passive smoking increases the risk of sudden infant death syndrome, lower respiratory tract infections, middle ear disease, asthma and wheeze.[82]

Research commissioned by Action on Smoking and Health (ASH) found loss of work-related productivity due to premature smoking-attributable death, smoking-attributable sick-days, and the cost to businesses of smoking breaks totalled £9 billion, in addition to the societal costs of fire caused by smokers' materials (£391 million) and meeting the £1.1 billion social care costs of older smokers.[84] The personal financial cost to smokers is great. Data from the Office for National Statistics for 2015 identifies that total household expenditure on tobacco products in the UK has nearly trebled to £19.3 billion, from £7 billion in 1985.[2] The average recommended retail

price (as provided by the Tobacco Manufacturers Association) of a typical pack of 20 cigarettes, in 2016 was £9.40. Based on the average reported levels of consumption of eleven cigarettes per day, smokers will spend an average of £5.17 each day, or £36.19 per week, or £125.57 each month, or £1,887.05 per year on cigarettes.

Despite increases in mortality rates dues to the long-term effects of smoking, global prevalence is reportedly in decline, particularly in high-income countries.[75] In the UK the Smoking Tool Kit Study which provides the most-up-to-date prevalence data for England, reports overall smoking prevalence to be 18%, the lowest proportion it has ever been since routine monitoring began, and a dramatic reduction since 1974 when prevalence reportedly reached 46% of the adult population.[2,85] However, large disparities remain across groups based on age and socioeconomic status. The highest prevalence rates in England are found among 25 to 34-year olds (approximately 25%), and for most smoking began in early adolescence.[2,4-6] Smoking is also identified as a major cause of health inequality across socioeconomic gradients.[86] In developed countries smoking prevalence tends to be higher among populations with lower socioeconomic status, and the odds of being a smoker among the most deprived groups (those with low levels of education, manual occupations, and low incomes) is three times greater than among the most affluent groups.[7-9]

Several studies have established the health benefits of quitting smoking. The United States Surgeon General's report, published in 1990, compiled evidence from case-control studies and clinical trials that examined the association between smoking cessation and health outcomes.[87] The report concluded that quitting smoking decreased the risk of many types of cancer, heart attack, stroke, and provided significant benefits for pregnant women and their unborn child.[87] Furthermore, the report of the Surgeon General determined that smoking cessation has large and immediate health benefits for smokers of all ages, and these benefits are apparent for

individuals with and without smoking-related disease.[87] Subsequently other authors have aimed to measure the benefits of quitting smoking. Doll and colleagues calculated the all-cause mortality rates per 1000 men in lifelong cigarette smokers and non-smokers over a 50 year period.[79] Findings showed that among smokers who stopped before the age of 35 survival rates were similar to non-smokers, smokers who quit before the age of 40 gained approximately nine years of life expectancy, smokers who quit at the age of 50 gain about six years, and smokers who quit at age 60 gain at least three years.[79] The authors concluded that the earlier an individual quits, the greater the reduction in mortality from smoking. More recently, Pirie et al. calculated the relative risk of all-cause mortality in later life for former smokers compared with never smokers.[88] The findings indicated that stopping smoking before the age of 40 avoided more than 90% of excess mortality, and stopping smoking before the age of 30 avoided more than 97% of excess mortality.[88]

2.3.2 Trends in smoking among disadvantaged youth

2.3.2.1 Prevalence

Although rates of smoking among young people are now at their lowest levels since 1982 (Figure 2.11), 18% of secondary-school-aged children still report trying smoking at least once and approximately 60,000 (11%) 15–year-olds report regular smoking.[2,89] However, since the smoking data is based on self-reporting, figures are likely to be an underestimate of the true prevalence among children. According to data from the Smoking, Drinking, and Drug use among young people survey (SDD) for 2014, girls were marginally more likely to smoke regularly than boys (4% compared to 3%) and prevalence increased with age (Figure 2.12).[2] Many of these young people will become nicotine dependent and continue smoking into adulthood and later life.[90-94]. Furthermore, despite reductions in youth smoking prevalence, overall, among some populations, particularly those who experience disadvantage, higher rates of smoking persist.[4,95,96]

Figure 2.11 Rates of smoking by youth aged eleven to 15 years, between 1982 and 2014, adapted from statistics on smoking England, 2016[2].

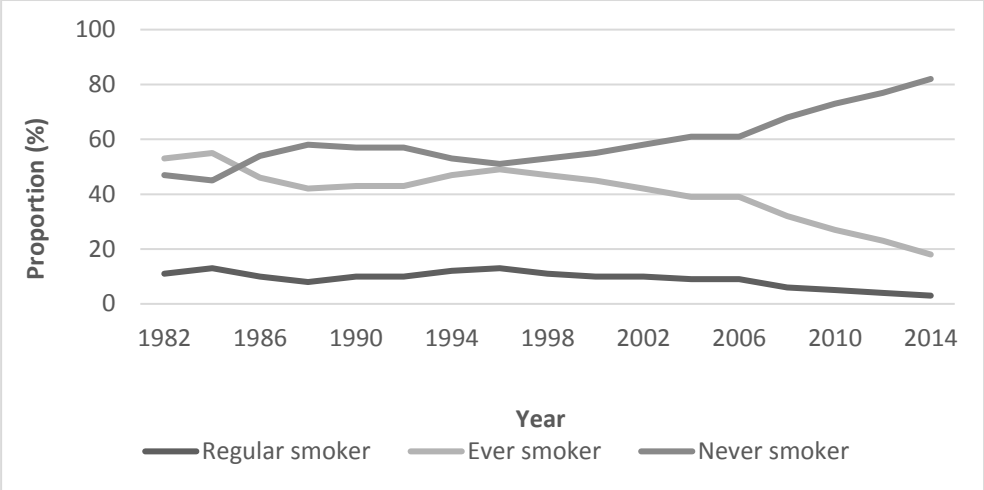
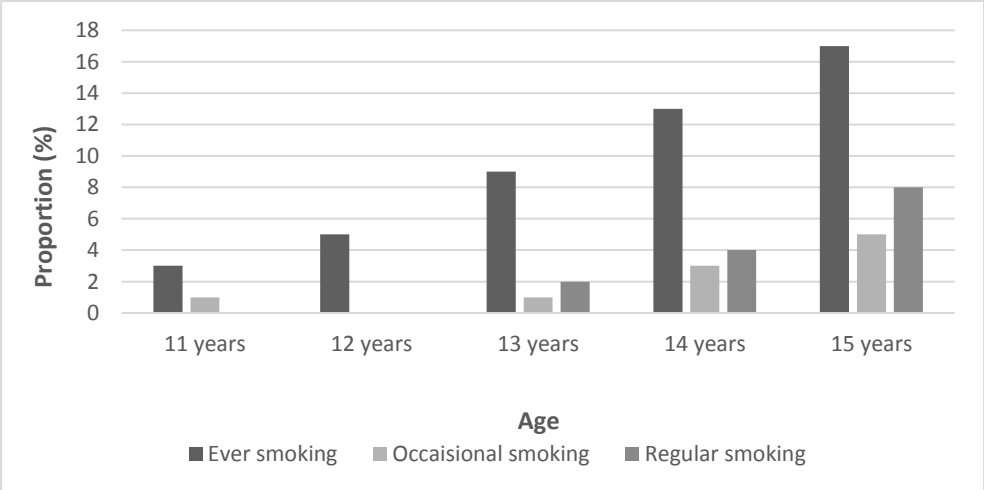


Figure 2.12 Prevalence of ever, occasional, and regular smoking among general population youth in England, by age, adapted from statistics on smoking England, 2016[2].



2.3.2.2 Socioeconomic disadvantage

Smoking is identified as a major cause of health inequality across socioeconomic gradients.[86] In developed countries smoking prevalence tends to be higher in populations with lower socioeconomic status, and the odds of being a smoker among the most deprived groups is three times greater than among the most affluent groups.[7-9] Research has identified that youth with lower socioeconomic status are more likely to start

smoking earlier, progress to regular smoking, have higher levels of tobacco consumption and dependence, experience the highest burden of smoking-related disease, and face greater barriers to quitting.[97] Hanson and Chen, identified the association between smoking and socioeconomic status to be greatest among youth cohorts; with ten of the 12 studies that reported on smoking prevalence by socioeconomic status among ten to 14-year-olds finding significantly higher prevalence rates in lower status groups.[98]

Authors report a number of factors associated with an increased risk of smoking including childhood disadvantage, living in low-income neighbourhoods, mental illness, homelessness, and being incarcerated.[25,96,99-101] Associations between health behaviours (including smoking) and poverty also arise from both the direct effects of poverty on health behaviour and lower access to education and information.[102] Furthermore, individuals who can least afford to smoke start smoking earlier, have the highest levels of tobacco consumption and dependence, are less likely to quit smoking, experience the highest burden of smoking-related disease, and have a tendency to perceive the value of future losses to be less.[97,102,103] Indeed, a study investigating smoking initiation, progression, and cessation in relation to socioeconomic status found that parental socioeconomic status in childhood was a predictor of smoking behaviour and status in adulthood, and had a significant influence on smoking progression and cessation.[104] While authors have identified a socioeconomic gradient in daily tobacco smoking, it could not be found in non-daily smoking since the latter is equally frequent among people with both low and high socioeconomic status.[105]

2.3.2.3 Mental health and psychological well-being

The links between smoking and mental health problems are complex and include a multitude of neurobiological, genetic and psychosocial factors.[106] Studies have linked depressive disorders, anxiety, behavioural disorders, and attention deficit and hyperactivity disorder with an increased

likelihood of smoking initiation, greater levels of tobacco consumption, and earlier onset of smoking among adolescents.[107-111]

Smoking among young people with mental health problems, especially emotional and behavioural disorders is, common. Data from the 2004 Child and Adolescent Mental Health Survey of Great Britain identified regular smoking among 19% of young people with an emotional disorder, 30% of young people diagnosed with conduct disorder, and 15% of those with a hyperkinetic disorder, compared to smoking prevalence of approximately 6% among young people without these disorders.[25] Young people with Attention Deficit Hyperactivity Disorder (ADHD) are more likely to smoke regularly, with a reported prevalence of 41% for current smoking and 69% for lifetime smoking.[112] Authors have also reported that young people with ADHD will have initiated smoking at a younger age, with a quarter starting to smoke before the age of 15, compared to 9% of their peers without ADHD and to experience more severe nicotine dependence.[113 112] Findings from an Australian national survey of child and adolescent mental health, published in 2010 identified that 72% of young people with conduct disorder, 46% of young people with depressive disorders had smoked in the previous 30 days, in comparison to 21% of young people without these disorders.[114] In studies among young people accessing inpatient treatment for mental disorder Ramsey and colleagues identified rates of current smoking to reach 60%, with 40% of young people reporting smoking a pack a day.[115] While Upadyaya et al. identified rates of smoking among inpatient youth to be 40%, with males equally as likely to smoke as females (34% and 44%).[116] Conduct and depressive disorders were most frequently associated with smoking with odds ratios of 12.9 and 4.0 respectively.[116]

Although many smokers with mental disorder are as motivated to quit as the general population, most continue smoking, often due to misattributed psychological benefits.[117,118] Both quantitative and qualitative research indicates that regular smokers (with or without mental disorders) report

smoking to relieve emotional distress and feelings of depression and anxiety, to stabilise mood, and for the purposes of relaxation and relieving stress.[119-121] Moreover, prospective studies have revealed tobacco use to increase depressive symptoms and to be a strong predictor of suicidal behaviour in patients even after controlling for depressive symptoms, substance (mis)use, and previous suicidal behaviour.[122-124]

While smokers may perceive benefits to their mental health from smoking, there is an association between smoking and poor mental health, and smokers with mental disorder are more likely to be heavier and more dependent smokers.[25] Three broad explanations have been proposed to explain these associations, these are: a) smoking and mental disorder may have common causes; b) people with mental disorder smoke to regulate mood and anxiety, and c) smoking may cause or exacerbate mental disorders.[125-127] In addition, the components of tobacco smoke complicate pharmacological treatment of mental disorders by increasing the metabolism of some antipsychotic and antidepressant medication.[128]

2.3.3 Reasons for tobacco smoking among youth

2.3.3.1 Nicotine addiction

There are various reasons that attract and motivate young people to start smoking, and research has identified that the addictive nature of nicotine rapidly leads to tobacco dependence.[90,103] Individuals who begin smoking tobacco in late childhood and adolescence become addicted to nicotine rapidly.[90] In fact, research has found that eleven to 16-year olds show signs of addiction within four weeks of starting to smoke, and the younger a smoker begins smoking the greater the risk of developing habitual tobacco use.[91-94] Through the inhalation of tobacco smoke, the pharmacological mechanisms of nicotine reinforce smoking early on, with the first symptoms of nicotine dependence occurring before the onset of daily smoking and within weeks of the initial onset of occasional smoking.[90,129] Repeated smoking substantially increases the release of

dopamine in the nucleus accumbens causing conditioned learning, which associates the effects of nicotine with environmental cues and with the tobacco smoke inhaled by the smoker.[130,131] It is the association of these neurological responses to cues that are considered to be the main reason why smokers continue to smoke.[103] Nicotine is among the most addictive of drugs and epidemiological research has identified that of all people who initiate tobacco use, approximately one-third (32%) will become addicted. This is a much higher rate of addiction than is found among users of heroin (23%), cocaine (17%), and alcohol (15%).[131,132]

Neurodevelopmental changes in the brain of adolescents make young people susceptible to engagement in risky behaviours, including smoking.[133] For instance, authors have suggested that heightened emotional states caused by the maturation of areas of the brain concerned with the processing of social and emotional stimuli, and reward have significant effects on reward sensitivity and feedback.[133-135] While other authors consider that the immaturity of the brain in adolescents increases the susceptibility of young people to the effects of nicotine and their beliefs about their ability to control their use of tobacco, believing it to be a social or discretionary habit.[136-138]

2.3.3.2 Tobacco dependence

While not strongly associated with smoking-related disease, nicotine is the psychoactive drug that is responsible for tobacco dependence.[130] The WHO International statistical classification of diseases and related health problems– version 10 (ICD-10) and the American Psychiatric Association Statistical Manual of Mental Disorder (DSM-IV) provide the most widely used criteria for legal and illicit drug dependence.[139-141] Tobacco dependence is defined by the ICD-10 as "*a cluster of behavioural, cognitive, and physiological phenomena that develop after repeated use and typically including a strong desire to smoke, difficulty in controlling its use, persisting in its use despite harmful consequences, increased tolerance to nicotine,*

and physical withdrawal state".[141] The criteria and its relation to nicotine addiction are shown in Figure 2.13.

Figure 2.13 Criteria for substance dependence syndromes and its application to nicotine addiction, adapted from Royal College of Physicians Tobacco Advisory Group.[130]

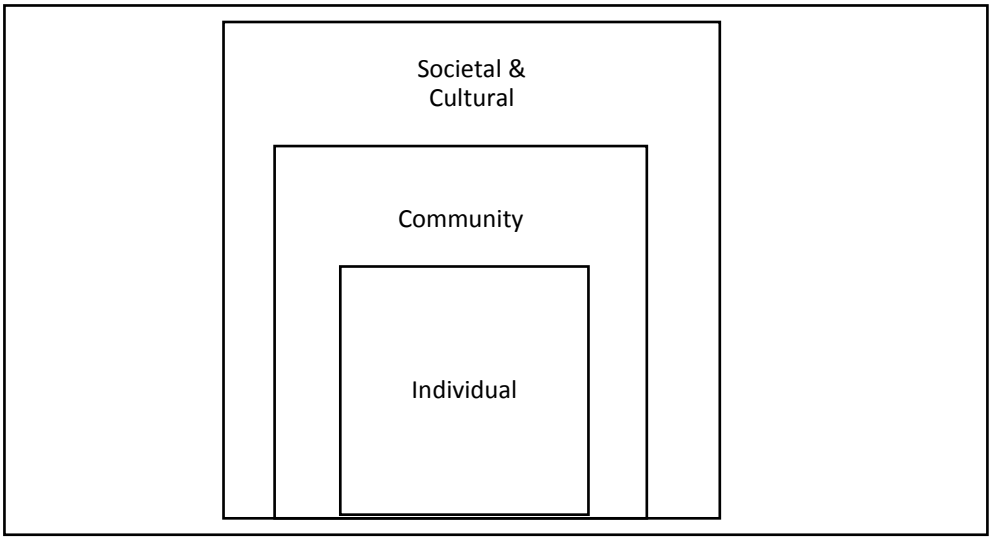
Criteria for substance dependence	Potential application to nicotine dependence
A markedly diminished effect with continued use of the same amount of the substance (tolerance). Greater amounts are required to achieve the desired effect.	Absence of nausea and dizziness with continued smoking.
Blood or tissue concentrations of the substance decline, producing unpleasant symptoms (withdrawal). The individual is likely to take the substance to avoid or relieve symptoms.	Cessation of nicotine use may result in symptoms of nicotine withdrawal syndrome.
Use of the substance in larger quantities, or over a longer period of time than originally planned.	Smokers may consume their nicotine supplies faster than intended.
Many unsuccessful attempts to stop or reduce usage.	35% of smokers may try to stop each year, less than 5% are successful unaided.
A great deal of time spent obtaining, using, or recovering from the effects of the substance.	For example chain smoking.
Use of substance interferes with important social, occupational, or recreational activities.	Smokers may avoid activities which occur in a smoking-restricted environment.
Continued use of the substance despite recognition of the physiological or psychological problems arising from its use.	An individual may continue to smoke despite having tobacco induced or a general medical condition (e.g. COPD or asthma).

A report by the Royal College of Physicians published in 2000, concluded that nicotine contained in, and delivered through tobacco smoking fulfilled the existing criterion of an addictive substance and in common with other addictive drugs, abrupt cessation of smoking produces a withdrawal syndrome.[130] The symptoms of withdrawal include irritability, anxiety, nervousness, restlessness, dysphoria, difficulty concentrating, cravings, and sleep disturbances.[142]

2.3.3.3 Psychosocial influences

Research evidence suggests that young people first start smoking for a variety of reasons and across a number of social levels.[4,103] The differing influences on what attracts young people to smoking were reviewed by Amos et al.[4] The study undertook a review of young people's smoking behaviour and classified three levels of influence on tobacco initiation and its continued use (shown in Figure 2.14).

Figure 2.14 Levels of factors associated with smoking in youth, adapted from Amos et al.[4]



The three levels, include individual factors (age, gender, socioeconomic status, ethnicity, educational attainment, money, attitudes and beliefs, knowledge, self-image, and identity); social and community factors (peer groups, friends, school, parenting style; parents, and neighbourhood); and societal and cultural factors (social attitudes and norms, access, mass media, price, media campaigns, tobacco promotion and marketing, and social disadvantage).[4]

The influence of family structure on youth smoking has been explored in many studies. There is evidence to suggest that two-parent families are protective against smoking.[143,144] While Jarvis suggests young people initiate smoking for psychosocial reasons such as perceiving smoking to be an adult behaviour or a rebellious act.[103] Other authors consider youth coming from backgrounds where smoking is an acceptable or common

behaviour, including having family members or peers who smoke contributes to the initiation of smoking.[145-149] Studies have found smoking uptake to reflect patterns of adult smoking and socioeconomic status, with higher levels of smoking among young people of lower socioeconomic status.[86,98] Indeed, young people in the UK who are entitled to free school meals (under means testing for low income) are more likely to be regular smokers as are early school leavers, compared to those who stay on at school.[4] Furthermore, evidence from the United States and the UK shows how the relationship between socioeconomic status and smoking uptake becomes more apparent when other elements of disadvantage are considered, including social exclusion or racial or ethnic differences.[86]

In a systematic review of qualitative literature relating to smoking among disadvantaged and marginalised young people, Hefler and Chapman highlight ease of access to cigarettes .[150] Youth living in households with low socioeconomic status and who live in deprived areas take up smoking earlier.[98,151,152] The high rates of smoking found in lower socioeconomic areas and high numbers of tobacco retail outlets contribute to the construction of pro-smoking norms which both increase the uptake of smoking and undermine or sabotage quit attempts.[153-156] Furthermore, in less affluent areas, there may be limited opportunities for recreation and activity which may contribute to high smoking prevalence and undermine quit attempts.[157]

Parental smoking status, which is also related to adult socioeconomic status, has been shown to be a predictor of smoking uptake among young people.[4] While Hefler identified that some parents refused to facilitate their children's smoking until they reached legal age, others accepted smoking by children when they reached their early to mid-teens[150]. Young people are reported to acquire tobacco from older siblings, wider family members, parents.[157-159] The authors identified that even when not provided to young people directly, an absence of control and a perceived lack of rules around smoking meant that tobacco easily obtained and used

with impunity.[150] Additionally, the influence of friendship groups in early adolescence is highlighted by West and colleagues particularly at the time of leaving school, when social opportunities and peer groups change.[160]

Youth may also smoke as a mechanism to cope with distress or to negotiate social identity and self-esteem issues.[161-165] For disadvantaged and marginalised youth smoking has been shown to be intrinsically linked to the development and projection of identity and group affiliation.[150] Indeed, authors have reported tobacco to be associated with group bonding and social capital, where it may be otherwise lacking. [157,166,167] Furthermore, disadvantaged youth may also have difficulty in resisting peer-pressure to smoke since more of their peers are likely to smoke, experience behavioural problems and poorer educational performance, or have lower awareness and underestimate of the harms of tobacco smoking.[168]

Successful quit attempts are also influenced by differences in socioeconomic status and multiple disadvantages are likely to reduce the chance of successful cessation.[169] Smokers from lower socioeconomic groups are less likely to quit than more affluent smokers, despite being just as likely to make cessation attempts.[86,170] Factors creating challenges to quitting among less affluent smokers include a lack of support; increased addiction to tobacco; a lack of motivation to quit; lower treatment adherence; life stresses; differences in cognition and perceptions; and the marketing of tobacco. Access to and the format of smoking cessation programmes also influence cessation support seeking by smokers from lower socioeconomic groups.[86]

2.3.3.4 Adverse childhood events

A number of authors have attempted to explore the impact of various types of abuse and maltreatment and tobacco use in adolescence and adulthood. For example Kaplan et al. suggest that smoking initiation may occur as a mechanism for coping with physical abuse directly, with smoking used as a means of addressing the negative psychological effect that may

or may not be related to traumatic childhoods.[171] Significant associations between physical and supervisory neglect and adolescent smoking were identified by Hussey et al.[172] Links between multiple types of trauma and early tobacco use behaviours are reported by several authors. For example, several longitudinal studies have reported that officially recorded childhood maltreatment (neglect, physical and sexual abuse) predicted daily tobacco smoking among young adults.[173,174]

Other authors have concluded that involvement with child protection services is associated with smoking during adolescence. For example, Lewis and colleagues report that children involved with child protection agencies before the age of 12 were more likely to smoke at age 16.[175] Furthermore, the same authors also concluded that a history of maltreatment at age 12 was significantly associated with internalising disorders at age 14, and adolescent smoking at age 16.[175] This suggests that internalising disorders which result from childhood maltreatment significantly account for tobacco use later in adolescence. The associations between tobacco use and histories of sexual and physical abuse in childhood have been studied to a lesser extent. However, findings suggest that these types of abuse either in isolation or when combined significantly increase the likelihood of the onset of smoking behaviour in adolescence.[176] In addition, while the findings of a study carried out by Sapp and Vandeven agreed that smoking may be initiated to help the individual cope with the trauma of the abuse, the authors suggest that continuation of smoking into adulthood is complicated by nicotine addiction and additional stressors in adult life.[177]

Several studies have investigated the relationship between childhood adversity and smoking behaviour in later life. From these studies, it can be concluded that for adults who have experienced multiple adverse events during childhood the likelihood of smoking is higher, with many initiating smoking earlier (before the age of 14), and having greater dependence on tobacco.[178 179] Adverse childhood experiences such as abuse, neglect, or

family dysfunction are identified as influential factors in a number of diseases and health risk behaviours including tobacco use among both young people and adults.[171,172,176,178] Young people who experience multiple episodes and types of maltreatment have also been found to initiate smoking earlier and as having greater levels of nicotine dependence.[173,174,178,179] Research also suggests that simply being in contact with child protection services before the age of twelve was a strong predictor of smoking at the age of 16.[175]

Mental health problems which result from childhood maltreatment were found by Ford and colleagues to significantly account for tobacco use later in adolescence and into adulthood.[175] While Sapp and Vandeven agree that tobacco use among maltreated young people are related agreed that smoking may be initiated to help the individual cope with the trauma of the abuse, the authors suggest that continuation of smoking into adulthood is complicated by nicotine addiction and additional stressors in adult life.[177]

2.3.4 Preventing and addressing youth smoking

Youth are considered a key market for the tobacco industry and as such are a target for intervention. This section will detail UK tobacco control strategies and public health interventions that aim to prevent and address tobacco smoking among young people. It will discuss the impact of such interventions, particularly in relation to disadvantaged youth.

2.3.4.1 Tobacco control in the United Kingdom

Tobacco control strategies in the UK, underpinned by the World Health Organisation Framework Convention on Tobacco Control (FCTC) and the MPOWER package, have been legislated to prevent the uptake of smoking by youth.[11,22] The FCTC came into force in 2005 in response to the global tobacco epidemic and subsequently packaged and promoted six proven measures to reduce the worldwide use of tobacco. [11,22] These proactive measures, known as MPOWER support the specific provision of the FCTC

and comprise: Monitoring tobacco use and prevention policies; protecting people from tobacco smoke; offering help to quit tobacco use; warning about the dangers of tobacco; enforcing bans on tobacco advertising, promotion, and sponsorship; and raising tobacco taxes. [11,22] Examples of these measures utilised in the UK include raising the age at which people could be sold tobacco products from 16 to 18 years in 2007, banning the sale of cigarettes from vending machines in 2011, the removal of point of sale displays in 2013, making it an offence to smoke in a private vehicle carrying children in England and Wales, and plain packaging laws for cigarettes and loose-leaf tobacco in 2016.[180-184] All of these activities aim to educate youth about the risks of smoking, discouraging initiation, and urging young people to quit.

The health-related benefits of smoke-free legislation are clear.[185-188] There is evidence that smoke-free legislation is associated with reductions in hospital admissions and deaths as a result of tobacco-related cardiovascular and respiratory diseases among adults and reductions in exacerbations of asthma requiring hospital treatment and hospital admissions for respiratory tract infection among children.[189-193] Non-health related benefits of smoke-free legislation include changes to social norms regarding the acceptability of the legislation, smoking, and of exposing others to its harmful effects.[194,195] Authors have also suggested that smoke-free legislation may assist in triggering quit attempts and reductions in tobacco use among some smokers, although its effects are not long lasting.[196] Among young people who smoke the legislation appears to have the potential for longer lasting benefits. For instance, in a survey study conducted among young people across the UK, it was identified that smoke-free legislation resulted in a reduced prevalence, but only at a statistically significant level among girls aged 15.[197]

Point of sale displays (PoS) increase the susceptibility of young people to smoking and normalises and promotes the use of tobacco.[198-200] In Australia, the removal of point of sale displays has been shown to

contribute to the denormalisation of smoking and reductions in brand awareness and may prevent young people from attempting to purchase tobacco products.[201,202] Legislation in relation to PoS was applied to all retailers in the UK on 6 April 2015 and the first compliance study conducted found almost all shops had removed permanent tobacco displays.[203] A prospective study conducted in one county in England among secondary school-aged children found that prohibition of PoS displays in large retailers resulted in a decline in recognition of PoS displays in supermarkets, but little or no change was found in uptake or susceptibility to smoking.[204]

In May 2016, the law on the packaging of tobacco products changed in the UK, under the European Union Tobacco Products Directive.[205] A one year sell-through period where old stock branded is permitted to be sold was granted, but from 21 May 2017, all relevant products which are sold in or to the UK must be in the new standardised packaging. At the time of this research (April 2017) legislation on plain packaging of tobacco was not fully implemented in the UK and so it is not possible to explore the impact of this legislation on young people in the UK. However, evidence from Australia, the first country to adopt such a policy indicates that rates of smoking may be reduced in adults and young people.[206,207] It is suggested that reductions may be achieved by reducing the appeal of packs, increasing the visibility and salience of health warnings, and reducing positive perceptions of brand characteristics.[206-209]

As a result of successive taxation, almost 80% of the retail price of a packet of cigarettes in the UK in 2012 consisted of tax.[25] Higher prices reduce tobacco smoking, particularly among the young and lower-income smokers.[210-212] However, dis-incentivising tobacco use through price rises may be undermined by the wide range of brands, offered at varying price points; smaller pack sizes; the lower cost of hand-rolling tobacco; and the availability of illicit tobacco products.[25,213,214]

On 1 October 2015, the Children's and Families Act also made it illegal for adults to purchase or (or try to purchase) tobacco products or electronic cigarettes for a young person under the age of 18. Due to the short amount of time that had passed since this legislation was implemented and the writing of this literature review, it is not possible to estimate its effect. However, laws preventing sales of tobacco to minors have been implemented in the UK and reviews indicate that while strict compliance with legislation by retailers may reduce under-age sales, a number of authors have reported that tobacco is easily obtainable by youth, including by proxy purchases.[167,215,216]

2.3.4.2 Preventative public health interventions

A number of public health strategies have been implemented to prevent the uptake of smoking by youth and to support them to quit. These include school-based interventions, community interventions, and family-based interventions. [217-219] Limited evidence exists in relation to interventions to prevent uptake of tobacco smoking among young people. A Cochrane review undertaken by Carson et al. found some evidence to suggest that at community-level multiple component interventions which utilise context-specific approaches and include the involvement of community members in the planning and implementation of interventions may be effective in preventing smoking among young people.[217] These interventions included educating tobacco retailers about age-restricted sales; mass media; school- and family-based interventions; and programmes to prevent smoking-related disease.[217]

School-based tobacco control programmes have been shown to have limited effectiveness in reducing uptake of smoking in the short term.[219] However, the majority of the published evidence is derived from US studies, and it is unclear if these findings may be applicable to the UK context, where health, education, and tobacco control context differ.[219,220] The evidence indicates that school-based programmes may be effective if they are interactive, include a focus on social influences, are delivered by

adults and are sustained over time.[221] There is also some evidence to suggest school-based programmes that target improvements in young people's emotional and behavioural well-being and change the school environment may also be effective in reducing smoking.[222] Furthermore, school-based health promotion programmes that inform young people about the rate and risks of smoking and teach social and personal skills, such as assertiveness, stress management techniques, and decision making are shown to have limited impact on smoking initiation.[219,220] However, peer-led education programmes, including the UK 'A Stop Smoking In Schools Trial' (ASSIST) study, which aimed to encourage new norms around smoking by training influential Year 8 (age 13-14 years) students to work as 'peer supporters' to informally engage with other Year 8 students about the risks of smoking and the benefits of being smoke-free, have demonstrated reductions in the uptake of smoking among young people in the short term, although further research is required to assess if these effects can be sustained in the longer-term.[223]

A Cochrane Review, conducted by Thomas et al., published in 2015, assessed evidence to determine the effectiveness of interventions designed to assist families in preventing the initiation of smoking among young people.[218] The authors divided the reviewed studies into two groups: those which evaluated family-based interventions alone, compared to a control group. The second group of studies evaluated family-based interventions as an adjunct to school-based prevention studies.[218] The review identified moderate evidence of the effectiveness of family-based interventions alone and suggest these types of intervention may reduce levels of ever smoking among young people by between 16% and 32%.[218] Thomas et al. highlight that a common feature of effective family-based interventions is the encouragement of authoritative parenting and rule setting in a caring and considerate environment. For instance Haggerty et al. used facilitated telephone support to assist parents and young people to work together in the identification and

addressing of family problems.[224] While Spoth et al. provided sessions for parents and children to build parental skills in limit setting and communication about substances, and to strengthen children's pre-social and peer-resistance skills.[225]

Similarly encouraging authoritative parenting was found to be an effective feature of family-based interventions as an adjunct to school-based interventions.[218] For example, Fosco et al. trialled the use of a family resource centre in schools and utilised motivational interviewing to identify family strengths and weaknesses and engagement with parents to improve parenting and promote the uptake of tailored services.[226]

2.3.4.3 Smoking cessation interventions

Interventions to promote and support smoking cessation among adults have a strong evidence base and include mass-media campaigns, advertising bans, taxation and price measures, and smoke-free legislation, as well as interventions delivered or provided by health care professionals or providers.[227,228] However, the evidence in relation to supporting smoking cessation among young people is less clear. For example, Sussman and Sun in an empirical review of 64 youth tobacco cessation studies, published in 2009, suggest that delivering smoking cessation programmes for young people in contexts that are youth-specific, and which addressed cognitive behavioural, motivational and social influence, and which comprised at least five sessions, were most effective.[229]

More recently in an updated Cochrane review, published in 2013, Stanton and Grimshaw found limited evidence of effective smoking cessation interventions for young people.[230] The authors reviewed 28 trials involving 6,000 young people and concluded that complex interventions, particularly those incorporating elements sensitive to stages of change and which utilised motivational enhancement or cognitive behavioural therapy, achieved persistent abstinence in some young people.[230] Furthermore, while a small number of trials were identified as providing evidence on

pharmacological interventions supporting cessation among young people, none demonstrated effectiveness, and some adverse events were reported.[230] Overall, the Stanton and Grimshaw concluded that in light of the limited evidence, recommendations for any one model of smoking cessation intervention targeting youth could not be made.[230]

The motivation for young people to make a quit attempt is intrinsically linked to the meanings that are attached to smoking and the young person's understanding of their smoking behaviour, including perceptions of addiction.[162] For example, McFadyen et al. found in a qualitative study involving older adolescents (17 and 18-year-olds) that not all smokers identify themselves as such, do not consider themselves tobacco-dependent or believed their addiction to be too great.[231] These types of smoker were classified as (a) 'social' smokers – those who smoked intermittently, but who did not identify as smokers, and were not interested in quitting; (b) 'confirmed' smokers who smoked daily, perceiving themselves to be somewhat addicted, and who while potentially interesting in quitting, were content to continue smoking; and finally (c) the 'unhappy' smokers who smoked daily, and who wanted to quit, but felt too dependent on nicotine.[231]

In a review of the qualitative literature on primary care smoking cessation for adolescents in North America, McVea identified a number of barriers to smoking cessation among young people.[232] Barriers identified by primary care clinicians included: whether the young person identifies as a smoker; seeing the young person without a parent, increasing consultation times; perceptions that tobacco was one of the many risk behaviours that doctors should counsel young people on; a lack of clinician training, support staff and materials; and a perception of a lack of effectiveness.[232]

While evidence exists on what reduces adult and to a lesser extent youth smoking, the impact of such interventions on disadvantaged youth is scarce.[151] However, to address this limited evidence base and identify the

type of interventions that may be effective in reducing inequality among youth smokers, Brown and colleagues conducted a narrative synthesis of 38 studies evaluating 40 interventions including policies.[151] The authors found that seven of the interventions targeting young people provided a positive impact for socioeconomic status, while 16 achieved a neutral impact, indicating that they were beneficial for all socioeconomic groups, and 12 were rated as achieving a negative impact; of these four studies achieved mixed results, and in one study the equity impact was unclear.[151]

Comprehensive smoke-free legislation in the UK was identified as resulting in significant declines in second-hand smoke exposure among all primary-school-aged children and reductions in hospital admissions for childhood asthma, across all socioeconomic groups.[151] However, the authors found substantial variation in second-hand smoke exposure, by socioeconomic status, prior to the introduction of legislation, with higher levels of exposure among school children from lower socioeconomic backgrounds and declines exposure were most frequently observed among children with low levels of exposure to second-hand smoke pre-legislation, and who were from more affluent families.[151] A significant socioeconomic gradient in exposure to second-hand smoke indicates a negative equity impact, and in addition to the risks of health, the authors found Welsh data that showed children from low socioeconomic households to perceive smoking by adults to be normative, a perception that was less frequent among children from more affluent backgrounds.[151]

Like the impact of taxation and price on adult smokers with low socioeconomic status, policies provided consistent positive impacts among youth from lower income groups, which suggests that these young people are more responsive to price and taxation increases than their more affluent peers.[151] Potential equity benefits were identified in relation to the strict control of access to tobacco for low socioeconomic status youth, as well as youth in general.[151] Despite small effect sizes, one small study from the United States showed that rigorous state-level age of sale policies

was associated with lower smoking initiation and transition to regular smoking among female adolescents with lower socioeconomic status.[151]

None of the five school-based smoking prevention programmes reviewed by Brown et al. demonstrated an overall positive equity impact.[151] However, the UK ASSIST programme was shown to be effective at 12 months and most effective for girls with low socioeconomic status.[151] The authors additionally note that achieving a positive change in social norms is a longer-term process and it is this that may account for the limited equity impact among the school-based interventions.[151] A lack of evidence meant that Brown and colleagues were unable to draw conclusions in respect of multiple tobacco control policies and advertising controls and the equity impact on disadvantaged youth.[151]

Until recently, limited attention has been paid to the evaluation of behavioural strategies for smoking cessation among disadvantaged populations. In response to this Bryant et al. conducted a systematic review and meta-analysis to assess the effectiveness of behavioural smoking cessation interventions in selected disadvantaged groups, including "at-risk youth".[233] The authors identified six studies which investigated the effects of smoking cessation interventions, and of these four used behavioural support interventions and were combined for meta-analysis.[233] Bryant and colleagues concluded that while not reaching statistical significance (due to small sample sizes), promising effects were observed for the effects of behavioural support intervention among at-risk youth populations.[233]

Treatments to address tobacco dependence among adult smokers with mental disorder are shown to be as effective as in the general population, smoking cessation is associated with improvements in mental health and quality of life, and that cessation is unlikely to exacerbate symptoms of mental disorder and may actually have a therapeutic effect.[234,235] However, few studies have explored the treatment of tobacco dependence

among youth with mental health problems. In a qualitative study exploring smoking and the treatment of tobacco dependence among youth accessing community-based treatment for mental health problems and/or substance misuse, Prochaska et al. found both youth and clinicians identified factors contributing to the use of tobacco to mirror what had been reported among youth without a mental disorder.[161,236] Furthermore, the authors found that clinicians viewed tobacco use a normal developmental process, closely linked with the management of the symptoms of mental disorder, and supported by parents which led to limited attention being given to smoking in clinical practice.[236]

Tobacco smoking was also found to be afforded a lower priority in relation to the use of alcohol and illicit drugs by clinicians.[236] In the UK, Kulkarni and colleagues undertook a survey of mental health professionals and found a lack of awareness and misapprehensions concerning smoking and the treatment of tobacco dependence among young people with mental disorder.[237] While quit attempts were not considered to be detrimental to recovery or the therapeutic relationship by mental health professionals, ambivalence in identifying and addressing tobacco use among patients was reported.[237]

2.3.4.4 Public health guidance to address tobacco dependence

Public health guidance (PH10) and quality standard (QS43) issued by NICE aims to support smokers to quit.[238,239] PH10 recommends that all health professionals should identify and record the smoking status of patients; offer brief advice on the benefits of stopping smoking to smokers at every suitable opportunity; and refer all smokers who express a wish to quit to local NHS smoking cessation services, or if patients decline referral make provide advice and support to help them quit, and provide pharmacotherapy if appropriate.[238] Furthermore, in relation to young smokers aged 12-17 who show a commitment to quitting, offers of information, support, and advice should be made by health professionals and the use of local NHS stop smoking services encouraged, including

providing information on how, when, and where to access them.[238] Professional judgement should also be used to assess whether or not a young person aged over 12 years, with evidence of nicotine dependence should receive an offer of Nicotine Replacement Therapy (NRT).[238]

Both PH10 and QS43 set out a number of standards in relation to smoking cessation. These include: smokers are identified and offered advice on how to quit smoking, people who smoke are referred to local NHS stop smoking services, and people who smoke are offered behavioural support with pharmacotherapy.[239] Two further quality statements relate to the provision of a full course of pharmacotherapy and that people who smoke who have set a quit date with a smoking cessation service are assessed for carbon monoxide levels four weeks after the quit date.[239]

2.3.4.5 Smoking cessation services in England

Stop smoking services aim to provide evidence-based support and smoking cessation medication to smokers who wanted help with quitting, in accordance with clinical practice guidelines.[10] Services are predominantly offered in primary care, pharmacy, and some community settings and provide free, local behavioural support to sustain motivation and abstinence after quitting; provide advice on coping mechanisms and distraction techniques to deal with cravings and withdrawal symptoms, and provide and optimise the use of NRT and/or medication.[240] Evidence shows stop smoking services to be effective, with approximately 14% of users achieving carbon monoxide validated, long-term (12 months) quits and are particularly adept at reaching adult smokers living in areas of deprivation.[241,242] While stop smoking services are cost-effective and may help to reduce socioeconomic inequality in smoking prevalence, their reach is limited, with less than 5% of smokers report using the service.[240,243]

Statistics on NHS stop smoking services (England) for the period April 2016 to March 2017, detailed in Figure 2.15, show that among the 307,507

individuals attending NHS stop smoking services in England and setting a quit date, 5,135 (1.5%) were aged under 18 years of age.[244] Among these young people, 2,136 self-reported a successful quit attempt at four weeks and 1,615 (31.5%) had their quit validated by carbon monoxide measurement. For the remaining young people who set a quit date, 1,468 had not quit smoking and 1,531 were lost to follow-up at four weeks.[244]

Figure 2.15 Individuals attending NHS stop smoking services in England between April 2016 to March 2017and setting a quit date by age range, adapted from Statistic on NHS stop smoking services.[244]

Outcome	**Age in years (number setting quit date *n*=)**					
	All (307,507)	*< 18 (5,135)*	*18-34 (81,543)*	*35-44 (63,295)*	*45-59 (96,283)*	*60 > (61,251)*
Self-reported quit	155,875	2,136	37,323	32,029	49,726	34,661
CO validated quit	112,823	1,615	24,698	23,117	36,970	26,423
Not quit	81,746	1,468	21,898	16,167	25,823	16,390
Lost to follow-up	69,886	1,531	22,322	15,099	20,734	10,200

2.3.4.6 Youth engagement with stop smoking services

With almost all adult smokers beginning to smoke in adolescence, tobacco control efforts for young people have focussed on strategies for preventing uptake of smoking. Little attention has been paid in the design and delivery of services to support young people who smoke to quit. Indeed, a number of challenges are reported with the application of the adult smoking cessation service model to young people.[245,246] For example, Pound and colleagues utilised mixed-methods to investigate how the UK smoking cessation services responded to policy instruction to target priority groups, including young people. The authors found the adaptation of the service to youth to be of low priority, with local services reporting limited interest in and resources to attract young people to the provision.[245]

Challenges with young people's engagement with stop smoking services are widely reported. The authors of a paper describing a process and outcome evaluation of a Scottish youth smoking cessation pilot programme, comprising eight projects found that despite a needs assessment indicating young people were interested in quitting and involvement in the project design, recruitment of young people was challenging and required substantial marketing to promote uptake.[247] Reasons for this related to young people not identifying as smokers and not thinking of themselves as addicted or in need of support.[247] Young people were also reluctant to provide contact details which meant that a considerable number of participants being lost to follow-up.[247] Among the 470 young people recruited across the eight projects, 269 reported making a quit attempt, with 39 achieving a carbon monoxide validated quit at three-month follow-up.[247] The overall quit rate was low (2.4%), with just eleven of the 39 quitters remaining abstinent at 12 months.[247]

The preferences of young people in smoking cessation support have also been explored. While, Leatherdale and McDonald found that among Canadian youth, current evidence-based or conventional approaches for cessation were unacceptable and that appealing stop smoking approaches included quitting along and without support, or utilising the advice of friends.[246] In a mixed-methods study with older adolescents (15 to 19-year-olds), published in 2003, Grimshaw and colleagues found young people's knowledge of local stop smoking services to be lacking and concerns among participants in respect of confidentiality and privacy.[248]

Similarly, MacDonald et al. in their 2007 study, found young people to be unaware of the support that may be offered by the smoking cessation service, and thus were unable to define the attributes of the service that may support them.[249] Young people, aged 13 to 18 years, in this small qualitative study, instead preferred support from family and friends, flexible support (drop sessions for example), access to NRT, and support from outside of the school setting.[249] In a large study using focus group

and survey methods, with young people aged 13 to 16 years, from a random sample of ten schools in Nottinghamshire, Molyneux et al., found among the sample, 20% reported smoking and half of those stated that they wanted to quit.[250] Furthermore, of the sub-sample of smokers, with whom focus groups were conducted, most of the young people were aware of smoking cessation methods since many had unsuccessfully attempted to quit.[250] While this resulted in low perceptions of the effectiveness of cessation methods and strategies, participants did, however, indicate a preference for school-based services, offering confidential support and NRT.[250]

More recently, a study conducted using data from the 2012 smoking, drinking, and drug use among young people survey sought to identify the main sources of smoking cessation support utilised by young people aged eleven to 16 years, in England.[251] The survey highlighted that among current and former smokers, approximately two-thirds of respondents reported the use of one or more sources of cessation support, which seldom included formal provisions such as general practice or NHS smoking cessation services.[251] Rather, respondents utilised advice from their social networks or choosing not to spend time with peers who smoked.[251]

2.3.4.7 Pharmacotherapy for young people

According to current guidance young people under 18 years should not be prescribed varenicline or bupropion, but are able to use NRT from the age of 12. The NRT products licensed for use on prescription or for over the counter purchasing in the UK are summarised in Figure 2.16.[130]

Figure 2.16 Types of NRT licensed in the UK, adapted from Royal College of Physicians Tobacco Advisory Group.[130]

Type	Available dose
Nicotine transdermal patch	*Worn over 16 hours: 5mg, 10mg, 15mg, 25mg* *Worn over 24 hours: 7mg, 14mg, 20mg, 30mg*
Nicotine chewing gum	*2mg and 4mg doses*
Nicotine sublingual tablet	*2mg dose*
Nicotine lozenge	*1mg, 1.5mg, 2mg, and 4mg doses*
Nicotine inhalation cartridge	*15mg dose*
Nicotine metered nasal spray	*0.5mg dose*
Nicotine oral spray	*1mg dose*

The aim of NRT is to reduce the smoker's motivation to smoke and the physiological and psychomotor symptoms of withdrawal, particularly the urge to smoke which lasts approximately ten weeks, and which can lead to relapse.[252,253]

2.3.4.8 Electronic cigarettes

Electronic cigarettes have been available in the UK for approximately a decade and are regulated as consumer products. They use battery power to heat an element to disperse a solution typically containing propylene glycol or glycerine, water, nicotine, and flavourings, through which an aerosol is inhaled by the user. Electronic cigarettes do not contain tobacco, do not produce smoke, and do not rely on combustion. Instead, the "smoke" produced by electronic cigarettes is an aerosol, that is more commonly termed vapour.

Approximately 6% of the English population use electronic cigarettes, the majority of which are current or recently ex-smokers.[254] The most common reasons for electronic cigarette use is to reduce the health risks of smoking, either by abstinence or reducing smoking.[255] Some evidence exists in relation to the use of electronic cigarettes by never smokers, however, it is likely to be experimental use and rarely progresses to regular use.[142] There is currently no evidence for electronic cigarettes

renormalizing or increasing the uptake of smoking among adults or young people.[255,256] Instead, evidence reviewed in a recent report for Public Health England found an association between the uptake of electronic cigarette use and reduced tobacco smoking, with emerging evidence that electronic cigarettes may be an effective smoking cessation or reduction aid.[256]

2.4 Rationale for conducting this research

In this section, I will identify the main findings from the literature in order to provide the rationale for the development of a complex intervention to address tobacco use in residential units for LAC. Gaps in the research evidence are also identified.

2.4.1 The importance of addressing tobacco use among children in residential care

This literature review has highlighted that smoking is a major risk factor increased mortality and morbidity and that by stopping smoking this risk can be avoided. LAC accommodated in residential units are in general over 14 years old, have significant behavioural and emotional needs, and histories of placement breakdown and instability, and for these reasons, their vulnerability to tobacco smoking and its harmful effects is likely to be increased. Furthermore, international research has consistently linked adverse childhood experiences, such as abuse to increase the likelihood of earlier initiation of smoking and the heavy and continued use of tobacco into adulthood. [172-175,178 179]

Smoking among LAC has severe consequences for physical health, psychological health and well-being, as well as financial health. Not only are LAC increasing the risk of developing smoking-related diseases in the future, but they are exposing themselves to the development of conditions that can severely jeopardise their physical health in the shorter term (e.g. asthma). Among LAC, many of whom are known to experience mental

health problems, tobacco use can both exacerbate negative symptoms and complicate treatment.

The personal financial cost of smoking can severely impact LAC's ability to participate in social activities due to the diversion of money to tobacco and away from leisure interests, both of which impacts their quality of life. Evidence has shown that many children in care experience lower attainment in education, leading to limited opportunities for employment and financial security.[43] The enormous financial burden tobacco smoking places on the smoker means that socioeconomic inequality is magnified among this vulnerable population.

Many LAC will have come from families and social networks where smoking is a social norm or will use tobacco as a means of coping with separation from family and friendship groups or as a means of developing new peer-relationships. The reported high levels of teenage parenthood among LAC and those with histories of care may mean that the cycle of chronic health and social inequality may potentially continue through generations. Therefore, as tobacco use is preventable, and its use implicated in health and social inequality, it is understandable why this topic is a serious public health concern.

Despite calls from successive governments in the UK to improve the health and social outcomes for children in care, particularly those placed in residential units, efforts to address the use of tobacco are neglected.[21,67] Endeavours from a policy and research perspective have primarily focussed on enhancing outcomes for LAC in relation to mental health and emotional well-being, access to physical health care, and educational attainment. Indeed, while current health policy and guidance aim to reduce inequality and improve outcomes to the level found in the general population, LAC remain disadvantaged, and this disadvantage is further compounded among those accommodated in residential units.[20,76]

Furthermore, despite a number of legislative activities encourage the identification of health risk behaviours among LAC, addressing tobacco use is often overlooked, particularly in the context of existing mental health or substance misuse problems. Limited evidence on the effectiveness tobacco control policies and smoking cessation interventions among youth, both in the general population and those experiencing material disadvantage, means that it is not possible to ascertain if current interventions may be effective among LAC.[151,230,245,246] Innovation, therefore, is required to address tobacco use among children in residential settings. Such efforts would offer opportunities to improve not only the physical health of LAC but also their mental and psychological health, and social and financial well-being.

2.4.2 Gaps in the evidence

This literature review has provided important information, however, a number of gaps in the evidence still remain. Firstly, no review of articles describing interventions addressing tobacco use among LAC in residential care has been conducted. Second, data on smoking prevalence and the characteristics of residentially accommodated children who smoke requires updating; current estimates are based on reports from 2002 and given policy and practice initiatives in tobacco control and children's services, these may have changed in the past 15 years. Furthermore, no studies have published data on the extent to which LAC are identified and treated for tobacco dependence, nor is information available on the use of or the acceptability of support offered for smoking cessation in this population. Finally, the scarcity of research literature on the use of tobacco in residential units, its impact, and the factors that facilitate or challenge tobacco use in these settings mean the development of evidence-based interventions is presently not possible.

2.5 Thesis purpose and objectives

2.5.1 Aim of the thesis

Based on the literature reviewed in this chapter, the aim of this thesis is to develop an evidence- and theoretically-informed intervention targeting tobacco use in residential units that is both relevant and acceptable to stakeholders.

2.5.2 Objectives

In order to achieve the above aim, the objectives were to:

1. Scope the evidence in relation to interventions addressing tobacco use in residential units
2. Determine the characteristics of residentially accommodated LAC who smoke and those who do not, including rates of tobacco use
3. Assess the reliability of the statutory health assessment in identifying and treating tobacco dependence among children in care
4. Explore the impact of tobacco use on the daily operation of the residential unit
5. Investigate the knowledge, attitudes, and practice of residential carers in relation to tobacco use
6. Identify current strategies and practices to address tobacco use in residential units
7. Determine the behaviours that influence tobacco use in residential units
8. Identify those factors influencing tobacco use in residential units that are most amenable to change
9. Explore likely implementation issues of the proposed intervention to address tobacco use in residential units, as perceived by key stakeholders
10. Propose an intervention to address tobacco use in residential units for LAC and ascertain the most effective method by which the

proposed intervention should be delivered, and the conditions in which the intervention should be implemented

11. Make recommendations for further research

2.6 Chapter conclusion

This chapter has described LAC in the context of current tobacco control and examined both the literature pertaining to current efforts to reduce the uptake of smoking among disadvantaged youth and the cessation support to assist young smokers to quit. The importance of conducting this research has been highlighted and the purpose and objectives of this thesis provided. In the next chapter, I will detail the theoretical underpinning and methodological approach of the research.

Chapter Three: Theoretical frameworks contributing to intervention development

In this chapter, I outline the theoretical frameworks that inform the development of the intervention proposed in this thesis. I begin by describing the United Kingdom (UK) Medical Research Council (MRC) framework for the development and evaluation of complex interventions that guide the research. I then explain how supplementing the MRC framework with additional theoretical models enhances the design of an intervention that is both theory- and evidence-informed. I conclude this chapter by providing details of the chosen theories.

When developing interventions researchers may draw on theory, evidence, and practical issues in the following ways: Theory may be used to understand the factors that might influence the behaviour change being targeted, to underpin potential techniques that could be used to change behaviour, and to clarify how such techniques may work.[257] Evidence can inform which behaviours should be changed and which potential behaviour change techniques and modes of delivery are likely to be effective.[257] Practical issues can then determine which behavioural change techniques are feasible within the context and the resources available, and which are likely to be acceptable in the setting and to the target group.[257]

3.1 Developing complex interventions

Interventions that are comprised of multiple components which act both independently and interdependently are termed '*complex interventions*'.[258,259] Complex interventions are widespread through all of health and social care. As I have demonstrated in Chapter Two, the dynamics of tobacco use in residential units are likely to be complex and as such, any intervention aiming to address this problem will need to comprise components able to produce behaviour change on multiple and inter-related levels.

The development of complex interventions requires a systematic approach and strong evidence for design which may also be guided by theory.[260,261] A number of frameworks exist to assist researchers in developing (and subsequently evaluating) complex interventions. These include the Medical Research Council (MRC) framework for the development and evaluation of complex interventions; Intervention Mapping; and the PRECEDE-PROCEDE model.[262-266] These commonly used frameworks were reviewed and compared to identify the one most suitable to guide this present research and the revised MRC framework was selected.[262]

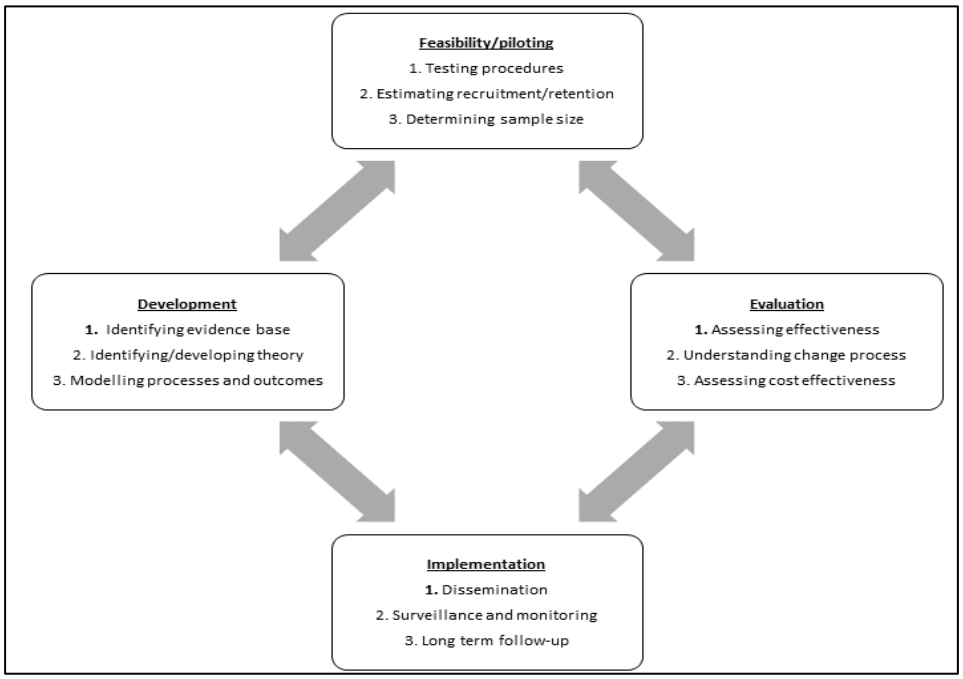
Reasons for selecting the MRC framework related to the fact that it is considered one of the strongest guidelines for intervention development and evaluation, providing equal weighting to both development and evaluation phases, while also providing beneficial points for researchers to consider throughout the process. Furthermore, the MRC is a UK-based funding body which supports health research conducted in the NHS and universities and is funded through the government's science and research budget. This is particularly important when considering the future development of funding applications for the refinement and evaluation of an intervention addressing tobacco use among LAC.

The MRC framework for the development and evaluation of complex interventions is a useful source of guidance in the development, piloting and feasibility, evaluation, and reporting and implementation of a complex intervention.[262] Organised into four stages (development, feasibility/piloting, evaluation, and implementation), the framework entails a non-linear process to ensure that each stage is satisfied.[262]

The design and conduct of the research conducted in this thesis was informed by the development stage of the MRC framework for the development and evaluation of complex interventions.[262] The revised framework (Figure 3.1) provides a phased approach, to the development and evaluation of interventions that comprise several inter-related components.[258] The process of developing and evaluating complex

interventions is not linear and requires some flexibility in moving between and in different phases.[262] Quantitative and qualitative methods are advocated at each stage and best practice by developing an intervention in a systematic way using the best available evidence and appropriate theory.[262]

Figure 3.1 Key elements in the development and evaluation process, adapted from Craig et al.[262]



Development phase

In the first stage, the guidance advocates conducting a (systematic) review of evidence and combining of review findings with relevant theory to assist in the development of a coherent argument about how and why the intervention may work.[262] During the development phase, the importance of considering whether the intervention can be described in sufficient detail so that it may be replicated and implemented if it is proved effective.[262]

Feasibility/piloting phase

Testing of the theory is also recommended. Firstly, pilot studies designed to address key questions arising from the original theory should be undertaken with the findings allowing for estimates of recruitment,

retention, and sample size to permit larger scaled-up, definitive trials in the next phase to assess intervention and cost effectiveness.[262]

Evaluation phase

The third phase of framework recommends the logical investigation of the change process, referring back to the theoretical base and results of the feasibility study. [262] This ensures that it is possible to theorise why the intervention may have been successful or not, and how it may be improved before the final implementation stage.[262] This allows for measurement of whether short-term change persist, and for an assessment of any longer-term and wider unintended consequences.[262] The results of each stage are fed back to further develop underlying theory.

Implementation phase

The framework advocates the use of strategies to ensure that implementation of evaluation findings are based on an in-depth understanding of the behaviours that need to change, relevant decision-making processes, and the identified barriers to and enablers of change.[262] The authors also suggest if an intervention is translated into routine practice, monitoring should be undertaken to identify unexpected or adverse longer-term outcomes that could not be detected in the evaluation, or to assess if the outcomes from the study are replicated in practice.[262]

3.2 Use of theoretical models in intervention development

3.2.1 Recommendations for the use of theory in the development of complex interventions

The MRC framework recommends the adoption of a multi-disciplinary and multi-method approach to the development of complex interventions.[262] Several approaches that integrate the use of theory in implementation intervention development are reported.[257,267,268] However, frequently

interventions are based on intuition or non-theoretical models with intervention design often based on the available evidence base and context-based practical considerations.[269-271] Furthermore, a lack of detailed reporting of the operationalisation of theory, the process of intervention development, and design of intervention content mean that researchers are unaware of the optimum approach for intervention design.[257,265,272]

In response to the previously outlined limitations concerning the use of theory in the development of complex interventions, I chose the model proposed by French et al. to integrate multiple theoretical models.[257] Using this model provides a systematic method to move between target behaviours, through theoretical domains, diffusion processes, and behaviour change techniques, and finally the components of an intervention. In basing interventions on a theoretical approach linked to relevant and effective behaviour change techniques and likely implementation issues, the mechanisms of change are highlighted and provides a guide for modes of delivery in this local context.

3.3.2 French et al.'s model for intervention development

The first three steps of French et al's. four-step model (shown in Appendix A) for developing interventions based on theory, evidence, and practical issues were used to design the proposed intervention.[257] A series of questions guide the choice of the most appropriate components of an intervention. The questions to be addressed in the design of the present intervention were as follows:

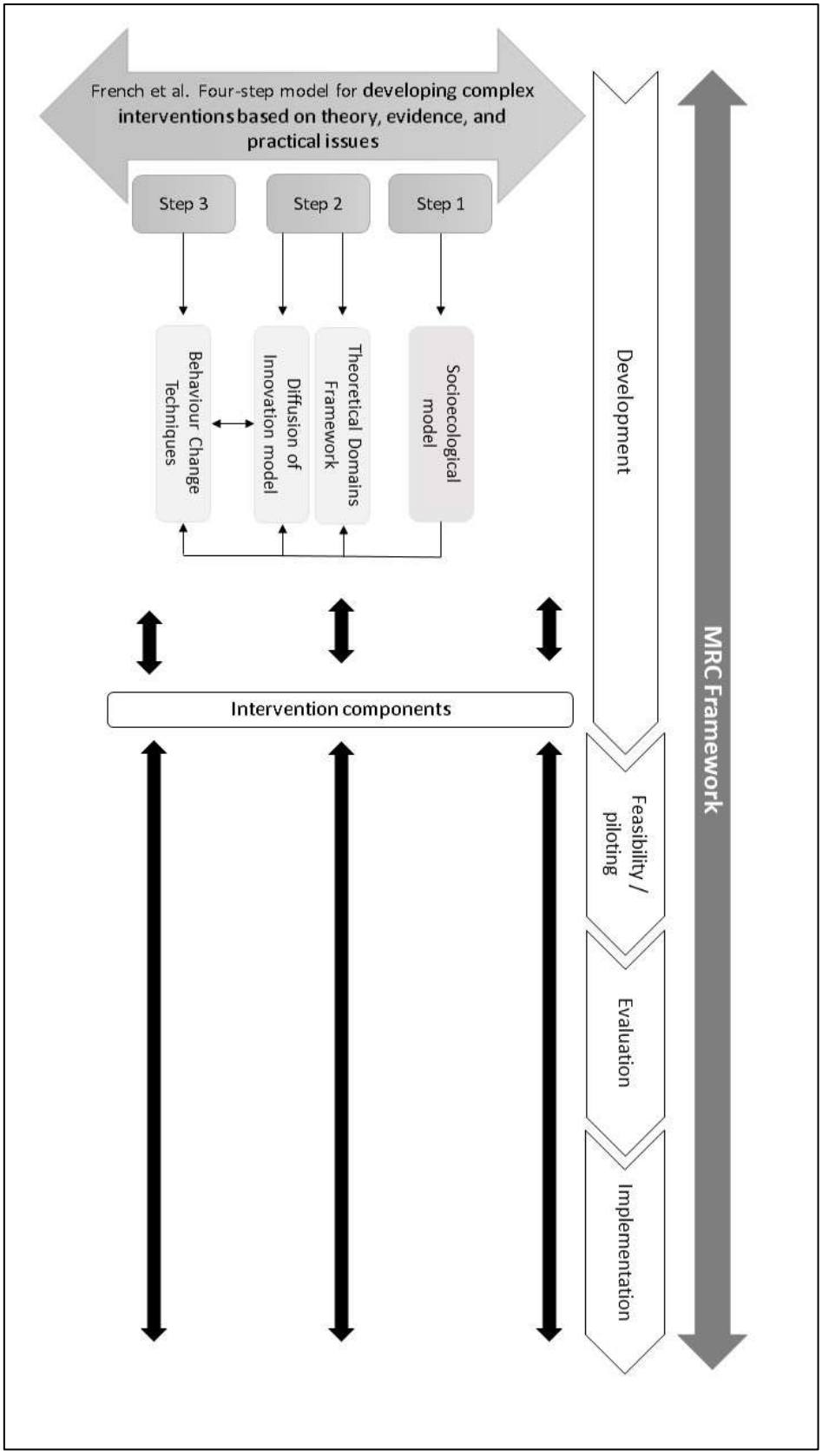
a) Step one: Who needs to do what differently? – Identification of the problem.
b) Step two: Using a theoretical framework, which barriers and enablers need to be addressed? – Assess the problem.
c) Step three: Which intervention components [behaviour change techniques (BCTs) and mode(s) of delivery] could overcome the

modifiable barriers and enhance the enablers? – Form potential solutions.

The exclusion of step four of the model described by French et al, which relates to evaluating the intervention to understand how behaviour change can be measured and the selection and feasibility of outcome measures, was necessary due to the scarcity of implementation literature targeting tobacco use and a lack of auditable standards in residential units in relation to professionals' practice to address tobacco use among LAC.

Using French et al.'s method and underpinned by the MRC framework, multiple methods were used to obtain empirical data to support the design of an intervention to address tobacco use in residential units. Based upon findings from the data collected, three further theoretical models that were considered most likely to inform pathways to behaviour and organisational change were chosen. These were: (1) the socioecological model for health promotion, (2) the theoretical domains framework (TDF), and (3) the diffusion of innovation in service organisations (DISO) model. In stage one, the socioecological model was selected to identify the factors that influence tobacco use in residential units. Stage two utilised the TDF and DISO model to assess barriers and enablers to behavioural change and organisational implementation. Finally, in stage three, the behavioural change technique taxonomy was used to identify potential solutions and modes of intervention delivery. In the remaining subsections, each theoretical model is described and justification provided for its use. Figure 3.5 summarises the use of the theoretical models for intervention development.

Figure 3.5 Application and linkage of theory in the development of an intervention to address tobacco use in residential units



3.3 Socioecological theory

3.3.1 Socioecological model for health promotion

Building on the foundational work of Uri Bronfenbrenner, McLeroy et al. in their socioecological model of health promotion (shown in Figure 3.6) proposed five levels of influence specific to health behaviours. These were: intrapersonal factors; interpersonal processes and primary groups; institutional factors; community factors; and public policy.[273] In addition to proposing level specific influences on health behaviour, the model also highlights the need to conceptualise the levels as more than just settings for interventions.[273]

Figure 3.6 Socioecological model for health promotion, adapted from McLeroy at al.[273]

Level	Descriptor
Individual	*Characteristics of an individual that influence behaviour change, including knowledge, attitudes, behaviour, self-efficacy, developmental history, gender, age, identity, values, goals, expectations, literacy, and stigma.*
Interpersonal	*Formal (and informal) social networks and social support systems that can influence individual behaviours, including family, friends, peers, co-workers, religious networks, customs or traditions.*
Community	*Relationships among organisations, institutions, community groups, and businesses.*
Organisational	*Organisations with rules and regulations for operations that affect how, or how well, services are provided to an individual or group.*
Policy	*Local, county, national and global laws and policies, including policies regarding the allocation of resources health and access to healthcare services, restrictive policies, or lack of policies.*

Examples provided by McLeroy et al include: intrapersonal level interventions aim to address knowledge, skills and beliefs of individuals; while interpersonal-level and institutional-level interventions, by contrast, are designed to create change in social relationships and organisational

environments; and interventions at a community-level aim to create change in collaboration with agencies, neighbourhoods, and other mediating structures[273]. McLeroy et al. suggest that socioecological models could be used to increase engagement with health services or the empowerment of disadvantaged groups, the implementation of public policy with health behaviour interventions, or the facilitation of advocacy.[273] The use of socioecological models has been widely accepted in many areas, such as tobacco control, sexual health, and physical activity fields as well as more broadly in the design of health services and youth empowerment.[274-276 277-279]

The use of socioecological models for developmental purposes presents challenges that are distinct from those encountered in the use of psychosocial models. Firstly, socioecological models typically present domains of variables for consideration, with the provision of specific guidance on which domain may be most important. Secondly, environmental and policy influences, that are the hallmarks of socioecological models are specific to certain health and risk behaviours. This is in contrast to the psychosocial models which propose behavioural influences, such as self-efficacy, decisional balance, and processes of change have a greater generalised applicability across a wide range of behaviours.[280,281] Thus, for each health behaviour or condition, socioecological models must be tailor-made.

3.3.2 A Socioecological approach to smoking in residential care

From the literature review, detailed in Chapter Two, the use of tobacco by LAC in residential units was assumed to be influenced by factors beyond the individual. When considering the factors that influence the use of tobacco in residential units and how these influences interact, it can be anticipated that no two interactions would be the same. The socioecological model helps to illustrate these influences and interactions

and begins to create a comprehensive understanding of the complex interplay of influences on the use of tobacco in residential units. The socioecological model, therefore, provides the potential for both answering questions about how to address the use of tobacco in residential care and where the most useful intervention points may be. In recognising and targeting influences which have the most impact on the use of tobacco in residential units, prevention and intervention efforts may have a sustained and substantial effect.

3.4 Theoretical Domains Framework

3.4.1 Identifying interventional targets

Achieving behavioural change is facilitated by understanding the determinants of current and desired behaviours and the context in which they occur. Behavioural theories provide an understanding of the structural and psychological processes hypothesised to regulate behaviour and behavioural change, and are therefore relevant to the investigation of implementation issues and informing interventions.[282]

Implementation of an evidence-based intervention or practice requires behavioural change, however achieving this change is often challenging, and mixed results have been obtained from attempts to implement interventions tailored to specific contexts, since a number of factors may influence the uptake of an intervention. [283-285] Success is, therefore, dependent on careful consideration of the barriers and enablers of the behaviour to be changed.[257] A theory-based assessment of these implementation issues allows for the systematic identification of such factors, may guide intervention and evaluation design and can provide the basis for a complete understanding of behaviour change processes.[257,286] A review of the literature identified a number of behavioural change theories including social cognitive theory, theories of planned behaviour, and trans-theoretical or stages of change model, however only a few of these

theories have undergone robust testing in health and social care settings.[281,287-289]

3.4.1.2 A framework for behavioural change

The Theoretical Domains Framework (TDF) provides an integrated framework, designed to assist in the application of theoretical approaches to interventions aimed at behavioural change.[290] The TDF was developed through an expert consensus process, including analysis of factors and validation to in order to identify psychological and organisational theory that is relevant to health practitioner behaviour change.[290,291]

Following initial development, the TDF was refined and now comprises 14 domains and 84 behavioural constructs that allow for the synthesis of many behaviour change theories into a single framework that allows for an assessment and exploration of behavioural problems and their associated barriers and enablers, to inform the design of appropriately targeted interventions.[267,291] The TDF has been successfully applied in a number of settings to guide intervention development, characterise according to theory existing interventions to implement evidence-based care to ensure accurate replication and understand factors relating to the embedding and adoption of interventions.[257,269,292-296] The TDF has also been used to understand the behaviour of health professionals, including studies investigating smoking prevention and cessation counselling among dentists and midwives engagement with pregnant smokers.[297,298] More recently, it has been extended to patient-specific behaviours and general population health behaviour change.[299-301] The additional benefit of the TDF is that behaviour change techniques (BCTs) have been pre-assigned to each of the TDF domains.[302] The domains of the TDF and their descriptors are detailed in Figure 3.7.

Figure 3.7 Domains and descriptors of the Theoretical Domains Framework, adapted from Michie et al.[268]

TDF Domain	Descriptor
Knowledge	*Awareness of the existence of something.*
Skills	*Ability or proficiency acquired through practice.*
Social/professional role and identity	*A coherent set of behaviours and displayed personal qualities of an individual in a social or work setting.*
Beliefs about capabilities	*Acceptance of the truth, reality, or validity about an ability, talent, or facility that a person can put to constructive use.*
Optimism	*The confidence that things will happen for the best or that desired goals will be attained.*
Believes about consequences	*Acceptance of the truth, reality, or validity of a behaviour about outcomes of a behaviour in a given situation.*
Reinforcement	*Increasing the probability of a response by arranging a dependent relationship, or contingency between a response and a given stimulus.*
Intentions	*A conscious decision to perform a behaviour or resolve to act in a certain way.*
Goals	*Mental representation of outcomes or end states that an individual wants to achieve.*
Memory, attention, and decision processes	*The ability to retain information, focus selectively on aspects of the environment, and choose between two or more alternatives.*
Environmental context and resources	*Any circumstances of a person's situation or environment that discourages or encourages the development of skills and abilities, independence, social competence, and adaptive behaviours.*
Social influences	*Those interpersonal processes that can cause an individual to change their thoughts, feelings, or behaviours.*
Emotion	*A complex reaction involving experiential, behavioural, and psychological elements, by which an individual attempts to deal with a personally significant event or matter.*
Behavioural regulation	*Anything aimed at managing or changing objectively observed or measured actions.*

3.5 Behaviour Change Technique Taxonomy

Behaviour change techniques (BCTs) refer to the specific strategies used in interventions to promote behaviour change. Despite the existence of a number of taxonomies for behaviour change targeting lifestyle behaviours, including smoking, until recently there was a lack of universal means to identify the content of complex behaviour change interventions.[303] In response to this, Abraham and Michie developed a taxonomic method for reporting and describing behaviour change techniques (BCTs).[304,305] The Behaviour Change Technique Taxonomy (BCTTv1) comprised 93 non-overlapping BCTs which clustered into 16 groupings which can be used to specify the content of a wide range of behaviour change interventions. Twenty-six BCTs were able to be assessed for inter-rater reliability and of these 23 had Kappa scores of 0.60 or above and were therefore defined by the researchers as reliable BCTs.[303] The taxonomy of change techniques and definitions described by Michie et al. are shown in Appendix B.

3.6 Diffusion of Innovation of within Service Organisations model

3.6.1 Diffusion theory

Diffusion is defined as a process by which innovation is communicated over time to members of a social system.[306] It is described as a social process comprised of interpersonal network exchange and social modelling by innovation adopters to others who are in turn encouraged to also adopt the innovation.[306] The five-step process suggested by Rogers to influence the decision to adopt an innovation is shown in Figure 3.8.

Figure 3.8 Adoption of innovation process, adapted from Rogers.[306]

1. Knowledge	*Awareness of the innovation and its functions.*
2. Persuasion	*An individual forms a favourable or unfavourable attitude towards the innovation.*
3. Decision	*An individual engages in activities that lead to a choice to adopt or reject an innovation*
4. Implementation	*The intervention is implemented.*
5. Confirmation	*The individual evaluates the outcome of an innovation decision that has been made.*

According to Rogers, the reasons some innovations are diffused more successfully than others is considered to be dependent on five qualities, which are shown in Figure 3.9.

Figure 3.9 Qualities of adopted innovations, adapted from Rogers[306]

1. Relative advantage	*The degree to which an innovation is perceived to be better than the idea it supersedes.*
2. Compatibility with existing values and practices	*The degree to which an innovation is considered to be consistent with the values and past experiences of adopters.*
3. Simplicity and ease of use	*The degree to which an innovation is perceived to be difficult to understand and use.*
4. Trial-ability	*The degree to which the innovation can be experimented with on a limited basis, thus presenting less risk to adopters.*
5. Observable results	*The ease at which adopters are able to see the results of an innovation.*

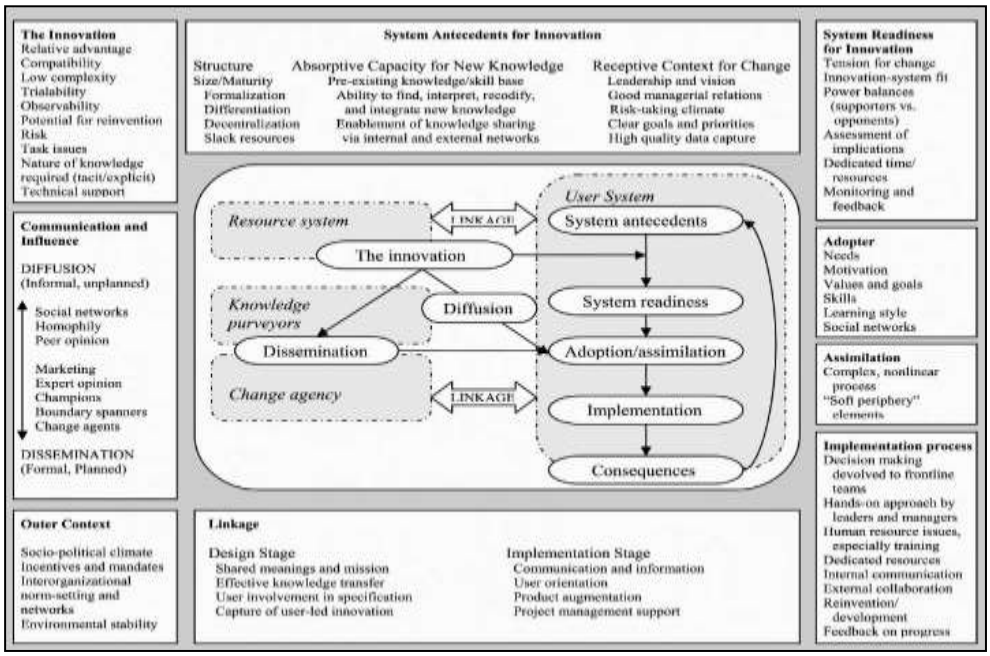
There are several frameworks for exploring the contextual factors that influence the implementation of interventions in complex organisations.[307] However, the DISO model was identified as being particularly relevant to for settings such as residential units. The DISO model was developed through a meta-narrative approach to the systematic review of 13 research areas, across various disciplines (including psychology, sociology, and change management)and sought to improve and modernise the spread of innovation in the NHS.[308,309]

3.6.2 Diffusing innovation in service organisations

As Figure 3.10 demonstrates, implementation is considered a complex process organised under six broad concepts: innovation; adopter; communication and influence; system antecedents and readiness (or the inner-organisational context); outer- (or inter-organisational) context; and implementation processes.[308]

While the model developed by Greenhalgh et al. lacks explicit recommendations for operational definitions or measurement of the most frequently identified constructs, the authors recommend a two-stage approach for capturing their model. The first stage advocates the assessment of specific individual components of the model (perceived characteristics of the innovation and adopter characteristics). The second stage proposes the construction of broad and unifying conceptualisation of how these individual components interact in the social, policy, and organisational context.[308,310]

Figure 3.10 Implementation process of the Diffusion of Innovation within Service Organisations model, taken from Greenhalgh et al.[310]



A number of limitations of the model are outlined by several authors who have sought to operationalise Greenhalgh et al.'s process.[311] Importantly, Cook and colleagues identified that adopter characteristics and social cognitive elements (such as intention for individual change, self-efficacy, and memory) and the financial costs of the innovation and its implementation were not considered by the model.[311] The authors also highlight that a number of constructs overlap or are applied in similar ways in more than one model domain. Despite these limitations, the DISO model has been operationalised successfully by many authors to better understand how innovations may be spread and sustained in organisations.[312-314]

3.6.3 Identifying implementation issues

The use of the Diffusion of Innovation in Service Organisations (DISO) model in the development of the components of an intervention to address tobacco use in residential units has several benefits. First, the model offers a robust theoretical basis from which the contextual factors that may impact intervention implementation and adoption may be identified, understood, and addressed or exploited. It also highlights the need to recognise the integral function of interactions and contextual and conditional features of intervention components since it is these factors that determine the success or failure of innovation dissemination. Furthermore, with a focus on the context in which interventions are implemented, the DISO model complements the use of the socioecological model.

3.7 Chapter conclusion

This chapter has clarified how theoretical models will supplement and enhance the use of the underpinning guidance provided by the MRC framework in the design of an intervention to address tobacco use in residential units for LAC. In the next chapter, the research methodology used in this thesis will be discussed.

Chapter Four: Methodology

In this chapter, I outline the rationale for the methodology and research methods, while also linking the MRC guidance to the methodology and methods. I begin by recapping the focus of the research and identify the data considered to be useful in answering the research questions. I then explain the methodology that best allowed access to this data. In the third section, I discuss how the research was designed and explain changes to the design that became necessary during the recruitment of participants. I then briefly detail the specific methods that were used in each of the studies. The practical and ethical considerations of conducting research within children's social care settings are considered and I conclude with reflections on the data collection and analysis.

4.1 Focus of the research

This thesis adopts a pragmatic, multiple methods approach to the development of an intervention to address tobacco use in residential units for LAC. In the initial planning of the research, it was intended to focus on the tobacco-related experiences of residentially accommodated LAC. However, following discussions with the local authority, covered in detail later in this chapter, the focus was subsequently amended to explore smoking by residentially accommodated LAC and its impact on the residential unit from the perspective of residential carers. The research also concentrates on identifying factors that influence smoking in residential units and how these can be addressed by an intervention that is both evidence-and theory-based.

4.2 Methodological theories

Methodological claims carry with them assumptions about the nature of what is being researched (ontological assumptions) and assumptions about the nature of knowledge and claims to knowledge (epistemological assumptions). [315] These assumptions directly influence the data collection

and analysis that will be used. Taking this understanding, this research required a methodology that was grounded in the premise that: an independent reality exists, but is one that cannot be accessed directly. However, beyond this, it is also assumed, that practical research questions can be addressed without a definite allegiance to one specific philosophy.

Both critical realism and pragmatism are suited to a multiple methods approach exploring tobacco use in residential units and the subsequent development of an intervention. For instance, when exploring the experience of residential carers in addressing tobacco use, it is likely that multiple issues and influences will be apparent which will influence their own experience of smoking in residential units. Furthermore, residential carers will also have complex interactions with other professionals, birth parents, and children in care, who have their own experiences, beliefs, knowledge, and influences.

A grasp of the theoretical underpinnings of a pragmatic, multiple method approach is needed to understand why the methods chosen are best suited to the data collection in this thesis. Therefore, below I provide information on the methodological theories of critical realism and pragmatism and quantitative, qualitative, and mixed methodological approaches that guided the collection and analysis of data.

4.2.1 Critical realism

Commonly represented as a continuum, Braun and Clark, for example, identify an ontological spectrum on which reality is entirely independent of human interpretation (realism) to one where reality is entirely dependent on human interpretation and knowledge (relativism), and placed in between these two positions is the critical realist stance.[315] The ontological assumptions of critical realism are spread across three domains: the empirical, the actual, and the real. The empirical domain refers to aspects of reality that exists and which can be observed or directly or indirectly experienced.[316] The actual domain refers to aspects of reality that exist,

but which may not be observed or experienced in some way and finally, the domain of the real refers to structure and mechanisms that cause or influence what is observed or experienced.[316] It is these structures that are beyond the reach of observation or experience; they cannot be detected, known, or perceived, but can be inferred through a research design that consists of both deductive (empirical investigation) and inductive (the construction of theory) processes. Critical realism, therefore, suggests that both quantitative and qualitative approaches are important to use in a single piece of research in order to fully explore and understand the structures and mechanisms of what can be observed and experienced.

4.2.2 Pragmatism

The concept of pragmatism has arisen from the work of four philosophers: Charles Pierce, William James, John Dewey, and George Herbert Mead and provides a philosophical basis for a mixed-methods approach.[317] As previously described the differences between quantitative and qualitative approaches can be summarised as follows: quantitative researchers hold the belief that natural scientific enquiry should be objective, and that it must be time and context-free, with researchers remaining detached and unbiased; while qualitative researchers, on the other hand, argue that multiple constructed realities exist and that it is not desirable or possible to have inquiry that is time and context-free.[317] Pragmatism facilitates the use of both quantitative and qualitative approaches in that it holds the assumptions of a) researchers are free to choose techniques and methods that best meet their needs and purposes; b) the world is not absolutely ordered; truth is what works at the time; c) research occurs within social, cultural, and political contexts; and d) there is an external world which is independent of the mind, as well as one lodged within the mind.[318]

The pragmatic approach is concerned with fact or actual occurrences and relies on a practical approach to finding the correct approach or research methods to address the research question, rather than being restrained by adherence to a single methodology.[318,319] Pragmatism acknowledges that

there are multiple ways of making sense of the world and multiple views and experiences which are valuable and that interaction with it is complex.[320,321]

4.3 Methodological approaches

Pragmatism and critical realism allow for multiple methods of research to be conducted in a philosophically coherent way and are arguably most suitable for a programme of research such as that described in this thesis.

4.3.1 Quantitative approaches

Quantitative methods traditionally operate in a positive paradigm, based on the ontological assumption that reality is objective and measurable.[322] Research in this field employs techniques that include deductive reasoning to test hypothesises with control of specific variables, and analysis using statistical approaches which are presented numerically.[322] Quantitative analysis seeks to identify causal relationships between factors, using large samples to enable findings to be generalisable to a wider population.[322] In adopting a positivist stance, the researcher aims to be a natural observer and makes efforts to minimise the risk of the directly influencing or biasing findings.[318,322] Typical quantitative methods in health research include observational studies and randomised control trials (RCTs).

4.3.2 Qualitative approaches

From the mid-1970's there has been a gradual increase in the use of qualitative methods, traditionally associated with the constructivist paradigm, to address research questions concerning the context of human experience.[318] Qualitative methods occupy an ontological position that argues against the notion of an independent reality.[318] Instead, qualitative researchers argue that multiple constructed realities exist simultaneously, meaning the identification of an independent reality is neither achievable nor desirable.[318] The aim of qualitative research is therefore not to identify generalizable patterns of cause and effect, but to understand in-depth the subjective experience of individuals.[318] Qualitative methods are frequently

inductive, used to develop rather than test theories, and the researcher is regarded as an integral part of the research, with findings emerging directly from the interaction between the researcher and the participant, rather than being regarded as a separate neutral entity.[318] Qualitative approaches in health research include grounded theory, ethnography, phenomenology, and case studies.

4.3.3 Advantages and limitations of single research designs

Limitations and advantages of both qualitative and quantitative approaches have been intensely debated by researchers on both sides. For example, quantitative methods assume that it is possible to isolate features of human experience from the context in which they occur, but in doing so they potentially provide a distorted and one-dimensional view of the reality it seeks to illustrate. Alternatively, qualitative research focuses on exploring the subjective experience of a small number of individuals, which makes the generalisation of findings problematic. This debate has been termed the "paradigm wars" and is predicated on the assumption that the two approaches are mutually exclusive and cannot be combined in any way that leads to meaningful results.[317,323] While some researchers claim that the mixing of qualitative and quantitative methods is potentially contentious due to the opposite and competing paradigms, others emphasise the value and commonality between these two methods and argue that combining these approaches may resolve weaknesses inherent in the separate approaches.[317,324]

4.3.3 Mixed-methods approaches

Given the exploratory nature of the research in this thesis, the development of a flexible and responsive programme of work is required in order to address the research questions. Considering the previously identified gaps in the knowledge, it is necessary to develop a multiple methods programme that can address the research objectives, rather than adopting an approach that requires objectives to align with the methods being used.

The inherent differences between these approaches have increasingly been challenged as the use of mixed-methods approaches has gradually become more commonplace. Indeed, mixed-methods research has become increasingly recognised as being able to unite quantitative and qualitative approaches, through the creation of a third paradigm, and is considered by some to be a dominant paradigm in healthcare research.[325,326]

4.3.3.1 Defining mixed-methods

Many definitions of mixed-methods research exist in the literature.[325] This thesis adopts the definition offered by Creswell and colleagues.[327] The definition defines mixed-methods research as an approach or methodology which:

a) Focuses on research questions that require an understanding of contextual, multiple level, and cultural influences
b) Employ rigorous quantitative research assessing the magnitude and frequency of constructs and rigorous qualitative research exploring the meaning and understanding of constructs
c) Utilise multiple methods
d) Integrates or combines methods to use the strength of each
e) Frames the investigation within philosophical and theoretical positions.

As the use of mixed-methods has progressed researchers have sought to clarify and define the approach and differentiate it from the previously described paradigms.[328] Figure 4.1 details the five purposes of mixed-methods, according to Greene.[329].

Quantitative and qualitative data from the mixed-methods study in this thesis will be integrated using triangulation. The term triangulation refers to the use of more than one approach to the exploration of a research question.[330] Research that relies on just one method or approach is especially liable to suffer from limitations associated with the method

chosen or from the application of the approach.[330] Triangulation offers the researcher a means of enhanced validity and is one of the rationales for multiple or mixed-methods research.[330]

Figure 4.1 Five purposes of mixed-methods, adapted from Greene.[329]

Triangulation	*Where different methods are used to measure the same phenomenon, to increase confidence in conclusions reached – if consistent or convergent conclusions are reached.*
Complementarity	*Where methods are used to investigate different aspects of the same phenomena to deepen understanding or broaden the interpretation or conclusions from a study.*
Development	*Where results from one method are used to inform the development of other methods. E.g. instrument development, sampling, or implementation.*
Initiation	*Where different methods are used to investigate different aspects of the same phenomena, but in contrast to complementarity, the intention is divergence in order to generate new understanding.*
Expansion	*Where different methods are used to assess different phenomena to expand the scope and range of study.*

4.3.3.2 Types of mixed-methods research

As well as providing an opportunity to integrate methods, mixed-methods studies provide an opportunity for the integration of a variety of theoretical assumptions, such as ecological theories.[327] It is important, therefore, that the research design is informed by the question that the research is attempting to address, as each method can tackle a research question differently.[324,331] Other factors for consideration in the use of mixed-methods include whether the research will be concurrent or sequential in its design since this determines the weighting of qualitative versus quantitative components and the level of interaction between them.[324] Furthermore, the timing and relative priority of each component in the study should be considered.[317,324] A typology of mixed-methods designs was classified by Creswell and Plano-Clark is summarised in Figure 4.2.

Figure 4.2 Typology of mixed-methods designs, adapted from Creswell and Plano-Clark.[324]

Design	Key features
Convergent parallel	*Simultaneous independent data collection and analysis. Results merged to provide a more complete understanding.*
Explanatory sequential	*Strands occur in turn, with initial quantitative results being explained in more detail through qualitative enquiry.*
Exploratory sequential	*Methods carried out sequentially, with the qualitative phase first. Quantitative method then seek to test and further quantify qualitative findings.*
Embedded	*An additional strand of research is added to a larger study in order to gather supplemental information.*

4.4 Research design

The design for this research was chosen based on the epistemological and methodological assumptions, using a multiple methods approach, as this was deemed the best way to address the research questions effectively. Here I outline how the research was designed and address the necessary changes that occurred when the actual recruitment of local authorities and participants began.

4.4.1 Research setting

4.4.1.1 East Midlands region of England

The East Midlands area is the fourth largest region in England, covering 12% of the total area of the country. It has a diverse landscape, economy, and population, with large rural areas as well as large conurbations and other relatively industrialised areas. The East Midlands region is bordered by Yorkshire and the Humber, the North West, the West Midlands, the South East, and the East of England. The region contains the counties of Derbyshire, Leicestershire, Lincolnshire, Northamptonshire, Nottinghamshire, and Rutland. Each county has a local authority and there

are three additional unitary authorities for the cities of Derby, Leicester, and Nottingham.

4.4.1.2 Sampling of residential unit providers

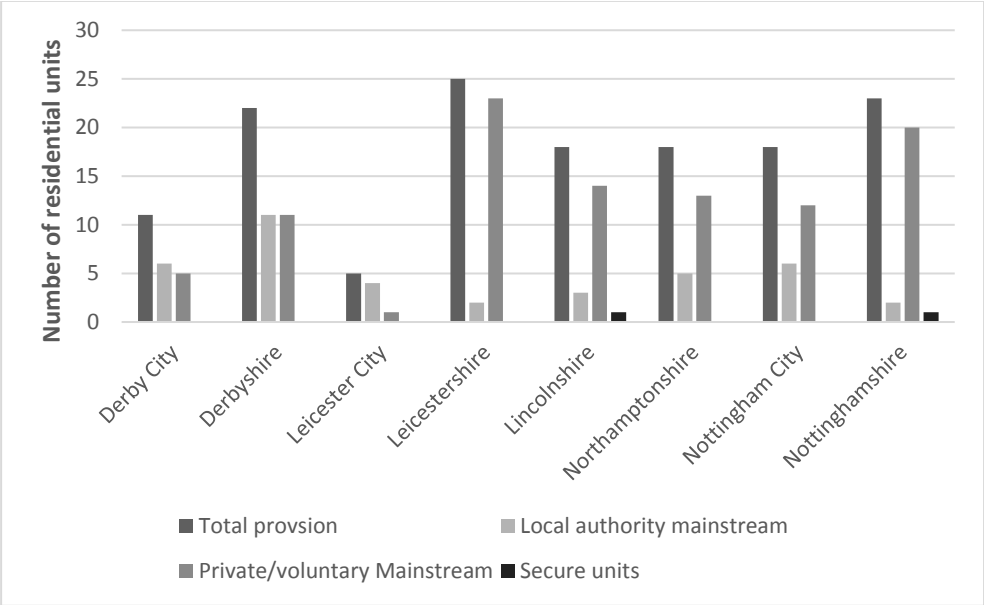
In the development of the research proposal for this programme of work, interest was expressed by a Stop Smoking Service in the East Midlands for the development of a tailored intervention programme for children accommodated in residential care in the city. Initial discussions were held with the stop smoking service and the lead nurse for LAC and support for preliminary work was obtained.

At the outset of this research, it was intended that participants in this study would be recruited from a range of providers of residential accommodation for LAC across the large geographical area of the East Midlands region in England. However, following investigations into the research governance and practical arrangements of providers in the private and voluntary sectors, a lack of research governance framework was identified and thus the practicalities of gaining approval and setting up research studies in these settings would have been challenging. Furthermore, data on private and voluntary sector providers of residential units indicate that these placements often accommodate fewer children and employ less residential care staff. Given these difficulties, the decision was made to focus the research on local authority operated residential units.

Eight local authorities were identified from the Children's Home Data Pack as providing non-specialist residential provision for LAC.[72] These were: Derby City Council; Derbyshire County Council; Leicester City Council; Leicestershire County Council; Lincolnshire County Council; Nottingham City Council; Nottinghamshire County Council; and Northamptonshire County Council. Rutland was excluded from this study as they are not a provider of residential units. Figure 4.3 shows the distribution of

residential units across the participating local authorities, by type of provision.

Figure 4.3 Distribution of local authority residential units in the East Midlands, adapted from the Children's Home Data Pack, 2014.[72]



4.4.1.3 Local authority sampling

In the initial design phase of this research, it was planned to recruit participants from all local authorities in the East Midlands region in order to understand the use of tobacco use in residential units for LAC, from a variety of units in a diverse range of areas across the region. In practice, however, constraints on local authority capacity and resources meant that less support the research was available, as had been hoped.

In the set-up of the survey phase of the mixed-methods study, discussions took place with Research Leads and Children's Services Leads to ascertain the willingness and capacity of local authorities to support the qualitative phase of the research. Of the four local authorities who participated in the survey study, two local authorities expressed an interest in participating in the second, qualitative phase of the study.

Additional enquiries were also made to the research leads in the other local authorities in the East Midlands region, who had declined or not

responded to research enquiries in the survey phase of this mixed-methods study to ascertain if participation in the qualitative phase of the study may be supported. None of the local authorities approached was able to support the research for reasons of organisational capacity.

The qualitative study was, therefore, designed to conduct semi-structured interviews with residential care officers and residential unit managers in a large, and predominantly rural local authority and a large urban unitary authority. The inclusion of participants working in both rural and urban settings was considered to allow for the exploration of place or location in the use and impacts of tobacco use in residential units for LAC.

However, during the process of obtaining ethical approval, the urban unitary authority underwent an external regulatory assessment by Ofsted. As a result of this, a major departmental restructure and amendments to service priorities and provision meant that the local authority was unable to continue to support the research. Given the previously ascertained limited capacity to support the qualitative work among almost all of the local authorities in the East Midlands, the remaining studies were focussed in one rural local authority.

4.4.2 Participant sampling

In designing the research, the involvement of residential carers, corporate parents, and LAC were intended in the development of an intervention to address tobacco use in residential units. This is due to the need to develop interventions that are both acceptable and relevant to the populations who will be impacted. Furthermore, current guidelines advocate that particular efforts should be made to obtain the views of children in care and they should be supported to give their views.[67] In line with this, at the outset of this research, the involvement of LAC was anticipated. This aspiration, despite the ethical, legal, and practical challenges reported in the literature, was driven by the principle that LAC are experts in their own

experience and should be heard in the development of policy or services that affect them[332].

Being aware of these issues, I met with social workers and residential carers to ascertain the best way to include residentially accommodated children in the research. Following these discussions, I was advised by children's services stakeholders to focus on the problem of tobacco use in residential units from an organisational and residential carer perspective. The reasons for this recommendation are listed below:

- Obtaining consent for participation by LAC is a complex legal issue. Parental responsibility for many children is shared by the local authority and the child or young person's birth parent(s) or guardians, even when there is limited contact. This means that consent would be required from three or more parties, in addition to the assent of the child or young person.
- Making contact with birth parents can be exceptionally difficult for researchers, often requiring the local authority to act as a proxy. Given that biological parents may have difficult and often complex relationships with children's services, such contact could be viewed as destabilising, particularly if the parent had not had contact with the child for some time.
- LAC experience placement instability and other stresses and participation may be intrusive at a time when could be especially vulnerable.
- Previous attempts at engaging children in care in research were unsuccessful and recruitment was poor.

Given the time and resource constraints and the apparent limited support of the local authority, I reluctantly decided, after discussions with my academic supervisors, to follow the recommendation of stakeholders. The participants in this research, therefore, are residential carers and other stakeholders with a professional role in the delivery of health care services for LAC.

4.5 Research methods

Crucial to the development of the intervention described in this thesis is the theoretical basis. The MRC framework suggests that in order to identify and develop a theory for a proposed intervention, a theoretical understanding of the likely processes of change should be developed by drawing on existing evidence and theory and be supplemented, by new primary research.[262] This demonstrates that the theoretical underpinning of an intervention does not necessarily mean the utilisation of single or even multiple existing theories, but that it can encompass the use of new ideas from a variety of sources.

Guidance of the Workgroup for Intervention Development and Evaluation Research (WIDER) aims to improve the scientific reporting of behaviour change interventions with a set of recommendations, including the clarification of assumed change processes and design principles.[333] WIDER recommends that in order to facilitate replication and adoption of findings, researchers should report: the intervention development; the change techniques used in the intervention; and causal processes targeted by these change techniques.[334] Indeed, Michie et al., emphasises that as well as establishing the active ingredients of an intervention, an understanding of how the intervention works and mechanisms through which behavioural change is achieved should be reached.[333]

In meeting these recommendations, the studies in this thesis were designed to contribute towards the development of a robust theoretical basis. To avoid ambiguity, I define a theoretical basis as encompassing established psychological, sociological, and behavioural theory, but also as containing a set of intertwined concepts, which may include: the active ingredients shown to work in previous interventions; behavioural change techniques (BCTs) with evidence of promoting the delivery of smoking cessation interventions; modes of delivery with evidence of potential effectiveness; empirical findings about the use of tobacco in residential

units and the use of measures to address tobacco dependence among LAC; and issues surrounding acceptability and feasibility in practice.

While a pre-trial evaluation of the intervention is beyond the scope of this PhD thesis recommendations for additional work and issues to be clarified or addressed ahead of feasibility and piloting testing of the intervention are made in Chapter Nine.

4.5.1 Overview of studies

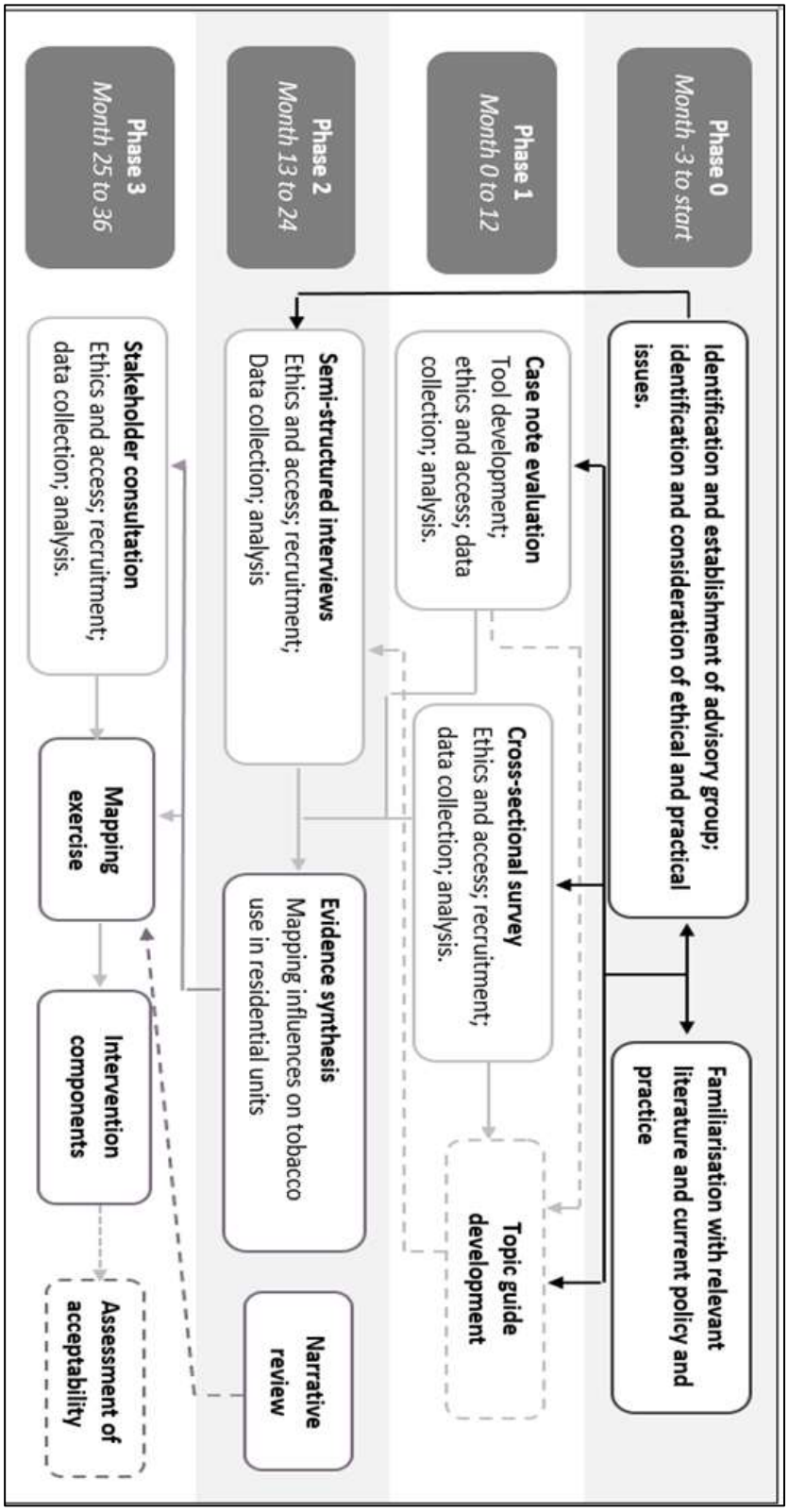
This thesis is guided by the first (developmental) stage of the MRC Framework for the development and evaluation of complex interventions. The MRC framework suggests that in advance of conducting a large and expensive trial, the intervention must be developed to the extent that it can be anticipated to have a valuable effect.[258,262] In this thesis, existing evidence on the use of tobacco in residential was supplemented with new information generated by seven linked studies which map to the developmental phase of the MRC framework and in line with current guidance, the studies do not follow a linear pattern and adopt a multi-method approach (Figure 4.4).

Figure 4.4 Overview of chapter structure and purpose, and phase of the MRC framework

<table>
<tr><th>MRC Stage</th><th>Chapter</th><th colspan="2">Purpose</th></tr>
<tr><td rowspan="9">Development</td><td>2</td><td>Evidence from literature and development of research questions</td><td rowspan="9">Critical discussion with experts in relevant fields</td></tr>
<tr><td>3</td><td rowspan="2">Identification of theoretical models and development of methods</td></tr>
<tr><td>4</td></tr>
<tr><td>5</td><td>Identification of theory and implementation issues</td></tr>
<tr><td>6</td><td rowspan="2">Empirical evidence from target population</td></tr>
<tr><td>7</td></tr>
<tr><td>8</td><td>Synthesis of evidence and theory
Stakeholder consultation
Intervention component design</td></tr>
<tr><td>9</td><td>Discussion</td></tr>
</table>

Five studies sought to develop evidence to aid understanding of the factors influencing tobacco use in residential units. While two studies contributed to the development of interventional components. Figure 4.5 illustrates the phases and linkages of each study. As can be seen, the studies often overlapped with one another within in the same phase of the research programme in practice. For instance, because each of the studies required differing ethical and access approvals, these were spread across phases one, and two. Full descriptions of the methods and findings of each of the studies are provided in their relevant chapters. However, briefly follows an overview of the seven studies.

Figure 4.5 Research phases and study linkage



4.5.1.1 Narrative review of implementation literature

The first study, described in Chapter Five, presents the conduct and findings of a narrative review exploring interventions addressing lifestyle behaviours of residentially accommodated LAC in the UK. At the outset of this research, it was intended to review interventions designed to address tobacco use in residential units for LAC. However, following a preliminary search, none were identified. As a result, it was decided to review articles describing interventions targeting lifestyle behaviours among LAC accommodated in residential units in the UK in order to ascertain facilitators and barriers to the conduct of research in children's services and to identify potential intervention implementation issues within residential units.

4.5.1.2 Case-note evaluation

The second study, presented in Chapter Six is a quantitative retrospective case note review of documentation concerning the statutory health assessment. The case note review aimed to determine whether residentially accommodated LAC are identified, advised, and treated for tobacco dependence during the statutory health assessment; identify any barriers to tobacco-related practice; and evaluate the willingness of children who smoke to engage in smoking-related discussions and treatment for tobacco dependence, as recorded on the statutory health assessment form. Additionally, smoking prevalence and the characteristics of LAC were investigated.

4.5.1.3 Cross-sectional survey

The third study, a cross-sectional survey of residential carers in the East Midlands, detailed in Chapter Seven, forms the first phase of a sequential mixed-methods study. Adopting a quantitative approach, the survey explored the use of tobacco in residential units and by LAC, residential carers smoking behaviours and tobacco-related attitudes, and perceived solutions to address to address tobacco use in residential units for LAC.

Findings informed the development of topics for in-depth investigation in the second phase.

4.5.1.4 Semi-structured interviews

The fourth study forms the second phase of the mixed-methods study also presented in Chapter Seven. Qualitative semi-structured interviews were conducted with residential carers to explore practice to manage tobacco use and promote smoking cessation in residential units, the impacts and harms of smoking by LAC, and to determine the effectiveness of current strategies to address smoking and what the support needs of residential carers are.

4.5.1.5 Evidence synthesis

The fifth study, detailed in Chapter Eight synthesises the findings of Chapters Six and Seven, using a modified socioecological model of health promotion, to identify the multiple levels of influence on the use of tobacco in residential units, as well as the interaction between these levels.

4.5.1.6 Stakeholder consultation

The sixth study, also described in Chapter Eight, utilised a multiple methods approach to stakeholder consultation. A short questionnaire and semi-structured interviews were conducted to identify the behaviours to target with an intervention and identify and explore potential barriers and facilitators to behavioural change and formulate potential solutions and delivery methods, to address tobacco use in residential units. Study instrument development was guided by the findings of the studies described in Chapters Five, Six, and Seven.

4.5.1.7 Mapping exercise

The final study, also described in Chapter Eight comprised a mapping exercise. Following the three of the four steps in the framework suggested by French and colleagues, the theoretical domains framework (TDF) was used to explicitly integrate behavioural theory with study data from Chapters Five, Six, Seven, and the studies in Chapter Eight to develop

the components of a complex intervention[257]. Implementation issues were identified from the findings of the narrative review presented in Chapter Four and the stakeholder consultation in Chapter Eight, with potential solutions formulated using the theory of diffusion of innovation in service organisations (DISO). The resulting components of the intervention are described.

4.6 Gaining ethical approval

Gaining ethical approval was a significant consideration in the research design. There were two major institutional approvals that needed to be sought for this research: one through the University of Nottingham's Faculty of Medicine and Health Sciences Research Ethics Committee (REC) and one through the participating organisations Research and Development department (R and D). REC approval is required to ensure the ethical treatment of participants and also to identify and resolve any ethical issues that the committee feels may arise from the research. Organisational R and D approval is required for any research taking place on local authority sites, and if employees are involved (either in research or recruitment). Both applications are governed through electronic submission of applications. While the applications to the REC and organisational R and D have very similar questions, they are however distinct and separate applications. For studies categorised as research ethical approval was sought and obtained from the University of Nottingham Faculty of Medicine and Health Sciences REC. For this research, the approvals process for obtaining organisational R and D approval provided hurdles, that while not insurmountable, were formative to the overall structure, organisation, and design. Here I outline how the R and D approval process impacted the research, as well as offering reflections on the overall process.

4.6.1 Local authority Research and Development

Research governance is primarily concerned with improving research, through the regulation and assurance of research quality and research ethics. While different research governance models offer their own definitions, the definition provided by the Department for Health's Research Governance Framework "*sets out to encourage and sustain a research culture that promotes excellence in the conduct of research and reduces unacceptable variations in practice*".[335] Governance processes may operate at national, regional, and local levels. The Research Governance Framework for health and social care applies to research undertaken in or by the Department of Health, its non-departmental Public Bodies and the NHS, as well as research undertaken by or within local authorities and social care organisations.

In each local authority governance processes often vary significantly. For example in some local authorities the remit of adult social care research governance has been extended to children's social care while others may have governance processes in place for external research, but not internal research, and some organisations may have integrated with other neighbouring local authorities to form a regional group that has developed general research guidelines or resources.[336] The specific procedures for obtaining ethical and organisational R and D approvals are detailed for each study in their respective chapters.

4.6.2 Challenges to conducting research in children's social care

Despite calls in recent years for more evidence-based practice approach in social care, there remains a suggested incompatibility between social work and the science of evidence-based practice.[337-341] For example, while randomised controlled trials are widely considered the gold standard for the assessment of effectiveness in health and clinical research, they are uncommon in the social care field in the UK.[342-344] NICE Public Health Guidance (PH28) on LAC identified evidence that found few trials were

sufficiently robust, adequately controlled, or transparent to answer basic research questions.[67] Three recommendations were made on how research should be designed and conducted to generate data to improve services for children in care, and included: the development of robust methods for evaluating services for LAC through multi-disciplinary working; reporting of research is transparent and replicable; the development of guidelines for economic evaluation, to encourage consistency across studies and support the implementation of methods for evaluating services for LAC.[67]

In addition to the problem of a lack of consistent governance frameworks, literature surrounding research conducted in children's social care has identified a number of challenges. Firstly, research and development in social care receive a far smaller share of total spend, when compared to health.[345] Second, while NHS trusts are required to support the cost of delivering experimental interventions and commissioners are committed to providing funds to support National Institute for Health Research (NIHR) funded research, no such provision or a culture of support exists in social care.[337,345,346] Thirdly, in comparison with health professionals, those in social care receive minimal training in research methodology or critical appraisal which leads to considerable disagreement in what constitutes best practice with regard to research participation and conduct and many social care professionals reporting a preference for an institution or practical wisdom.[338,339,347] Finally, in relation to research with LAC specifically, and as experienced in this research, informal gatekeeping by social workers may deny eligible populations the opportunity to participate, by selecting only those participants who may benefit most.[337,343,348] This selection bias opposes the growing consensus that children's views should be taken into account on matters that affect them.[67,340]

4.7 Ethical considerations for the research

The central ethical considerations for this research, which were addressed from the outset and included in the final application for approval, were divided between ethical considerations for participants and ethical considerations as a researcher.

4.7.1 Ethical considerations for participants

All of the studies were conducted in accordance with the ethical principles outlined in the Declaration of Helsinki (1996), the Principles of Good Clinical Practice (GCP), and the Department of Health Research Governance Framework for Health and Social Care (2005).[335] There were four major ethical considerations for participants that were incorporated into the design of the research. These were: (a) ensuring informed consent from participants, (b) consideration for the emotional well-being of participants, (c) issues of participant confidentiality, and (d) potential "gate-keeper" issues connected to the recruitment of residential carers and other stakeholders.

4.7.1.1 Ensuring informed consent from participants

Informed consent was ensured in a number of ways: survey participants were provided with study information and a copy of the questionnaire at least 28 days in advance of the closing date for responses so that they had time to decide whether or not to participate. Interviewees were given the consent for ahead of the interview so that they had time to look over it and ask questions. In some cases, interviewees signed and returned the form back to me. Regardless, before interviews took place the interviewee and I went over the form again and any questions or concerns were addressed. The form was then signed both of us, and we both held a copy of the form. Only after the consent form had been signed did the interview take place.

4.7.1.2 The emotional well-being of participants

With the exception of the retrospective review of statutory health assessment documentation, participants in this research were residential

carers and health and social care stakeholders, and as such these participants were not considered vulnerable in terms of participation in research activity. I did not anticipate that participation would cause psychological or physical harm. However, I was mindful that discussions concerning tobacco smoking may cause participants to evaluate their own smoking behaviour or that of others. In the event of this and as a support measure, details of stop smoking support services were included in the participant information. Furthermore, I was sensitive to the possibility that focusing on the research topic may potentially provoke anxiety among participants, particularly concerning the disclosure of adverse events. At the end of each interview, I took the time to ensure that participants were not feeling distressed by their participation in the interviews. None of the participants expressed concerns regarding participation or appeared distressed.

4.7.1.3 Participant confidentiality

Participants were informed as to their rights and limits of confidentiality in the study, in the event of disclosure which may pose harm to the participant or others. No disclosures which limited participants' rights of confidentiality were made during the studies. To ensure anonymity during the interview studies, participants and residential units where they were employed were assigned individual identification codes, and where individual residential carers or children were named during the interview, these were anonymised during transcription. Names of specific local authorities were edited to 'local authority', residential units were renamed 'the unit'. The research followed the Caldicott principles regarding confidentiality of patient data and all information was anonymised on receipt. All data gathered during the research studies were collected and stored according to the Data Protection Act 1988. Only I had routine access to the anonymised research data included in the thesis. Any data held on computers was password protected. The REC, local authority research governance Departments, and the regulatory authorities were

able to request to access data collected as part of the studies in this thesis. However, no such requests were made. No identifying information was or will be used in published or presented work.

4.7.1.4 Confidentiality and gate-keepers

All potential participants approached to take part in the studies were explicitly advised that their participation was voluntary and the decision to participate in the research would not impact their current or future employment within the local authority in any way. Participants were also informed both in writing and verbally that they were free to withdraw from the study without providing reasons for their decision. None of the participants withdrew from any of the studies.

4.7.2 Ethical considerations as a researcher

As a researcher, my own actions had to be given ethical consideration especially since I would be a visitor to residential units and would be present during staff meetings and interactions between residential carers and LAC. These meetings and interactions were treated with the same level of confidentiality as the interviews.

4.8 Reflections on the research process

Practising reflexivity provides an opportunity to transform researcher subjectivity into focussed insight and allows the researcher to not only understand their role in research but to minimise the impact of the researcher on the research outcomes.[349] Furthermore, primacy is given to the research topic and participant perspectives through the minimisation of the researcher perspective.[349] The following sub-sections will provide an outline of my philosophical position and prior knowledge, before considering the effect of the researcher on the research process.

4.8.1 Philosophical position

In a framework for assessing the rigour of qualitative research, Meyrick recommends that researchers make explicit their epistemological and

theoretical stance.[350] Philosophically, I align with the philosophy of critical realism. Developed by the British philosopher Roy Bhaskar, from the combining of transcendental realism (a philosophy of science) and critical naturalism (a philosophy of the social sciences), critical realism does not assume reality to be a single, measurable, determinable layer whose actions and events are independent of the mind, nor does it assume reality to be a single layer that is understandable through the exploration of experience and perspective.[316] Instead, reality is assumed to have multiple layers that contain structures and mechanisms that influence what is observable and that which can be experienced.[316]

4.8.2 Prior knowledge

I began this research with a background in tobacco related-research, with only a basic knowledge of children's social care. Knowledge and skills in this area were developed through familiarisation with the literature concerning LAC and discussions with children's social care professionals and stop smoking service leads. Social workers and youth stop smoking advisors provided accounts of their experiences of addressing tobacco use among LAC, and in particular among young people accommodated in residential units, to aid me in developing a better understanding of the issue.

4.8.3 Researcher effects

As a component of clarifying the effect of the researcher on the research, researchers often position themselves as either 'insiders' or 'outsiders' to their research topic or population.[351] Insider researchers, generally study groups to which they belong, while outsider researchers do not belong to the group being studied.[351] In the context of the research in this thesis, I was an 'outsider'. While Bonner and Tolhurst, in a review, outlined a number of advantages to being an 'insider' including a superior understanding of the group culture; having a greater ability to interact with the group and its members; and a previously established, and therefore greater, relational intimacy with the group.[351] However, other authors

have identified a number of disadvantages. These include: the risk of increased familiarity resulting in a loss of objectivity, particularly in terms of researchers making erroneous assumptions based on prior knowledge or experience; the insider-researcher may struggle to balance their insider role with the role of a researcher, with such a dichotomous roles acting as a barrier, and resulting in the separation of the researcher from those in the research setting; the insider-researcher's perceptions of the personal nature of the data collected may impede focus on the interview process; and that the process of interviewing may be complicated by assumptions held by informants, such as participant perceptions of the researcher posing questions to which the answer is already known, which can result in participant ambivalence or agreviation.[352] [353,354]

Generally, the recruitment of participants can be difficult, particularly when the researcher does not occupy an 'insider' position, largely due to the need to establish a rapport and trust with the group.[355] However, I did not encounter difficulties in the recruitment of residential carers. I recognised and presented myself as an outsider, and described my role as a public health researcher, with an interest in tobacco-related research. The decision to adopt this position was primarily due to a desire to be viewed by participants as a separate entity to the organisations through which recruitment took place and to ensure that full accounts and descriptions were provided.

My position as an outsider was apparent during visits to the units, where I was treated as a welcome houseguest. Interviews adopted an informal approach and participants were keen to share their experiences. In adopting this outsider role, I was able to elucidate information, which often contradicted policy or national recommendations, and which may not have been as forthcoming had participants perceived me to be affiliated with the local authority concerned. Issues concerning the use of tobacco by children in care and the practices adopted by participants were comprehensive and rich in description, and it is likely that greater amounts

of information were provided to me in order to give context to the problem of tobacco use in residential units. Despite, the reservations of some authors, in the context of this research, being an 'outsider' likely increased the depth of data collected.

I was aware that participants were recruited from a number of organisations and professionals groups, and as such may show a strong preference or commitment to a particular personal, professional, or political agenda, or may wish to raise issues during the interviews, which may be only tangentially related. To avoid this, I developed a strategy to move discussions on to more relevant matters. This involved re-emphasising the purpose of the research at the start of the interview and through the use of questions and prompts. I found the strategy to be successful in keeping participants engaged in the research process.

The majority of the interviews conducted in this thesis took part at participants' place of work, either in person or over the telephone. Although invited, I was mindful that I was a guest in the participant's place of work and as such participants were given the lead in setting the pace of the interview. By deliberately adopting this position I allowed participants to exercise a measure of control over the interview process.

I am a White British female in my late 30's. Participants in the interviews conducted in this thesis were predominantly female and interviewees were of varying ages, with the majority being in the 35 to 55 age range. All but one participant were British. Differences were not experienced in the amounts of information collected from participants suggesting my gender, age, and ethnicity did not impact the data collected. Furthermore, the questions posed appeared to be relevant to all participants and their frank responses and sharing of relevant and related experiences indicated that all understood my perspective.

I am a non-smoker, and consideration was given to how study participants who smoke may perceive me and my potential motives for the research. Richie and Lewis suggest that disclosure of personal information during

data collection may be problematic, and so I decided to not share my smoking status with participants.[356] Participants during interviews did not question my motives or indeed, my smoking status. Rather, it is likely that the participant assumed that I was a non-smoker, and from the responses provided by participants identifying as smokers assumption about my smoking status appeared not to impact data collection.

4.9 Chapter conclusion

This chapter has clarified how and why this research was conducted in the way in which it was. While the process is laid out in this chapter in a linear fashion, this was not always the reality of actually 'doing' the research. I have noted the changes in the research process that necessitated alterations to the methodology and methods, and in carefully outlining the methodological assumptions, along with the thought behind the research design, I hope that the reader is able to better understand the data collected and its subsequent analysis in the following chapters.

Chapter Five: Interventions targeting the life-style behaviours of children accommodated in residential units in the United Kingdom

In the development of complex interventions, the guidance published by the MRC advocates a systematic review of existing evidence in order to understand target outcomes and how change may be achieved.[262] In this chapter, therefore, I describe the conduct and findings of a narrative review of interventions targeting lifestyle behaviours among LAC in residential units in the UK. It was conducted in order to assist in the development of components of an intervention to address tobacco use in residential units. The rationale for conducting a narrative review of the literature rather than a systematic review concerns the limited amount of articles reporting the findings of randomised controlled trials on the topic and its impact on drawing conclusions.

5.1 Aim and objectives

5.1.1 Study aim

The primary aim of this study was to identify and review published literature pertaining to interventions targeting smoking in residential units for LAC. However, on review no such articles could be found. The aim was therefore revised to identify and review published evidence on implementation issues and strategies of interventions targeting lifestyle behaviours of residentially placed LAC in the UK.

5.1.2 Research question

The overarching research question was: *'What are the challenges and enablers associated with the implementation and delivery of interventions targeting lifestyle behaviours of residentially accommodated children in the UK, and how can they be addressed or exploited?'*

5.1.3 Objectives

In order to address the study aims, the objectives were to:

1. Establish if published literature exists in relation to interventions targeting lifestyle behaviours of residentially placed LAC in the UK.
2. Identify which implementation strategies are adopted and the effectiveness.
3. Determine how barriers and enablers to implementation challenges are addressed or exploited.
4. Make recommendations for the implementation of lifestyle interventions among residentially accommodated LAC.

5.2 Method

5.2.1 Design

This study was a narrative review of the literature concerning interventions targeting lifestyle behaviours among children and young people accommodated in residential units. The inclusion of studies evaluating interventions seeking to improve mental well-being among residentially accommodated children were considered for inclusion in the review, however, following a scoping review of the literature, these types of studies were discounted since interventions were led by mental health professionals, delivered in clinical settings, or were individually tailored to the young person. The inclusion of interventions in a foster care setting were also considered. These were discounted also as interventions focussed on the education and enhancement of skills of foster carers.

5.2.2 Search strategy

The nature of the topic under review poses two problems. Firstly, the practical problem in terms of the location of the type of evidence required, which previous research indicates will likely reside in local reports that may not be freely available and as such will not be located in health and social care electronic databases and thus despite extensive searching will not be

retrieved. Second, the literature on the topic of LAC and health is extensive, and much will not be relevant to the review given the restrictions on geographical area and lifestyle behaviours. In order to accommodate these considerations, an iterative approach was adopted, using different search techniques. Three iterations of searching were planned and these are described below.

5.2.2.1 First iteration

This first stage comprised:

- Focused searching of PubMed and Applied Social Sciences Index and Abstracts (ASSIA), combining terms relating to LAC, lifestyle interventions, and limited to UK studies only
- Focused searching of PubMed and ASSIA, to identify reviews relating to interventions targeting lifestyle behaviours among LAC
- Focussed Google search to identify local schemes or programmes aiming to deliver lifestyle interventions among children in care

5.2.2.2 Second iteration

The second stage comprised:

- Database searches of Database Promoting Health Effectiveness Reviews (DoPHER), Trials Register of Promoting Health Interventions (TRoPHIE), Cochrane Library and Campbell Library
- Citation searches and hand searching of key papers provided in studies identified as being of possible relevance through first iteration searches

5.2.2.3 Third iteration

The third stage comprised:

- Contact with children's services experts and local services to identify and locate reports, data, and other contacts.

5.2.3 Search terms

5.2.3.1 Targeted database search

Table 5.1 summarises search terms and citations retrieved from targeted database searches of PUBMED and ASSIA. Searches of DoPHER and TRoPHIE databases and the Cochrane and Campbell Libraries used focussed and combined search terms relating to lifestyle behaviours, LAC and were limited to UK studies only.

5.2.3.2 Google Scholar search

The following searches were made in Google Scholar:

- 'looked-after child' 'lifestyle'
- 'looked-after child' 'smoking' 'tobacco' 'prevention'
- 'looked-after child' 'alcohol' 'prevention'
- 'looked-after child' 'sexual health' 'prevention'
- 'looked-after child' 'pregnancy' 'teen parent' 'prevention'
- 'looked-after child' 'obesity' 'prevention'
- 'looked-after child' 'exercise' 'activity'

The searches were limited to Language: English, Region: United Kingdom, and Year: Since 2003. Very few relevant hits were found by page 15 of the results and those which were identified had been previously retrieved by the targeted database search.

5.2.3.3 Google search

Google was searched using the names of relevant programmes and interventions identified in the targeted database search to ascertain if these had been adopted at a local level.

5.2.4 Inclusion criteria

Studies were included in the review if they met the following criteria:

- The study is an evaluation of an intervention aiming to address lifestyle behaviours among residentially placed LAC in the UK. Limiting the search geographically reflects the specific nature of children's residential services in the UK.

- The intervention targeted children in residential care or carers in residential settings.
- The intervention is evaluated with either:
    - Randomised control trial with pre- and post-intervention measures
    - Quasi-experimental design with pre- and post-intervention measures
    - Pre- and post-intervention measures without a comparison group
- The study is published in English between 2003 and 2016. The year 2003 was selected as this was the year in which the Every Child Matters agenda was introduced in the UK.

If a study did not fulfil all criteria, it was excluded from the review.

Table 5.1 Citations returned from searches of ASSIA and PUBMED databases

Search words	**Citations returned**	
	PUBMED	***ASSIA***
Setting (Residential units for LAC) "looked after" OR "looked-after" OR "state care" OR "public care" OR "out-of-home care" OR "out of home care" OR "out of home placement" OR "residential care" OR "residential child care" OR "residential placement" OR "children's home"	4,389	39
Study type "intervent*" OR "programme" OR "improv*" OR "evaluation"	191,166	2,696
Intervention addressing "tobacco" OR "smok*" OR "cessation" OR "alcohol" OR "drink*" OR "obesity" OR "nutrition" OR "pregnancy" OR "sexual health"	124,435	2,175
Population, study type, and intervention target 1 AND 2 AND 3	17	3

5.2.5 Analysis

Retrieved citations were screened for relevance utilising a two-stage process. After initial screening, which was based on title and abstract, full-text articles were retrieved and examined against the inclusion criteria, which narrowed articles further.

Included studies were first classified into categories of study design, population, target behaviour, intervention activity, and implementation strategy. Next, articles were reviewed for information in relation to effectiveness and implementation issues, and where available recommendations. While a systematic review often results in a meta-analysis, due to the variability in study design and outcome, a meta-analysis was not suitable for this review. Therefore, the synthesis is by definition narrative.

5.3 Results

5.3.1 Identification of studies

5.3.1.1 Database searches

No systematic reviews of interventions targeting lifestyle behaviours of residentially placed LAC were identified. Database searches identified 17 unique citations describing 14 studies. Initial screening based on title and abstract narrowed the number of articles to 13. Full-text versions of the 13 articles were retrieved and reviewed against the inclusion criteria. This process identified four articles describing two interventional studies. A Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) style flow diagram, provided in Figure 5.1, shows the search strategy of the present review. Searches of the reference lists of potential and included articles yielded no additional articles for review.

5.3.1.2 Google searches

Supplementary searches in Google identified 23 unique programmes. However, none provided sufficient description for inclusion in the review.

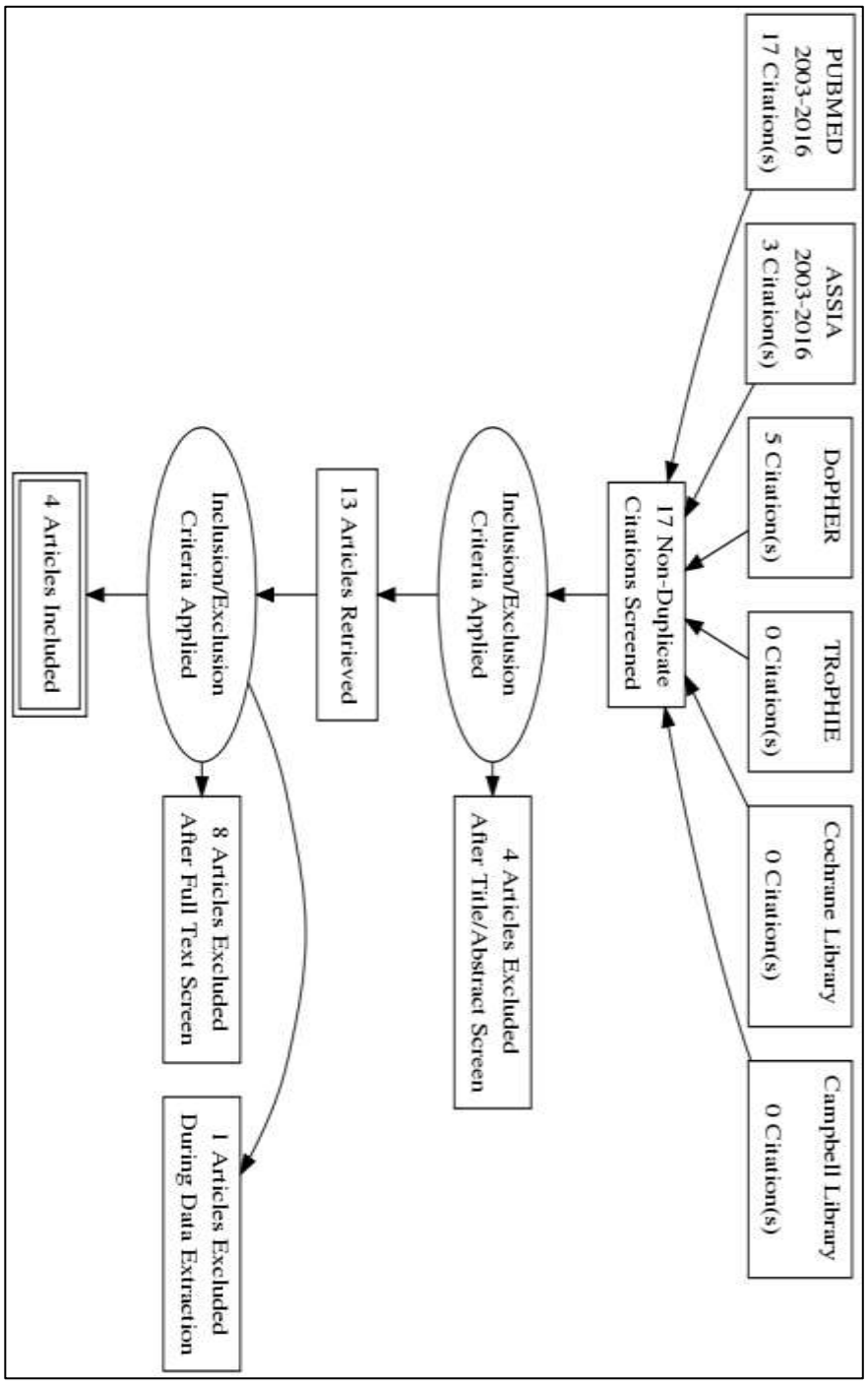
5.3.1.3 Information from children's services experts

The experts contacted were unable to provide information relating to local programmes or interventions targeting lifestyle behaviours of residentially accommodated children.

5.3.2 Overview of studies included

Among the four articles identified two studies were described. These are discussed in detail below and summarised in Table 5.2. Dale et al. and Dale and Watson reported findings of a pre-test post-test evaluation of an intervention targeting sexual health, smoking, exercise, healthy eating, and non-dependent alcohol and drug use, set in Scotland.[357,358] Delivered by a health psychologist the one-to-one intervention was tailored to the health needs of each young person aged eleven years and older. While this study included all children in care, half of those who engaged were accommodated in residential settings. Among the 144 young people who were referred to the pilot service, ten dropped out prior to the first appointment. One-hundred and twenty-five young people were eligible for the intervention and baseline data were collected for 93 of these. Post evaluation data were collected for 52 of the 93 young people for whom baseline data were obtained, and 6 young people provided follow-up data at six months post evaluation. Outcome measures included measurements of weekly tobacco, alcohol, and fruit and vegetable consumption, as well as contraception use. Measures of intention to improve health and overall measures of well-being were collected. The intervention was found to meet its objective of encouraging children in care to discuss and change their health-related behaviours. However, the study was limited by the high attrition of the study sample, the subsequent small sample available for analysis, and a lack of a control group.

Figure 5.1 Flow diagram showing the search strategy of the present review



The article authored by Mezey et al. describe the development and evaluation (phase I and II RCT) of an intervention to reduce teen pregnancy among children in care and care leavers, in three local authorities in England.[348,359] A peer-mentoring intervention was delivered to looked-after girls aged 14 to 18 years, by mentors aged 19 to 25 years with experience of being looked after. The primary outcome measure was pregnancy between the ages of 14 and 18 years. Secondary outcomes were changes in sexual attitudes, behaviour, and knowledge; psychological health; help-seeking behaviours; locus of control; and attachment style. The study failed to reach recruitment targets for both the pilot and the exploratory trial and attrition was high during phases I and II and as such it was not possible to establish the effectiveness of the intervention in reducing teenage pregnancy. However, the training programme was acceptable to mentors and could be replicated. The findings of the study revealed the intervention to lack effectiveness, which was largely due to the inappropriateness of the intervention in the local authority context.

Table 5.2 Summary of articles included in the review

Author (year)	Title	Article description
1. Dale, Watson, Adair, & Humphris (2016)	*Looked after young people: Reducing health inequality through an evidence- and theory-informed intervention*	Report of a pre-post evaluation of an intervention addressing lifestyle behaviours of children in care. Intervention: individual motivational interviewing intervention delivered by a health psychologist. Partnership between health psychology and public health services.
2. Mezey. G., Meyer. D., Robinson. F., Bonell. C., Campbell. R., Gillard. S., Jordan. P., Mantovani. N., Wellings. K., & White. S. (2015)	*Developing and piloting a peer mentoring intervention to reduce teenage pregnancy in LAC and care leavers: an exploratory randomised controlled trial*	Report on pilot and exploratory RCT of a peer mentoring intervention to address teen pregnancy among LAC and care leavers.
3. Mezey. G., Meyer. D., Robinson. F., Bonell. C., Campbell. R., Gillard. S., Jordan. P., Mantovani. N., Wellings. K., & White. S. (2015)	*Challenges to undertaking randomised controlled trials with children in social care settings*	Report on pilot and exploratory RCT of a peer mentoring intervention to address teen pregnancy among LAC and care leavers.
4. Dale & Watson (2010)	*Barriers and facilitators in delivering a new model of sexual health service for young people who are looked after*	Commentary reporting implementation issues in the piloting of an intervention to address health risk behaviours among LAC. Full report provided in 1. Dale and Watson (2016).

5.3.3 Implementation strategy

The findings of the studies were reviewed, synthesised, and categorised to identify the characteristics of the implementation strategy adopted and the challenges and facilitators of implementation.

While the authors did not explicitly describe the implementation strategy of the intervention, a number of preparatory activities took place.[357,359] These included:

- Establishing credibility of the research team and research through active dissemination.
- Building on previous relationships in children's social care and allied services to generate co-operation, positive interest in the research and the tangible benefits of the intervention
- Familiarity of the researcher with the complex and changing organisational structures that surround children in care
- The inclusion of LAC and young people in the design of publicity materials for the project

5.3.4 Interventional and implementation issues

Challenges and facilitators to implementation of the intervention at three levels (intervention content and procedures; organisational level factors; and child level factors) were identified and are summarised in Table 5.3.

Table 5.3 Summary of implementation issues identified from the present review

Level	Challenges	Enablers
Intervention content or procedures	▪ *Formality of consent and evaluation data collection procedures.* ▪ *Participant attrition.* ▪ *Limited understanding by local authority for the need for randomisation.*	▪ *The service was not specifically manualised and allowed tailoring. Fidelity was ensured through regular clinical supervision and recording of the most commonly used motivational techniques.* ▪ *Use of text, phone or self-referral.* ▪ *High trainer to participant ratio allowed for greater levels of one-to-one support.*
Organisational	▪ *Time constraints among carers.* ▪ *Lack of prioritisation of non-dependent health risk behaviours.* ▪ *Lack of awareness/knowledge among carers to recognise the need to address health risk behaviours* ▪ *Limited organisational ownership, commitment to, and support.* ▪ *Attitudes relating to the vulnerability of children in care.* ▪ *Staff perceptions that LAC are resistant to additional services.*	▪ *Establishment of research credibility and benefits of intervention.* ▪ *Dissemination of research.* ▪ *Understanding of the complexity of children's social care.*

Level	Challenges	Facilitators
LAC	▪ *Lack of motivation among children in care to address risky health behaviours.* ▪ *Competing interest or a lack of placement stability.* ▪ *Concurrent physical or mental health needs of LAC.*	▪ *Flexibility in terms of location and timing of appointments, including drop in and group sessions.* ▪ *A collaborative model of engagement, agenda setting, and intervention delivery led by the child.* ▪ *No limits on the number of sessions delivered imposed.* ▪ *Use of text reminders to increase engagement.* ▪ *Patience and a non-judgemental attitudes towards the time keeping of participants, helping to establish a rapport, trust, and therapeutic.* ▪ *The inclusion of a key-worker or carer during initial meetings.* .

5.4 Discussion

5.4.1 Main findings

While the need to address risky lifestyle behaviours among children in residential care is recognised at national and local levels, limited evidence exists on how best to address the issue. The findings of this narrative review identified two studies targeting lifestyle behaviours among residentially accommodated LAC in the UK. However, due to the small number of articles and the inclusion of just one RCT, and the lack of replication, it is not possible to draw definitive conclusions as to the best approaches to the implementation of interventions in residential units. However, the studies reviewed provide useful directions towards those issues that may challenge or enable the implementation of interventions targeting lifestyle behaviours among residentially accommodated children in care in the UK and warrants further investigation. The reported organisational and practical constraints suggest that addressing lifestyle behaviours among children in care is not prioritised by residential carers and those with responsibility for LAC. Further research should, therefore, explore how practice to address these issues is prioritised by residential carers and what barriers and facilitators should be addressed or exploited.

5.4.2 Limitations of this review

There are several limitations associated with the present literature review. Firstly, no assessment of quality was performed on the included studies and therefore it is not possible to ascertain whether the results of the review are based on high-quality studies. Second, time and resource constraints meant that the search was limited to common search terms and two electronic publication databases, and the use of internet searches yielded no results due to the large volume of pages returned. It is, therefore, acknowledged that the inclusion of further and more refined search terms or increases in the number of publication databases searched, or web pages have been reviewed, additional papers reporting interventional studies on this topic may have been identified. Finally, just

one researcher reviewed the identified articles; it may be that other researchers may have interpreted the reported findings differently. Although these concerns are highlighted, it is important to consider that this review was conducted with a systematic approach which was reported rigorously. The review is comprehensive in that it sought to identify evidence relating to interventions addressing five lifestyle behaviours, namely: tobacco smoking; drinking alcohol; nutrition; physical activity; and sexual behaviours among residentially placed children in the UK. Furthermore, this is the first review of the literature to explore evidence of issues concerning the implementation of interventions to address lifestyle behaviours among this vulnerable population and thus provides useful insight into the issues of conducting such research.

5.5 Chapter conclusion

This chapter has identified evidence on interventions addressing life-style behaviours among residentially accommodated LAC in the UK. Despite a scarcity of published literature, sufficient description of implementation issues likely to be encountered in the target population, and with which this thesis is concerned is provided. Challenges and enablers to intervention implementation were identified at three (LAC, interventional content and procedures, and organisational) levels. However, the scarcity of interventions conducted in UK children's residential care highlights the need to explore implementation issues in greater depth.

Chapter Six: Identification and treatment of tobacco dependence during the statutory health assessment

Chapter Two discussed the statutory guidance and legislation to promote the health and well-being of LAC and identified the utility of the statutory health assessment in assisting local authorities in meeting these obligations. Despite a general lack of prioritisation, tobacco use is specifically mentioned in the recommendations issued by NICE to promote the quality of life of children in care.[69] Furthermore, guidance on smoking cessation issued by NICE states that all health and social care professionals should be encouraged to deliver brief cessation advice systematically to all smokers at every contact and to assess smokers' motivation and commitment to quitting.[239] For those smokers who wish to make a quit attempt, a referral for more intensive smoking cessation support should be made, and for those who do not want to quit at the point of inquiry should be recorded and reviewed with the individual annually, where possible.[239] The statutory health assessment, conducted by healthcare professional provides an opportunity for identifying and addressing tobacco dependence among children in care. Yet, it is unknown whether LAC are identified, advised, and offered treatment in relation to tobacco dependence in the statutory health assessment.

In this chapter, I provide details of the first of three empirical studies exploring the influences on the use of tobacco in residential units. This study focusses on assessing the extent to which children in residential care are identified and treated for tobacco dependence and updates current knowledge on both prevalence and the characteristics of residentially accommodated young people who smoke.

6.1 Study Aim and Objectives

6.1.1 Study aim

The purpose of this study was to establish if the statutory health assessment for LAC provided opportunities for addressing tobacco use, and to review of the prevalence and characteristics of children accommodated in residential units who smoke.

6.1.2 Study objectives

The objectives were to:

1. Determine whether children accommodated in residential units are identified, advised, and treated for tobacco dependence during the statutory health assessment
2. Establish any barriers to practice to assessing the tobacco-related behaviours of LAC during the statutory health assessment.
3. Evaluate the willingness of LAC who smoke to engage in smoking-related discussions and their uptake of support or treatment offered for tobacco dependence, as recorded on the statutory health assessment form.
4. Establish smoking prevalence, and the characteristics of residentially accommodated LAC who smoke and those who do not.

6.2 Methods

6.2.1 Design

After considering the potential sources of local authority and health data relating to children in care, I decided to undertake a retrospective case note evaluation of statutory health assessment documentation, utilising a quantitative approach. Reasons for this conclusion were based on the fact that the statutory health assessment for young people, as described in Chapter Two, provides a comprehensive record of the current and past health needs of LAC, and includes lifestyle behaviours, including tobacco use. Using this documentation negates the need to match data from

different sources and leads to a greater completeness of data, and more valid findings.

6.2.2 Participants and setting

6.2.2.1 Numbers of children looked-after

Data provided the local authority and specialist nurses for LAC identified that at the time of the study (January 2015) 1,920 children were recognised through social work assessments as being formally in need of specialist children's services. Among these children in need, 326 were the subject of a child protection plan and eight were unaccompanied asylum seekers. A total of 545 children were looked after by the local authority and their placements are shown in Figure 6.1.

Figure 6.1 Placements for children looked after during the year ending 31 March 2014

Placement type	**Count**
Placed for adoption with consent with foster carer	1
Placed for adoption with consent NOT with foster carer	15
Placed for adoption with placement order with foster carer	2
Placed for adoption with placement order NOT with foster carer	7
Residential unit (subject to children's home regulations)	**56**
Hostels & other supported residential setting	7
Secure unit	1
Placed with own parents/persons with parental responsibility	26
Independent living e.g. flat, lodgings, bedsit	12
Foster placement with relative or friend	129
Placement with other foster carer	269
NHS/Health Trust medical establishment (e.g. hospital)	2
Family Centre / Mother and Baby Unit	2
Residential Schools	6
Youth Offending Institution or Prison	6
Other placement	2
Total	**545**

6.2.2.2 Health provision for looked-after children

Commissioning arrangements for the health of children in care and the implementation of designated professional roles were the responsibility of the local Clinical Commissioning Group and services for LAC were provided by the local NHS Trust.

6.2.3 Data source

Two forms are provided by the British Association of Adoption and Fostering (BAAF) to facilitate the assessment of health needs among children aged over 10 years.

6.2.3.1 BAAF form IHA-YP

BAAF form IHA-YP (Initial Health Assessment for young people, aged 10 years or older) is the assessment tool used for initial health assessments. Part A of the form is completed by the child's social worker and provides background information on the child, their legal status, placement details, and the reason the child became looked after. Part B of form IHA-YP provides a holistic assessment of the child's health, as completed by the assessing doctor or specialist LAC's nurse. It is recommended the child's social worker as well as birth parents, and the child's carer should attend the assessment to ensure the provision of information relating to the child's background and health history. The Initial Health Assessment provides an opportunity to offer age-appropriate health promotion on a wide range of health-related issues. Assessing professionals are encouraged, when completing the initial health assessment with children and young people aged ten years and older, to offer the Substance Misuse Screening Tool and document exposure in the smoking, alcohol, and substances. Part C comprises a summary report and health recommendations plan completed by the assessing Community Paediatrician and forms part of the child's holistic care plan. Dental status is also recorded in Part C, and the names and titles of all professionals undertaking the assessment, as well as the date that it was conducted are completed in Part C, at the end of the Health Recommendation Plan.

6.2.3.2 BAAF form RHA-YP

BAAF form RHA-YP (Review Health Assessment for Young Person aged 10 years or older) facilitates the re-assessment of young people's health needs while they are looked after and provide age-appropriate health promotion on a wide range of health issues. Part A of the form provides information on the young person, their legal status, and placement details, as provided by the young person's social worker. Part B reviews previous health assessments and provides questions to prompt and guide discussions with the young person about their health and well-being. Where prompts are not responded to, the assessing health professional should document the reason for not responding to the question or prompt, so that all sections are completed. If issues are identified that are not included on the BAAF form, supplementary pages may be added. Emotional needs are assessed through the integration of the Strengths and Difficulties Questionnaire for children aged four to 16 years. Like in the IHA-YP, substance, alcohol, and tobacco use are also assessed and the treatment strategies recorded. The name, role, and location of the health professional are also recorded in Part B. Part C of the form comprises a summary report and HRP compiled by the assessing health professional. Where no unmet health need is identified this is documented in the plan.

6.2.4 Participant selection criteria

The following considerations, shown in Figure 6.2, were undertaken when determining the inclusion or exclusion of LAC health records in the evaluation.

Figure 6.2 Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Child or young person looked after by Leicester City Council, for who the Leicester City Council was the corporate parent.	Child or young person was accommodated in Leicester City Council boundary, but for whom another local authority is the corporate parent.
Child or young person provided with accommodation in a residential unit by Leicester City Council.	Child or young person was accommodated in any residential provision other than a residential units.
Child or young person is placed in a residential units operated Leicester City Council.	Child or young person is placed in a residential unit not operated by Leicester City Council. .
Child or young person accommodated between 1 June 2013 and 31 May 2014.	Child was accommodated for any period other than 1 June 2013 to 31 May 2014.
Child or young person aged ten years to 18 years.	Child aged nine years or less.

6.2.5 Justification for inclusion/exclusion criteria

6.2.5.1 Age

Residentially accommodated children aged between ten to 18 years were included in the evaluation. The reasons for this related to the statutory health assessment process and documentation. In that, the substance-specific questions are only required in assessments among children aged ten and older, and thus obtaining this information in relation to younger children would be unlikely.

6.2.5.2 Type of residential placement

Local authority provision of residential accommodation includes short-term or respite care, residential schools, residential units, and secure units. Given the short-term (often no more than two weeks) stays provided by respite care for children in need, and fact that children are placed in residential special schools due to high level medical and developmental needs, rather than as a result of being looked-after via care orders or voluntary arrangements under the Children's Act 1989; it was decided after

consultation with the nursing service that children utilising these placements would not be included the evaluation. Children placed in residential units operated by private or third-sector organisations were excluded.

6.2.5.3 Secure units

Children accommodated in secure units were excluded from the review. This was based on the premise that all were accommodated under youth justice orders and lacked the opportunity to obtain or use tobacco due to the increased supervision and accommodation circumstances.

6.2.5.4 Children accommodated in in the participating local authority, for whom another local authority was responsible

The decision to exclude children for whom another local authority was the corporate parent from the evaluation was related to difficulties in obtaining consent and/or approval to review the health records and the fact that health data would be partial and only present if the child had previously undergone a statutory health assessment conducted by the participating Trust.

6.2.6 Data collection instrument and measures

A data collection tool (Appendix B) was developed to facilitate the collection and recording of data as it existed in the statutory health assessment documentation. The tool comprised four sections:

a) Demographic characteristics, including the age at entry into care and the length of time spent in care
b) Recorded physical conditions, mental disorders and whether the young person was recorded as having an intellectual or developmental disability or special educational needs.
c) The extent to which young people were identified, advised, and offered treatment for tobacco dependence; and where appropriate
d) The barriers to addressing tobacco dependence as recorded in forms IHA-YP or RHA-YP.

Codes for physical conditions and mental health problems were created using the International Classification of Disease – version 10 (ICD-10) diagnostic categories and related broad disease/disorder codes.[141] These are shown Figures 6.3 and 6.4. The ICD-10 is the standard diagnostic tool, utilised by all member states of the WHO for epidemiological and clinical purposes, as well as health service management, including analysis of the general health of populations. For the purposes of this research specific diagnoses are not reported in order to protect the anonymity of the children. However, overarching conditions are presented.

Standards relating to the recording of smoking-related information were developed from clinical guidance recommended by NICE in relation to the identification and treatment of tobacco dependence and statutory guidance on the promotion of health and well-being of LAC and young people.

Figure 6.3 ICD-10 categories for physical conditions

ICD-10 Physical health condition category
▪ Diseases of the blood and blood forming organs ▪ Endocrine, nutritional, and metabolic disease ▪ Diseases of the nervous system ▪ Diseases of the eye and adnexa ▪ Diseases of the ear and mastoid process ▪ Diseases of the circulatory system ▪ Diseases of the respiratory system ▪ Diseases of the digestive system ▪ Diseases of the skin and subcutaneous tissue ▪ Diseases of the musculoskeletal system and connective tissue ▪ Diseases of the genitourinary system ▪ Congenital malformations and chromosomal abnormalities

Figure 6.4 ICD-10 categories of mental health problems

ICD-10 Mental health problem category
▪ Mental and behavioural disorders due to psychoactive substance use ▪ Schizophrenia, schizotypal, and delusional disorders ▪ Mood [affective] disorders ▪ Neurotic, stress-related, and somatoform disorders ▪ Behavioural syndromes associated with psychological disturbance and physical factors ▪ Disorders of adult personality and behaviour ▪ Intellectual and developmental disabilities ▪ Disorders of psychological development ▪ Behavioural and emotional disorders with on set usually occurring in childhood and adolescence ▪ Intentional self-harm

6.2.7 Ethical and governance procedures

Following consultation with the NHS Trust, it was not possible to obtain the consent of the children and/or their parents for the examination of annual health assessment records for a number of reasons; which included children leaving the area, leaving care, moving to alternative care placements, or individually locating and contacting the birth parents or those with parental responsibility. Therefore, additional review of the study was sought from the Trust's Families, Young People & Children Clinical Audit, Standards, Effectiveness and Research (CASER) Group for the use of identifiable patient data without patient consent under Section 251 of the NHS Act (2006). This required my attendance at a CASER meeting to formally present the evaluation protocol and answer questions from the panel members.

Approval to conduct the evaluation was granted on 27 November 2014 and in accordance with NHS clinical governance requirements, approval was also obtained from the Trust's Caldicott Guardian. Under the conditions of approval of the study, I was required to undertake additional online compliance training in relation to NHS healthcare records handling and confidentiality. I was also subject to a confidentiality agreement.

Collected data were stored in accordance with the Data Protection Act 1988 and access were limited to the researcher and relevant regulatory authorities. Information collected from children's health records were treated confidentially and disclosure of information gathered or witnessed was prohibited due to its explicitly confidential nature.

6.2.8 Data collection

Access to the statutory health assessment documentation was negotiated with the lead designated nurse for LAC. Review of the electronically held documentation took place on trust premises under the supervision of a member of the specialist nursing team, during January 2015. Initially, I was provided with a list of residential units in the local authority area. This list aided in the identification of those children eligible for inclusion in the review. Individual children were listed under their designated nurses' caseload. Through a systematic review of records, children meeting the inclusion criteria were identified. Included records were scrutinised and relevant data entered directly into the data collection tool. Where information in relation to tobacco use was not recorded, health assessment documentation was reviewed further in order to identify reasons for not exploring this area with children; if available this information was entered into the data collection tool.

6.2.9 Data analysis

Categorical data were transferred from the data collection tool and entered into IBM Statistical Package for the Social Sciences (SPSS), version 22. Following data coding, descriptive statistics were used to obtain frequencies, proportions, and medians reported with interquartile range (IQR) in order to summarise the characteristics of the cohort, professionals' conducting the health assessment, and the frequency of smoking-related information recording. In order to explore the potential associations between the cohort characteristics and smoking behaviour characteristics of age, length of time in care, and age at entry into care were dichotomised with values below or equal to the median, taken to be one category, and

those values above the median value forming the other category. Following which, Pearson's Chi-squared tests (Fisher's exact tests where indicated) were conducted. Pearson Chi-squared tests were also used to assess if enquiries relating to smoking were associated with a professional group (doctor or nurse). Statistical significance was taken to be $p \leq 0.05$. Free text, qualitative data relating to reasons for non-recording or barriers to identifying or engaging children who smoke were quantified using qualitative content analysis.

6.3 Results

6.3.1 Statutory health assessment documentation reviewed

Records for 31 children placed in residential units, for whom the local authority had responsibility were identified as eligible for inclusion in the evaluation. Of these records, 30 (96.8%) contained documentary evidence of a statutory health assessment conducted between 1 June 2013 and 31 May 2014. The one record ineligible for inclusion related to a child who was awaiting their initial health assessment. Twenty (66.7%) of the 30 health assessments undertaken were conducted by specialist LAC nurses while the remaining ten (33.3%) were undertaken by designated doctors for LAC.

6.3.2 Cohort characteristics

Characteristics of the 30 children included in the review are summarised in Table 6.1. The cohort was predominantly male (*n*=18, 60.0) and overall had a median age of 15.0 (IQR 14.0-16.0) years. From the 26 (86.6%) cases that documented episodes of care, children entered care at a median age of 12.0 (IQR 11.0-15.0) years and spent a median duration in care of 2.0 (IQR 1.75-3.0) years.

Nineteen (63.3%) children were recorded as experiencing at least one physical health condition. Twenty (66.7%) were reported as receiving a

diagnosis of mental health problem and nine (30.0%) were recognised as having special education needs. Thirteen (43.3%) children experienced both a physical condition and mental health problem. Two (6.6%) children were recorded as using cannabis. Tables 6.2 and 6.3 present the frequency of physical conditions and mental health problems identified among the cohort.

Table 6.1 Summary of cohort characteristics

Characteristic		**Frequency (%)**
Gender	*Male*	18 (60.0)
	Female	12 (40.0)
Placement provider	*Local authority*	27 (90.0)
	Private/voluntary	3 (10.0)
Physical health problem present	*Yes*	19 (63.3)
	No	11 (36.7)
Mental health problem present	*Yes*	20 (66.7)
	No	10 (33.3)
Physical and mental health problem present	*Yes*	13 (56.7)
	No	17 (43.3)
Special educational needs	*Yes*	9 (30.0)
	No	21 (70.0)

Thirty physical health conditions were recorded for 19 children. The most frequently documented conditions were epilepsy (*n*=6, 20.0%), allergic conditions (e.g. hay fever, eczema) (*n*=6, 20.0%), and asthma (*n*=5, 16.7%). Of the 20 children identified as having a mental health problem, 26 mental health problems were documented. The most frequently documented diagnoses were disorders of psychological development (e.g. autistic spectrum disorder) (*n*=8, 30.8%), behavioural and emotional disorders (e.g. conduct disorder) (n=7, 26.9%), and intentional self-harm (*n*=5, 19.2%).

Table 6.2 Frequency of physical health conditions among LAC

ICD-10 Classification	Condition	Frequency
Diseases of the blood	*Anaemia*	2
Diseases of the nervous system	*Cerebral cyst*	1
	Cerebral palsy	4
	Encephalopathy	1
	Epilepsy	6
	Migraine	1
Diseases of the skin	*Eczema*	2
Diseases of the digestive system	*Gastroesophageal reflux*	1
Diseases of the respiratory system	*Asthma*	5
	Hay fever	4
Congenital malformations	*Congenital cardiac disease*	2
	Microcephaly	1
	Total	**30**

Table 6.3 Frequency of mental health problems among LAC

ICD-10 Classification	Frequency
Mood [affective] disorders	1
Neurotic, stress related, and somatoform disorders	4
Disorders of adult personality and behaviour	1
Disorders of psychological development	8
Behavioural and emotional disorders onset in childhood and adolescence	7
Intentional self-harm	5
Total	***26***

6.3.3 Identification and treatment of tobacco dependence

From the 30 health assessments undertaken between 1 June 2013 and 31 May 2014, 23 children (76.6%) received enquiries regarding their smoking status. Of these, twelve (52.1%) reported current use of tobacco. Nine (75.0%) smokers were recorded as engaging in discussions surrounding smoking, including tobacco consumption; with the circumstances in which

children smoke recorded in just one instance. Among the nine children for who smoking-related discussions were recorded eight (88.9%) received brief advice and offers of treatment in the form of arranging contact with the local stop smoking service. Of these eight young people, two (25.0%) young people accepted offers of treatment in the form of referral to the local smoking cessation service.

6.3.4 Reasons children decline support or treatment for tobacco dependence

Six cases documented the reasons children declined treatment for tobacco dependence. These were reported as: "not wanting to quit" (*n*=3); "unsure about quitting" (*n*=1); "wants to cut down, but not quit" (*n*=1); and "not ready to quit" (*n*=1).

6.3.5 Barriers to the recording of smoking-related information

Reasons for the non-documentation of smoking status were provided in five of the seven cases where smoking status was not recorded. The reasons provided included: the young person was fully dependent on adults for all care (*n*=3); it was felt not to be appropriate to make enquiries due to the young person's behaviour during the assessment (*n*=1), and the young person's smoking status was assessed during a previous health assessment (*n*=1). Evidence for not engaging with young people regarding their smoking provided in just one of the three instances, where discussions did not take place; stating that the young person had disengaged from the health assessment.

6.3.6 Characteristics of residentially accommodated children who smoke

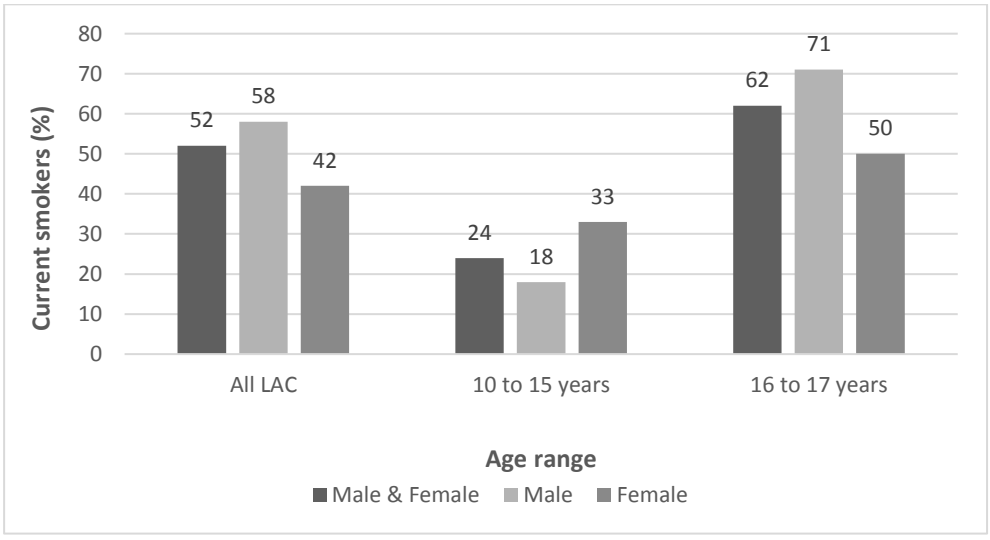
Of the twelve smokers (52.1%) identified during the statutory health assessment, five (45.4%) reported consuming between six and ten cigarettes each day. The median age of all smokers was 16 (IQR 15.0-16.75) years. Among children aged ten to 15 years (*n*=17), four (23.5%)

reported current smoking and of the 13 children aged 16 to 17 years, eight (61.5%) identified themselves as current smokers.

Overall, males were slightly more likely to report smoking than females (*n*=7, 58.3% compared to *n*=5, 41.6%). However, in the age ten to 15 year age group smoking was reported by two out of the eleven (18.2%) males and two of the six females (33.3%). While in the 16 to 17 year age group, five of the seven (71.4%) males and three of the six females (50.0%) reported current smoking. Figure 6.5 details the proportion of children reporting current smoking during the annual statutory health assessment, by age range and gender.

From the nine cases which documented children's care experiences, smokers entered care at a median age of 14.0 (IQR 11.0-15.0) years and had spent a median period in care of 2.0 (IQR 2.0-3.5) years at the time of the review.

Figure 6.5 Smoking status among residentially accommodated children, by age and gender



Six (50.0%) of the twelve children who reported smoking had at least one physical health condition. Thirteen physical health conditions were documented, the most common of which was epilepsy; noted in the records of five (41.6%) of the twelve smokers. Seven (58.3%) of the twelve

smokers had received a diagnosis of at least one mental health problem. A total of twelve mental health problems were recorded among smokers. Behavioural and emotional disorder (e.g. ADHD and conduct disorder) was most commonly recorded. Five of the seven children (71.4%) diagnosed with emotional and behavioural disorders reported current smoking. The physical health conditions and mental health problems experienced by smokers are shown in Tables 6.4 and 6.5. Four (33.3%) smokers had both physical conditions and mental health problems recorded. Of the smokers identified, none were recorded as having a diagnosed learning disability or special educational needs.

Table 6.4 Physical conditions experienced by LAC who smoke

ICD-10 Classification	Physical health condition	Frequency
Diseases of the blood	*Anaemia*	1
Diseases of the nervous system	*Epilepsy*	5
	Migraine	1
Diseases of the respiratory system	*Asthma*	2
	Hay fever	3
Diseases of the skin	*Eczema*	1
	Total	**13**

Table 6.5 Mental health problems experienced by LAC who smoke

ICD-10 Classification	**Frequency**
Mood [affective] disorder	1
Neurotic, stress related, and somatoform disorders	1
Disorders of adult personality and behaviour	1
Behavioural and emotional disorders onset in childhood and adolescence	5
Intentional self-harm	4
Total	**12**

6.3.7 Results from Pearson Chi-squared tests

Smoking among residentially accommodated LAC was not found to be associated with gender, health status, or length of time in care. However, tobacco use was found to significantly more common among children over the age of 15 years [*p*=0.043, OR3.33, (95%CI 0.91-12.27)] with eight of the twelve (66.7%) young people over the age of 15 with whom enquiries regarding smoking were made, reporting current tobacco use compared to three (27.2%) who denied smoking. Children with recorded special educational needs were significantly less likely [*p*=0.014, OR 2.04, (95%CI 0.97-4.28)] to receive smoking-related enquiries than their peers without recorded additional needs. Among the nine children with recorded special educational needs, four (44.4%) received enquiries regarding smoking in comparison to 19 (90.5%) youth without special educational needs.

Nurses were significantly less likely to omit smoking-related enquiries from the health assessment that doctors [*p*=0.026, OR 5.0, (95%CI 1.2-21.4)]; from the seven health assessments where smoking-related information was not recorded two (28.6%) were conducted by nurses in comparison to five (71.4%) which were conducted by designated doctors.

6.4 Discussion

Looked-after children placed in residential units are among the most vulnerable and disadvantaged populations in society.[20] Consistent with previous research, this study confirms the efficacy of the statutory health review in identifying health needs among LAC.[57] Similarly, and despite prompts in relation to substance misuse and lifestyle risks, a limitation of the health assessment documentation was identified in relation to the identification of tobacco dependence among LAC. Indeed, without prompts to questioning, tobacco dependence may be overlooked, especially in relation to youth who misuse legal or illegal substances. If smoking behaviours are to be effectively identified comprehensive

questioning is required and prompts should be included in forms IHA-YP and RHA-YP for specific substances.

6.4.1 Tobacco use by residentially accommodated looked-after children

Smoking prevalence (52.1%) was comparable to that previously published (47-69%).[18,360,361] Smoking was most frequent among children who had entered care over the age of 13 years and among those who had been in care for less than three years, suggesting that smoking was initiated prior to becoming looked after and that tobacco dependence remained unaddressed during their time in care. This highlights the need to assess the smoking status of children on entry into care and periodically thereafter, to offer information, support, and treatment. Furthermore, taking into account the high level of coexisting physical and psychological health needs identified, there is a need to reinforce a holistic approach to discussions surrounding tobacco dependence; failure to take account of the physical and psychological implications of smoking may present a risk of either physical or psychological needs dominating discussions.

6.4.2 Identifying and addressing tobacco dependence among residentially accommodated looked-after children

Opportunities for addressing tobacco dependence among LAC may be being missed generally, but especially among youth with special educational needs. For example enquiries about a young persons' smoking status were not made in five instances where it may have been appropriate and the finding that children with special educational needs were significantly less likely to have their smoking status recorded, indicates that prevalence of smoking among residentially accommodated children is likely to be higher than that found in this study. Despite the majority of clinicians making enquiries in relation to smoking and documenting their reasons for not engaging in discussions and enquiring about young people's

tobacco consumption, there was a lack of evidence relating to the recording of the circumstances in which young people smoke. Given that children in residential care are below the legal age to purchase tobacco products, and the reported role of tobacco in the exploitation of LAC it is, therefore, of considerable importance that the situations in which children smoke and access tobacco are understood, so as to minimise personal and health risks.

Discussions (including providing brief advice) were initiated with three-quarters of young smokers and treatment for tobacco dependence offered to all who engaged in discussion. However, offers of support or treatment to address tobacco dependence were declined by the great majority of young people. From the health assessment documentation, it could not be established if youth were provided with information on harm reduction strategies (such as cutting down to quit) or if an exploration of the reasons youth did not want to quit was undertaken. In order for smoking cessation advice to be effective and to motivate youth to consider making quit attempts, it is necessary to understand the meanings which individuals may attach to smoking and the perceived barriers to quitting. The meanings attached to smoking or the reasons youth wish to continue smoking are complex; for example, youth with a mental disorder may feel that using tobacco helps to mediate the negative symptoms of psychological distress, while young people, with attachment or social difficulties, may use tobacco as a means to build or facilitate peer relationships.[362-364] In understanding these issues, clinicians' have a greater capacity to offer counter-arguments and alternative strategies for coping with situations where tobacco is used as a means of support.

6.4.3 Study strengths and limitations

The limitations of this study involve issues concerning the size of the cohort reviewed and the reliability of the data reviewed. Firstly, it is not known if children included in this study is representative of the whole population of residentially placed LAC in England. The cohort was limited to those for

whom one local authority was both responsible for and by whom accommodation was provided. As such these children's experiences of the statutory health assessment may differ from other children who are the responsibility of or who are accommodated by other local authorities. It is also possible that the children included in this evaluation were a self-selecting group who attended assessment as a result of greater health needs or who had an interest in their own health. Secondly, since data were obtained from the retrospective evaluation of statutory health assessment documentation, the validity of the data depends on the accuracy and completeness of the records. For example, children without records of developmental or health needs were assumed to be free of any additional needs or morbidity. Finally, and despite identifying associations between certain physical and psychological health conditions, owing to the small cohort size, it was not possible to establish if smoking behaviour was associated with particular physical or psychological health needs. While a number of limitations have been highlighted, this study has profiled a vulnerable and under-researched population who experience significant inequality and assessed the effectiveness of the statutory health assessment in the identification and treatment of tobacco dependence among residentially placed LAC.

6.5 Chapter conclusion

This chapter highlights that opportunities to address tobacco dependence among residentially placed LAC are currently being missed during the statutory health assessment, particularly pertaining to the exploration of the circumstances which contribute to tobacco use and the factors which contribute to children being averse to making a quit attempt. This lack of attention may result in opportunities to tackle the issue of smoking and teachable moments being missed. There is a need to support clinicians in the identification of LAC who smoke and in seizing teachable moments, even among those with complex needs. Further research should explore

clinician practice and attitudes to addressing tobacco dependence during the annual health assessment and the perceptions of children in care in relation receiving smoking cessation advice and the treatment offered.

Chapter Seven: Exploring and understanding tobacco use in residential units

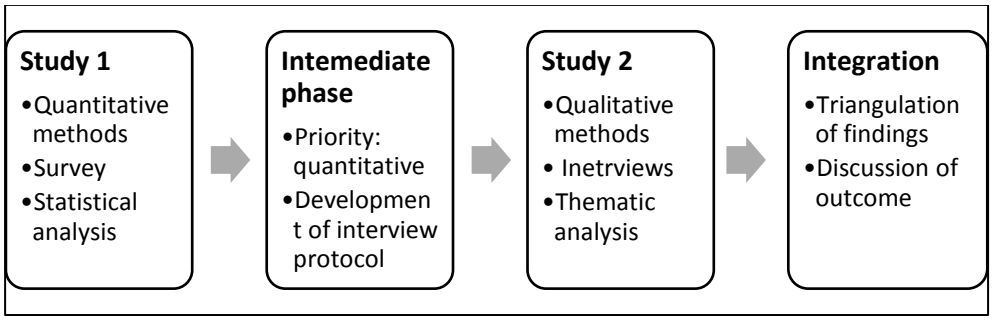
Both Chapter Two and Chapter Six have highlighted that tobacco use in residential units is prevalent and not adequately addressed. In Chapter Two, research by MacMillan et al. identified a culture in which tobacco was viewed as facilitating positive relations between children and carers and as being used as a tool for negotiating behaviour.[19] However, the small samples from which the previous research evidence was collected means it is important to understand if these findings may also occur in other residential units. Furthermore, the results from Chapter Six suggest that for a variety of reasons, opportunities to address tobacco use among children in care are missed in practice. All health and social care professionals have a responsibility to promote the health and well-being of LAC and in response to recommendations issued by NICE to both prevent and reduce tobacco use and address tobacco dependence, it is important to understand how smoking by children in care is discouraged and managed and cessation promoted in residential units.[21,238,365] In the present chapter, therefore I detail the conduct and findings of a sequential mixed-methods study which aimed to explore and understand the influences on the use of tobacco in residential units from the perspective of residential carers.

7.1 Overall study design

Two studies, shown in Figure 7.1, comprising a quantitative cross-sectional survey and qualitative, semi-structured interviews were conducted to explore and understand the use of tobacco in residential units from the perspective of residential carers. In this sequential exploratory mixed-methods study, the quantitative findings of the first study (the survey) informed the development of topics for in-depth investigation in the second study (the interviews). Both quantitative and qualitative findings of

these studies were then triangulated and discussed in relation to the current literature.

Figure 7.1 Schematic representation of sequential, exploratory mixed-methods utilised to understand tobacco use in residential units



7.2 A cross-sectional survey of residential care officers in the East Midlands

7.2.1 Aim and objectives

7.2.1.1 Study aim

This study aimed to explore the use of tobacco in residential units from the perspective of residential care officers (RCOs).

7.2.1.2 Study objectives

The objectives were to:

1) Determine prevalence and smoking-related behaviours among RCOs.
2) Explore RCOs awareness of and adherence to smoke-free policies.
3) Quantify RCO attitudes and knowledge in relation to smoking among LAC.
4) Investigate quantitatively the attitudes and practice of RCOs in relation to discouraging smoking initiation and encouraging smoking cessation among LAC.

7.2.2 Methods

7.2.2.1 Design

A cross-sectional survey of RCOs working in local authority operated residential units in the East Midlands region of England was undertaken. The study adopted a quantitative approach.

7.2.2.2 Participants and settings

Eligibility

Residential Care Officers employed by the eight local authorities in the East Midlands region of England and who worked in non-specialist residential units were eligible for participation in the survey. Non-specialist residential units were chosen since children in specialist units are unlikely to smoke, given that in these types units children are mostly dependent on adults for much of their care and those accommodated in secure units lack the opportunity to obtain or use tobacco due to the restrictive accommodation and increased supervision practices.

Inclusion and exclusion criteria

Figure 7.2 details the inclusion and exclusion criteria for participation in this study.

Figure 7.2 Inclusion and exclusion criteria for survey participation

Inclusion criteria	Exclusion criteria
Employed by a participating local authority.	Employed by an organisation or local authority other than those recruited to participate.
A RCO working in a non-specialist residential unit.	A RCO working in a specialist, secure, or respite residential setting.
Aged 18 years or older (no upper age limit).	Aged under 18 years.
Able to understand written and spoken English.	Unable to understand written and spoken English.
Able and willing to provide informed consent.	Unable or unwilling to provide informed consent.

7.2.2.3 Smoke-free policies in local authority residential units

In order to assess the practice of residential carers it was necessary at the outset to establish if local authorities had ratified tobacco-related polices and if so, how these policies were applied to LAC and the units where they are accommodated. A search of the websites maintained by participating local authorities identified information in relation to smoke-free policies.

Local tobacco policy

All of the local authorities in the East Midlands have a ratified smoke-free policy. The policies prohibit smoking in all council buildings, local authority owned vehicles, and privately owned vehicles being used on council business where passengers are being carried. Smoking in designated outdoor smoking areas is permitted on some sites, and where such an area is not defined onsite smoking must not take place within 20 meters of doorways or open windows. Where any employee has contact with children or young people in the course of their employment, staff are prohibited from smoking in the company of children or young people. Breaches of the smoke-free policy are subject to the local authority's employee disciplinary procedure and systems for reporting smoking-related incidents are in place.

Tobacco policy in relation to looked-after children

A search of the participating local authorities' websites found information relating to tobacco policies specific to LAC in all but one instance. Where this information was not available publically, I requested and received an electronic copy of the relevant policy document from the local authority. In all local authority operated residential units smoking is wholly prohibited. Staff and visitors are not permitted to smoke in front of children in their care and children are not permitted to smoke inside the unit. Members of residential staff are not permitted to purchase for or provide tobacco, or the materials for making or lighting cigarettes to children. Where children are permitted to smoke with parental consent, this must be approved by

the local authority and arrangements for smoking set out in the child's placement plan.

7.2.2.4 Instrument

A 45-item questionnaire (Appendix D) was developed from a search of relevant literature concerning tobacco use among residentially accommodated LAC, including a survey instrument utilised and validated in a study conducted in a Scottish children's services department.[19,20,366] Prior to finalising the questionnaire, it was shared with a lead children's social worker and a designated nurse for LAC to ensure the terminology and phrasing of the questions were appropriate and relevant to RCOs.

The questionnaire comprised nine sections designed to collect data relating to: demography; individual smoking behaviour and the use of tobacco during working hours; awareness of local authority policies relating to smoking and exposure to second-hand smoke; the impact of smoking on the operation of the residential unit; knowledge of tobacco use and smoking cessation; attitudes towards addressing smoking among LAC; professional practice in relation to addressing tobacco use; and perceptions of the effectiveness of proposed interventions to address tobacco use in residential units.

7.2.2.5 Measures

Demographic and respondent smoking behaviours

The gender, age range, and smoking status of respondents were explored using closed and multiple choice questions. For those respondents who indicated current smoking, individual smoking behaviour was assessed using the Heaviness of Smoking Index – two item short form, while three items related to respondents use of tobacco during working hours. [367] The first closed question asked, "Do you smoke during your working day?" If applicable, responses were sought to a multiple choice item which enquired where respondents' smoked while at work; response options included: inside the unit; out of a window; out of a door; in the garden of

the unit; or off-site or away from the residential unit. A further question asked respondents to indicate from four options (often, quite often, occasionally, or never) whether they smoke in sight of children living in the residential unit. The response of: "often" was defined as occurring at least one time each week; "quite often" was defined as occurring between one time each month and one time each week; "occasionally was defined less than one time each month; and "never" was defined as the respondent had never smoked in the circumstances listed.

Awareness of and local adherence to smoke-free policies

Awareness of and adherence to local smoke-free policies was assessed by seven items. Two closed questions assessed respondents' awareness of smoke-free policies relating to staff and LAC. A closed question assessed if smoking was accepted in (including the grounds) the residential unit. Three further multiple choice questions assessed the frequency (always, often, occasionally, rarely, never) respondents witnessed of smoking on-site by staff, visitors, and LAC; an option of "*don't know*" was also provided. One multiple choice item asked the frequency (always, often, occasionally, rarely, never) that respondents travelled in a vehicle used for the purposes of work, where an occupant was smoking and finally one closed question asked if respondents believed exposure to other people's tobacco smoke to be harmful. Responses of: "always" were defined as occurring on a daily basis; "often" was defined as occurring once a week; "occasionally" was defined as occurring more than once a month; and "rarely" was defined as less than once a month. The response of "never" was defined as the behaviour was had not been witnessed or had not occurred.

Attendance at smoking-related training and tobacco-related knowledge

Respondent's participation in smoking-related training was explored through a single closed question, with the option of a free-text box to provide details of the training undertaken. Awareness of the prevalence of smoking among children in residential care and their peers in the general

population was assessed by two questions that asked respondents to provide an estimate of the proportion of smokers in each population.

Impact of tobacco use on the operation of residential units

The impact of tobacco use on the day to day operation of the unit was assessed by four multiple-choice (true, false, or not applicable) items in relation to smoking as a source of tension in the unit; causing violent or aggressive behaviours directed towards staff by children; contributing to peer-to-peer anti-social behaviours by children; and the use of tobacco as a tool to mediate the behaviour of children in the unit.

Attitudes towards and practice to address the use of tobacco by LAC

A series of seven statements on a 5-point Likert scale (agree strongly to disagree strongly, with an option of undecided) assessed respondents attitudes and practice in relation to addressing tobacco dependence among LAC.

Perceptions of the effectiveness of potential interventions

Five statements posed potential interventions that aimed to reduce or address tobacco use in residential units and respondents were asked to indicate from four options (very effective, effective, somewhat effective, or not effective) how effective they believed the potential intervention strategies would be.

7.2.2.6 Ethical and governance procedures

The study was reviewed and granted ethical approval by the University of Nottingham Faculty of Medicine and Health Sciences REC (reference: A11092014 SoM EPH) on 11 September 2014 (Appendix E). Prior to approaching local authorities for research governance permissions, further review of the study was undertaken by the Association of Directors of Children's Services (ADCS) Research Group. This secondary review was required due to the fact that more than four local authorities would be invited to take part in the research study. Approval was granted by the ADCS Research Group (reference: RGE140922) on 25 September 2014

(Appendix F). Recruitment to the study commenced following approval of the protocol and associated study documents by the ADCS Research Group.

Participant consent was implied by the completion and return of the survey. Given the nature of this study, participants were informed that should they wish to withdraw after completion and return of the survey, they should advise the researcher by email, within seven days of the closing date stated on the questionnaire. Potential participants were made aware that withdrawal past this point would mean that any data already collected could not be erased and may be included in the final analysis. The survey instrument collected limited demographic information. Details which could identify the participant or the residential unit where they worked were not collected. Where participants returned surveys via email, the email was deleted after the copy of the survey had been downloaded and saved to University of Nottingham servers.

7.2.2.7 Recruitment of local authorities

In the first instance, all local authorities in the East Midlands with residential unit provision were contacted to ascertain individual research governance procedures, provide an outline of the study, and to invite participation. Applications for research governance were submitted to the Director of Children's Services or relevant research lead in each local authority. Among the eight local authorities approached, four provided permission to conduct the study, two declined approval due to issues of capacity, and two did not respond to the application, despite my exhaustive attempts.

7.2.2.8 Recruitment of Residential Care Officers and data collection

Service managers with responsibility for residential services for LAC in each of the four local authorities that provided permission to conduct the research were identified through discussions with the research leads and were subsequently contacted by email, and followed-up with a telephone

call. The purpose of this contact was first to establish the number of potential respondents in each organisation and the number of eligible residential units and to establish a preference for the distribution of questionnaires. Depending on the preference of the service manager, surveys were distributed by a variety of methods, and included distribution in person by the researcher, by the residential unit manager, or by email cascade (*n*=129) by service managers. Surveys distributed in person (*n*=108) were accompanied by a pre-paid business reply envelope to enable return and for those delivered electronically, participants were provided with an email address to which the completed questionnaire could be returned or a business reply address was provided to enable respondents to print and post their completed questionnaire if preferred.

Questionnaires were accompanied by a standard letter inviting participation and explaining the purpose of the study. All respondents provided informed consent implied by the completion and return of the questionnaire. The survey was conducted between 15 October and 15 December 2014. Two-hundred and thirty-seven RCOs across 14 residential units in four local authorities in the East Midlands were eligible to take part in the study.

7.2.2.9 Data analysis

Data management and analysis were conducted in IBM SPSS (version 22). Descriptive characteristics were analysed and reported using frequencies, proportions, and means with standard deviations (SD).

Demographic and respondent smoking behaviours

Levels of nicotine dependence were calculated for current smokers using the Heaviness of Smoking Index and categorised as: 0 points = no dependence; 1 point= low dependence; 2-3 points = moderate dependence; and 4-6 points = high dependence.

Awareness of and local adherence to smoke-free policies

Responses to the question relating to on-site smoking were dichotomised for analysis. The first category "frequent" comprised responses of "often" and "quite often", and the second category "infrequent" comprised responses of "occasionally" and "never". Questions regarding the frequency of staff, visitor LAC smoking in the units and travelling in vehicles for the purposes of work, where another occupant was smoking were dichotomised for analysis; "always" and "often" were categorised as 'frequently' while the responses of "occasionally", "rarely", and "never" were categorised as 'infrequently', the category of "don't know" was disregarded for analysis.

Attendance at smoking-related training and tobacco-related knowledge

For the questions concerning attendance at tobacco-related training frequencies and proportions were calculated for reported attendance and where appropriate if respondents were able to recall the name of the course, the provider, and course content. Where respondents provided estimates of regular smoking prevalence among youth in the general population and residentially accommodated children, mean proportions including standard deviations were calculated and compared to the most recently published estimates of smoking among these populations. Published estimates of regular smoking among general population youth (aged 11 to 15 years) and residentially accommodated children were stated to be 3% and 69% respectively.[2,18]

Attitudes towards and practice to address the use of tobacco by LAC

Responses to the 5-point Likert scales relating to attitudes and practice were dichotomised for analysis; with "strongly agree" and "agree" forming one category and "disagree" and "strongly disagree" forming the other; the option of "undecided" was omitted from analysis.

Impact of tobacco use on the operation of residential units

Respondents awareness of the impact of tobacco use were dichotomised with "true" forming one category and "false" or "not applicable" forming the second.

Perceptions of the effectiveness of potential interventions

In relation to the perceived effectiveness of potential interventions to address tobacco use, frequencies and proportions were calculated prior to the responses being dichotomised with replies of "very effective" and "effective" forming the category "effective", and the replies of "somewhat effective" and "not effective" forming the second of "not effective".

Statistical analyses

Pearson's Chi-squared tests (Fisher's exact tests where appropriate) were utilised to test for proportional differences in the frequency of on-site smoking by staff, visitors, and LAC; and the presence of adverse behaviours caused by tobacco, between units where smoking was accepted and those where a smoke-free policy was adhered to. Statistical significance was taken to be $p=\leq 0.05$.

Pearson Chi-squared tests, with statistical significance taken to be $p=\leq 0.05$, were initially chosen to test for differences between smoking status and reported attendance at smoking-related training, attitudes, awareness, and practice. This is due to the fact that participation in health-related behaviour, in this instance smoking can impact an individual's beliefs, respondents' smoking-related awareness, attitudes and practice were assessed by reported attendance at training and smoking status. However, given the unequal distribution of data, non-parametric Mann-Whitney U tests were utilised. No statistically significant differences were identified.

7.2.3 Results

7.2.3.1 Responses to the questionnaire

Responses by geographic region

This analysis is based on 42 responses received from RCOs working across 14 residential units in four local authorities in the East Midlands region of England. The response rate was 17.7%. Fifteen (35.7%) respondents returned questionnaires by email, with the remainder (*n*=27, 64.3%) choosing postal returns. The frequency of responses received from each local authority is shown in Table 7.1.

Table 7.1 Responses received by local authority

Local authority	Frequency of response (%)
Local Authority 1	5 (11.9)
Local Authority 2	14 (33.3)
Local Authority 3	11 (26.2)
Local Authority 4	12 (28.6)

Participant characteristics

The characteristics of respondents, including smoking status, are summarised in Table 7.2. The majority of respondents were aged over 40 years (*n*=29, 69.0%) and of the 40 responses received in relation to the question concerning gender, respondents were predominantly female (*n*=25, 62.5%).

Table 7.2 Respondent characteristics

Characteristic (responses)		Frequency (%)
Gender (*n*=40)	*Male*	15 (37.5)
	Female	25 (62.5)
Age range (*n*=42)	*20-29 years*	3 (7.1)
	30-39 years	10 (23.8)
	40-49 years	11 (26.2)
	50-59 years	17 (40.5)
	60-69 years	1 (2.4)
Smoking status (*n*=42)	*Never smoker*	19 (45.2)
	Former smoker	11 (26.2)
	Current smoker	12 (28.6)

7.2.3.2 Tobacco use by Residential Care Officers

Twelve (28.6%) respondents reported being current smokers. Table 7.3 details the characteristics and smoking behaviours of respondents. Smoking was most common among those aged 40-59 years, with eight of the twelve (66.7%) respondent smokers reporting being aged between 40 and 49 years (*n*=4, 33.3%) and 50 and 59 years (*n*=4, 33.3%). Nine (75.0%) of the twelve smokers reported smoking between one and ten cigarettes each day. When respondents tobacco dependence was calculated the majority of respondent smokers were rated as having very low levels of tobacco dependence (*n*=9, 75.0%). Among the twelve self-reported smokers, eight (66.7%) reported smoking during working hours.

Table 7.3 Characteristics of respondent smokers

Characteristics (responses)		**Frequency (%)**
Gender (*n*=10)	*Male*	4 (40.0)
	Female	6 (60.0)
Age Range (*n*=12)	*20-29 years*	1 (8.4)
	30-39 years	3 (25.0)
	40-49 years	4 (33.3)
	50-59 years	4 (33.3)
Daily tobacco consumption (*n*=12)	*1-10 cigarettes*	9 (75.0)
	11-20 cigarettes	3 (25.0)
Heaviness of smoking index score (*n*=12)	*0*	4 (33.3)
	1	3 (25.0)
	2-3	5 (41.7)
Rating of tobacco dependence	*Very Low*	9 (75.0)
	Low-Moderate	3 (25.0)

7.2.3.2 Local authority smoke-free policies

Awareness

Among the 42 responses received in relation to awareness of smoke-free policies relating to employees of the local authority, 39 (92.9%) reported awareness, with three (7.1%) claiming that they were unsure if such a policy was implemented. In relation to tobacco-related policies concerning LAC, among the 42 participants who responded, 31 (73.8%) confirmed that

they were aware of such a policy; seven (16.7%) reported no knowledge; and four (9.5%) claimed to be unsure of the existence of a policy specific to smoking among LAC.

Adherence

Table 7.4 describes RCOs perceptions' of the frequency of tobacco use in residential units. Fifteen (37.5%) of the 42 survey respondents claimed that despite the implementation of comprehensive smoke-free policies, smoking was accepted in the residential unit where they worked. From the 41 (97.6%) respondents who reported frequently observing tobacco use in the unit where they were employed, 31 (75.6%) witnessed smoking by LAC; nine (21.9%) observed staff smoking, and seven (17.1%) reported visitors smoking.

Table 7.4 Respondents perceptions of tobacco use in residential units

Statement response		**Frequency (%)**
Witness members of staff smoking in the unit (*n*=41)	*Yes*	9 (22.0)
	No	31 (75.6)
	Undecided	1 (2.4)
Witness visitors smoking in the unit (*n*=41)	*Yes*	7 (17.1)
	No	34 (82.9)
Witness LAC smoking in the unit (*n*=42)	*Yes*	31 (73.9)
	No	8 (19.0)
	Undecided	3 (7.1)
Travels in a vehicle where another occupant is smoking (*n*=41)	*Yes*	2 (4.9)
	No	38 (92.7)
	Undecided	1 (2.4)

Significant proportional differences in the responses of respondents from residential units where smoking was accepted and those where smoke-free policies were enforced were found in relation to onsite smoking by staff (47% vs. 8%, $\chi^2 = 8.43$, p=0.006) and visitors (36% vs. 7%, $\chi^2 = 5.22$, p= 0.035). Differences in the enforcement of smoke-free policy were, however, not found in relation to reported on-site smoking by LAC. Few (*n*=2, 4.9%) respondents reported travelling in vehicles for the purpose of work, where another individual was smoking.

7.2.3.3 Smoking by staff in residential units

The smoking-related behaviours of RCOs during working hours are presented in Table 7.5. Among the twelve self-reported smokers, eight (66.7%) reported smoking while on duty. When asked where respondents smoked during their working hours of the eight who provided a response seven (87.5%) admitted to smoking on the grounds of the residential unit. Ten of the 12 smokers responded to the item concerning the frequency that smoking occurred in sight LAC; of these ten, seven (70.0%) claimed that children in the unit where they worked never witnessed their smoking.

Table 7.5 Respondents' smoking behaviour during working hours

Smoking behaviours (*n*=12)		**Frequency (%)**
Smoking during working hours	*Yes*	8 (66.7)
	No	4 (33.3)
Where smoking occurs during working hours	*In units grounds*	7 (58.3)
	On the street outside	1 (8.3)
	Declined to answer	4 (33.3)
Frequency smoking occurs in sight of LAC	*Never*	7 (58.3)
	Occasionally	3 (25.0)
	Declined to answer	2 (16.7)

7.2.3.4 Impact of tobacco use on the day-to-day operation of residential units

Among the 39 respondents who answered the questions relating to the impact of tobacco use on the day-to-day operation of the unit, 31 (73.8%) reported tobacco use by LAC to be source of tension in the unit and 35 (83.3%) perceived tobacco to be a cause of bullying and antisocial behaviour in the residential unit. Thirty-five (83.3%) respondents considered tobacco use to be the cause of aggressive or violent behaviours directed at residential carers by children. The majority (*n*=30, 71.4%) of respondents, however, reported that tobacco was not used as a tool to mediate or moderate the behaviour of children in the units. Significantly, respondents working in residential units where smoking was permitted reported with greater frequency that tobacco caused tension in the unit

than respondents from units where smoke-free policies were enforced (96% vs. 46%, $\chi^2 = 13.3$, $p = 0.001$). Respondents' reports of the impact of tobacco use on the operation of residential units is presented in Table 7.6.

Table 7.6 Perceived operational impact of tobacco use in residential units

Tobacco use is…		**Frequency (%)**		
		All units	***Smoking not permitted***	***Smoking permitted***
a source of tension in the unit(*n*=39)	*True*	26 (66.7)	1 (3.8)	25 (96.1)
	False	12 (30.8)	6 (50.0)	6 (50.0)
	Not applicable	1 (2.5)	-	1 (100.0)
a tool to negotiate behaviour in the unit (*n*=39)	*True*	6 (15.4)	4 (66.7)	2 (33.3)
	False	30 (76.9)	21 (70.0)	9 (30.0)
	Not applicable	3 (7.7)	1 (33.3)	2 (66.7)
a cause of violent or aggressive behaviour towards staff (*n*=39)	*True*	35 (89.8)	24 (68.6)	11 (31.4)
	False	3 (7.7)	2 (66.7)	1 (33.3)
	Not applicable	1 (2.5)	-	1 (100.0)
a cause of peer bullying and anti-social behaviour (*n*=39)	*True*	35 (89.8)	24 (68.6)	11 (31.4)
	False	3 (7.7)	2 (66.7)	1 (33.3)
	Not applicable	1 (2.5)	-	1 (100.0)

7.2.3.5 Tobacco-related training and knowledge

Attendance at tobacco-related training

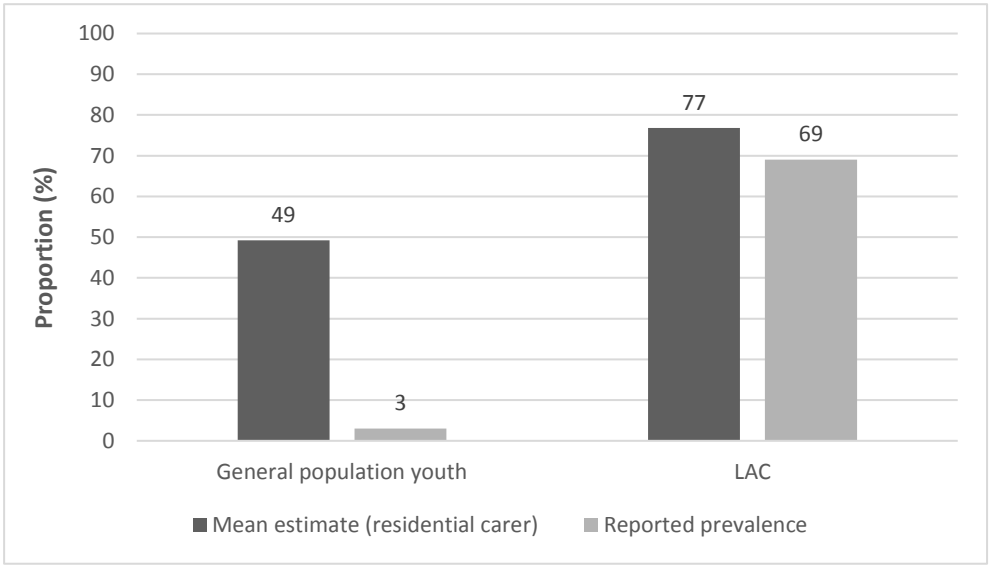
Nine (21.4%) of the 40 respondents who answered the question reported attendance at smoking-related training. Of the respondents who indicated receiving training, none provided details of the content of the training, and four (44.4%) recalled the name of the training package; three (75.0%) had undertaken a mandatory online course provided by the local authority, and one (25.0%) had received training from the local smoking cessation service.

Tobacco-related knowledge and awareness of Residential Care Officers

RCOs estimated the smoking prevalence in the general youth population to be 49.2% (SD 21.6) and among children accommodated in residential units 76.8% (SD 16.7). Respondents estimates in comparison with current

statistics on the use of tobacco by general population youth and residentially accommodated children are presented in Figure 7.5.[2,18]

Figure 7.5 Respondents' estimates of smoking prevalence among general population youth and residentially accommodated children compared to published prevalence.



Of the 39 responses received to questions concerning awareness and knowledge of the harms of tobacco use, respondents believed that smoking can be a gateway to other health risk behaviours (*n*=30, 76.9%); that smoking contributes to poor health outcomes in adulthood (*n*=33, 84.6%); and that smoking can contribute to poor social outcomes in adulthood (*n*=28, 71.7%). Further details of respondents' perceptions concerning the use of tobacco by LAC are shown in Table 7.7.

Table 7.7 Awareness concerning tobacco use among LAC

Statement response		Frequency (%)
Exposure to second-hand smoke is harmful	*Strongly agree*	27 (64.3)
	Agree	11 (26.2)
	Undecided	2 (4.8)
	Disagree	1 (2.4)
	Strongly disagree	1 (2.4)
	Missing	-
Smoking can be a gateway to other risky health behaviours	*Strongly agree*	7 (16.7)
	Agree	23 (54.8)
	Undecided	8 (19.0)
	Disagree	1 (2.4)
	Strongly disagree	-
	Missing	3 (7.1)
Smoking can contribute to poor health outcomes in later life	*Strongly agree*	12 (28.6)
	Agree	21 (50.0)
	Undecided	6 (14.3)
	Disagree	-
	Strongly disagree	-
	Missing	3 (7.1)
Smoking can contribute to poor social outcomes in later life	*Strongly agree*	5 (11.9)
	Agree	23 (54.8)
	Undecided	9 (21.4)
	Disagree	2 (4.8)
	Strongly disagree	-
	Missing	3 (7.1)

7.2.3.6 Attitudes towards addressing tobacco use among LAC

From the 41 responses received 38 (92.7%) believed that it was important to address smoking by LAC. While 38 (95.0%) of 40 respondents felt it was part of their professional remit to support LAC to address their smoking. Further RCO attitudes are presented in Table 7.8.

Table 7.8 Attitudes concerning smoking and addressing tobacco dependence among LAC

Statement response		Frequency (%)
LAC have greater problems to address than tobacco use	*Strongly agree*	7 (16.7)
	Agree	21 (50.0)
	Undecided	7 (16.7)
	Disagree	3 (7.1)
	Strongly disagree	-
	Missing	4 (9.5)
I believe that it is important to address smoking among LAC	*Strongly agree*	25 (59.5)
	Agree	13 (31.0)
	Undecided	2 (4.8)
	Disagree	-
	Strongly disagree	1 (2.4)
	Missing	1 (2.4)
I believe that it is in my remit of responsibility as a social care professional to support LAC in addressing tobacco use	*Strongly agree*	30 (71.4)
	Agree	8 (19.0)
	Undecided	2 (4.8)
	Disagree	-
	Strongly disagree	-
	Missing	2 (4.8)
I believe that I have enough knowledge of tobacco dependence and its treatment to provide LAC with information regarding smoking and quitting	*Strongly agree*	12 (28.6)
	Agree	19 (45.2)
	Undecided	5 (11.9)
	Disagree	1 (2.4)
	Strongly disagree	1 (2.4)
	Missing	4 (9.5)

7.2.3.7 Practice to address tobacco use by LAC

Tobacco-related practice reported by RCOs is shown in Table 7.9. Of the 39 respondents who provided a response, 35 (89.7%) reported regularly providing LAC with advice about the benefits of quitting smoking, while 38 (97.4%) claimed to feel comfortable discussing smoking in their role and that they felt confident in supporting LAC in smoking cessation.

Table 7.9 Practice to address tobacco use by LAC

Statement response		Frequency (%)
I am comfortable discussing smoking with LAC.	*Strongly agree*	19 (45.2)
	Agree	19 (45.2)
	Undecided	1 (2.4)
	Disagree	-
	Strongly disagree	-
	Missing	3 (7.1)
I regularly provide LAC with advice about the benefits of smoking cessation.	*Strongly agree*	15 (35.7)
	Agree	20 (47.6)
	Undecided	3 (7.1)
	Disagree	-
	Strongly disagree	1 (2.4)
	Missing	3 (7.1)
I am confident supporting LAC in stopping smoking.	*Strongly agree*	19 (45.2)
	Agree	19 (45.2)
	Undecided	1 (2.4)
	Disagree	-
	Strongly disagree	-
	Missing	3 (7.1)

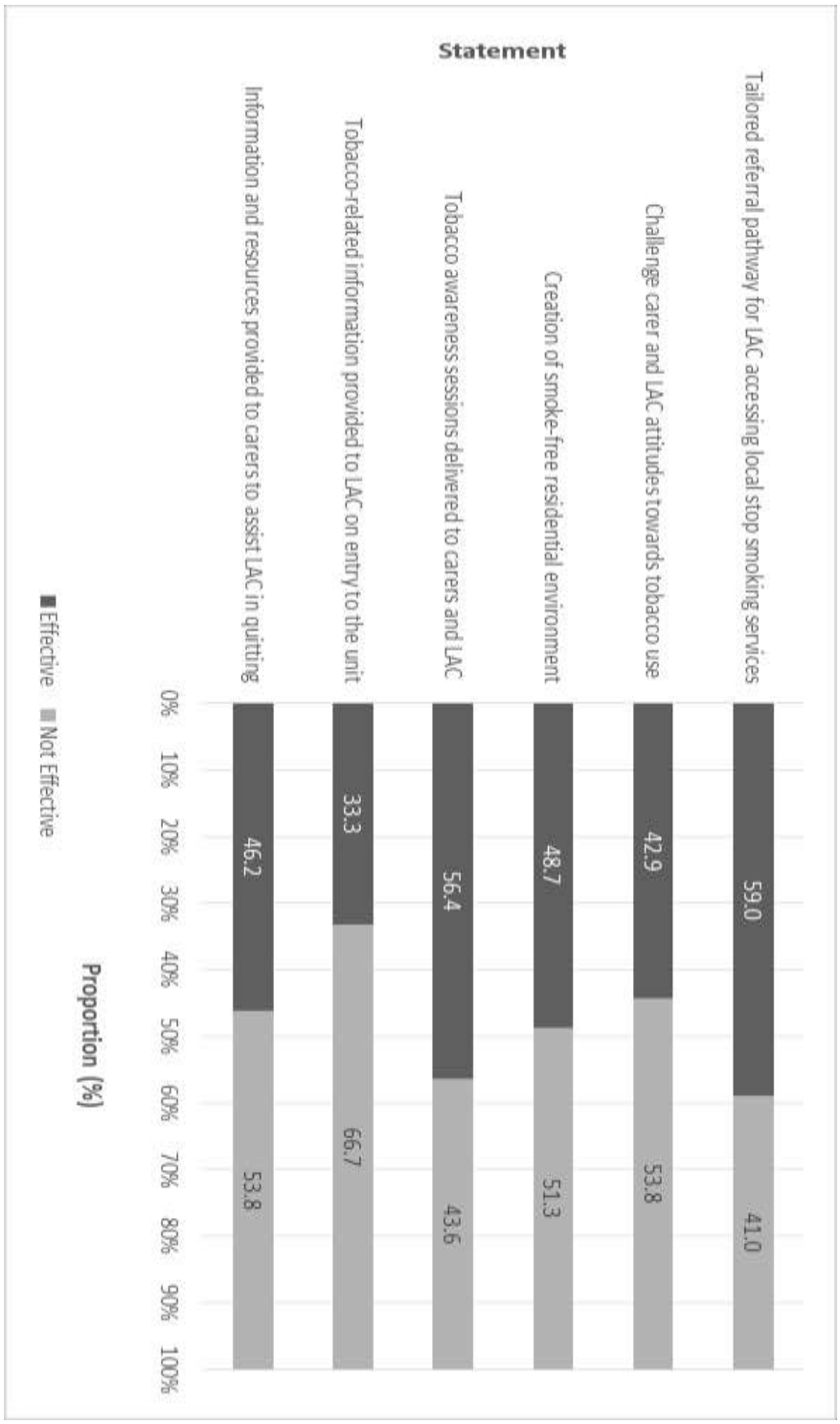
7.2.3.8 Perceived effectiveness of potential measures to address tobacco use in residential units

Thirty-nine (92.8%) RCOs responded to questions concerning the effectiveness of potential measures to address the use of tobacco in residential units. Responses to each of the statements are shown in Table 7.10 with dichotomised responses (effective or not effective) shown in Figure 7.6.

Table 7.10 Perceived effectiveness of potential interventions to address tobacco use in residential units

Statement (*n*= responses received)	***Perception of effectiveness***	**Frequency (%)**
Information and resources provided to carers to assist LAC in quitting (*n*=39)	*Very effective*	4 (10.3)
	Effective	14 (35.9)
	Somewhat effective	18 (46.2)
	Not effective	3 (7.7)
Tobacco-related information provided to LAC on entry to the unit (*n*=39)	*Very effective*	4 (10.3)
	Effective	9 (23.1)
	Somewhat effective	23 (59.0)
	Not effective	3 (7.7)
Tobacco awareness sessions delivered to carers and LAC (*n*=39)	*Very effective*	4 (10.3)
	Effective	18 (46.2)
	Somewhat effective	16 (41.0)
	Not effective	1 (2.6)
Creation of smoke-free residential environment (*n*=39)	*Very effective*	7 (17.9)
	Effective	12 (30.8)
	Somewhat effective	13 (33.3)
	Not effective	7 (17.9)
Challenge carer and LAC attitudes towards tobacco use (*n*=39)	*Very effective*	3 (7.7)
	Effective	15 (38.5)
	Somewhat effective	17 (43.6)
	Not effective	4 (10.4)
Tailored referral pathway for LAC accessing local stop smoking services (*n*=39)	*Very effective*	6 (15.4)
	Effective	17 (43.6)
	Somewhat effective	15 (38.5)
	Not effective	1 (2.6)

Figure 7.6 Dichotomised responses for the perceived effectiveness of potential interventions to address tobacco use in residential units



7.2.4 Summary of quantitative findings

Forty-two (17.7%) of the 237 eligible RCOs responded to the survey. Over a quarter (28%) of RCOs identified themselves as current smokers. Two-thirds of respondent smokers reported smoking during working hours with over half of these claiming to smoke in the grounds of the unit. Almost three-quarters (73%) of RCOs reported awareness of a tobacco-related policy concerning LAC. Yet, 37% of RCOs claimed smoking by LAC was permitted in the units where they worked. Smoking by LAC was frequently witnessed on site and despite being less common smoking by staff and visitors on sight was also observed. Two-thirds (66%) of RCOs reported smoking by LAC to be problematic and disruptive. The majority (90%) reported tobacco to be the cause of adverse behaviours among LAC including peer-to-peer bullying and violence or aggression directed at carers. Smoking-related adverse behaviours and tension significantly associated with units where smoking was permitted. Few (21%) RCOs reported attendance at smoking-related training. The majority (78%) of respondents were aware that smoking contributes to poor health outcomes for LAC, however, just two-thirds agreed that smoking contributed to poor social outcomes. Despite almost all (90%) of the respondents agreeing that it was part of their professional role to address tobacco use by LAC, almost two-thirds (64%) believed that LAC have greater issues to deal with. Regular practice to advise LAC about smoking and smoking cessation was reported. Respondents considered a tailored referral pathway and tobacco awareness sessions delivered to carers and LAC to be potentially most effective in addressing the use of tobacco in residential units.

These results identify tobacco use in residential units for LAC to be complex and as having negative impacts on the daily operation of the units. Despite the implementation of smoke-free policies relating to both carers and LAC, tobacco use is common and likely to normalise the use of tobacco. A lack of attendance at tobacco-related training is likely to influence practice and

contribute to misapprehension concerning wider harms caused by smoking. Investigation of the reasons for granting exemptions to the smoke-free policy, strategies for managing LAC smoking, the wider factors influencing smoking among LAC, and identification of the support needs of carers is required.

7.3 Qualitative interviews with residential carers

7.3.1 Aim and objectives

7.3.1.1 Study aim

The aim of this study was explore in-depth, the use of tobacco in residential units for LAC from the perspective of unit managers and RCOs.

7.3.1.2 Study objectives

The objectives of this study were to:

a) Investigate adherence to and enforcement of smoke-free policies relating to the use of tobacco among LAC.
b) Assess the impact of tobacco on the daily operation of the residential units including, including behaviour management, environment, and any barriers addressing tobacco use in residential units.
c) Explore practice to address tobacco use in residential units and identify the barriers and facilitators to engaging LAC in smoking cessation attempts.
d) Determine how effective residential carers perceive current strategies to address tobacco use in residential and what the perceived support needs are.

7.3.2 Methods

7.3.2.1 Design

Qualitative semi-structured interviews were conducted with RCOs and residential unit managers employed by one local authority in the East Midlands.

7.3.2.2 Participants

Eligibility

Managers and RCOs working non-secure, local authority mainstream residential units were eligible for inclusion in this study.

Inclusion and exclusion criteria

The inclusion and exclusion criteria applied to the recruitment of unit managers and RCOs eligible for inclusion in this study is shown in Figure 7.7.

Figure 7.7 Inclusion and exclusion criteria for the recruitment of participants to the qualitative interview study

Inclusion criteria	Exclusion criteria
Employed by the participating local authority	Employed by any other organisation or local authority other than the participating local authority.
A unit manager or RCO working in a non-specialist residential unit for LAC.	A unit manager or RCO working in a specialist, secure, or respite residential setting for LAC.
Aged 18 years or older (no upper age limit).	Aged under 18 years.
Able to understand written and spoken English.	Unable to understand written and spoken English.
Able and willing to provide informed written consent.	Unable or unwilling to provide informed written consent.

7.3.2.3 Setting

Participants in this phase of the study were RCOs and residential unit managers, working in three mainstream, local authority operated residential units in a large county in the East Midlands. An overview of the

care provision, workforce, and smoking-related policy in each of three residential units is provided below.

Residential unit A

A purpose built six bedded unit located residential area close to the centre of a large market town in the north-west of the county. The unit is registered to provide care for up to six children with emotional and/or behavioural difficulties and/or mild learning difficulties between the ages of 10 and 17 years. Thirteen staff of varying grades and experience (three RCO 3; three RCO 2; four RCO 1; and three relief care officers) are supervised by a home manager and an assistant home manager. The unit operates a no-smoking policy inside the home for LAC; however, smoking is permitted in a designated outdoor area at the rear of the property.

Residential unit B

Situated in a residential area close to the centre of a small market town in the south of the county, the unit is located on a large site set back from the main road. The purpose built unit accommodates up to seven young males aged between 10 and 17 years and is registered to provide accommodation and care for young people with emotional and/or behavioural difficulties. Eighteen staff of varying grades and experience (four RCO 3; seven RCO 2; five RCO 1; and two relief RCOs) are supervised by a home manager and assistant home manager. A no-smoking policy is enforced in the home; however, smoking by LAC is permitted in the outside area of the home in a dedicated area.

Residential unit C

The home is set in its own grounds on a main road of in the centre of a small market town in the south of the county. It provides care and accommodation for six children between the ages of 10 and 17. Twelve staff of varying grades and experience (two RCO 3; seven RCO 2, and three RCO 1) are supervised by a registered home manager and assistant

manager. A no-smoking policy is enforced in the home, however, smoking by LAC is permitted in a designated, secluded outside area of the home.

7.3.2.4 Instrument

A structured data collection form was designed to record participant characteristics: gender, age, smoking status, time in the role and, in the case of RCOs, their professional grade (RCO1, RCO2, or RCO 3) and level of vocational training or academic qualification. Interviews were guided by a schedule of topics, shown in Figure 7.8. The topic guide was informed by the findings of the cross-sectional survey of RCOs, the case note evaluation (presented in Chapter Six), and a review of relevant literature concerning residential care for LAC and tobacco use among youth from disadvantaged populations. The topic guide facilitated discussions with both unit managers and RCOs, and focussed on exploring and understanding tobacco use in residential units and among LAC and its impacts from both an organisational and operational viewpoint. Discussions also sought to identify and understand tobacco-related attitudes, practice, and development needs of residential carers.

7.3.3.5 Ethical and governance procedures

Participant recruitment materials, study instruments, and procedures were reviewed and granted ethical approval by the University of Nottingham Faculty of Medicine and Health Sciences REC on 27 January 2015 (reference: J15012015 SoM EPH) in relation to interviews with residential unit managers (Appendix G) and 20 May 2015 (reference: A14052015 SoM EPH) in relation to interviews with RCOs (Appendix H). Applications were submitted for research governance approval for each of the two interview studies to the local authority R and D department. Approval to conduct the research was granted by the Assistant Director of Children's Services.

Figure 7.8 Topic guide for semi-structured interviews with Residential Unit Managers and Residential Care Officers

Experiences and perceptions of tobacco use in the residential unit: ▫ Trends in tobacco use and characteristics of LAC who smoke, including sources of tobacco. ▫ Influences on LAC tobacco smoking. ▫ Impact of tobacco on the unit (e.g. behaviour etc.).
Discouraging and managing tobacco use: ▫ Smoke free policy monitoring, enforcement and adherence. ▫ Perceptions and experiences in relation to smoke free policy. ▫ Strategies to discourage tobacco use among LAC. ▫ Strategies to manage tobacco use among LAC.
Promoting and managing smoking cessation: ▫ Support provided by the local authority and other agencies and services. ▫ Engagement with stop smoking services and management of nicotine replacement therapies in the home. ▫ Challenges and facilitators to supporting LAC in cessation attempts.
Attitudes and practice to address tobacco use and support needs: ▫ Attitudes of staff to tobacco use among LAC and in the unit. ▫ Training provision in relation to tobacco and promoting cessation. ▫ Barriers to practice to address tobacco use. ▫ Facilitators to practice to address tobacco use.

7.3.3.6 Recruitment procedures

Two separate recruitment processes were developed. These are described below.

Residential Unit Managers

All three residential unit managers were aware of the wider programme of research and were familiar with the researcher. Each unit manager received an email invitation from the researcher to invite participation in a semi-structured interview. The invitation was accompanied by a participant information sheet that explained the purpose of the study and rights of participation and withdrawal. Interested potential participants were asked to contact the researcher by email to suggest a convenient date and time to conduct the interview. All three unit managers responded to the invitation to participate and prior to commencing the interview fully informed consent were obtained.

Residential Care Officers

All RCOs working in the three local authority operated residential units were eligible for inclusion in the study. I visited each of the residential units at a pre-arranged time (in most cases during a team meeting) to present the study and invite participation. Each RCO that was present at the meeting received a standard letter of invitation that outlined the research and their participation in it. For those RCOs who were not present, unit managers provided the invitation at the next available opportunity. If interested in taking part, potential participants were asked to contact me to arrange a convenient time to take part in an interview. Eleven RCOs expressed an interest in taking part in the research and all subsequently arranged meetings at the residential unit where they were employed to take part in the interview. All participants provided fully informed consent.

7.3.3.7 Data collection

Semi-structured interviews were conducted between April and October 2015 and took place in a private room in the residential unit where the participant worked. All interviews were conducted at a time which took account of the fluctuating demands on residential carers time, namely during school hours. Some delay to data collection was encountered over the summer months due to reduced staffing capacity in the residential units and staff annual leave.

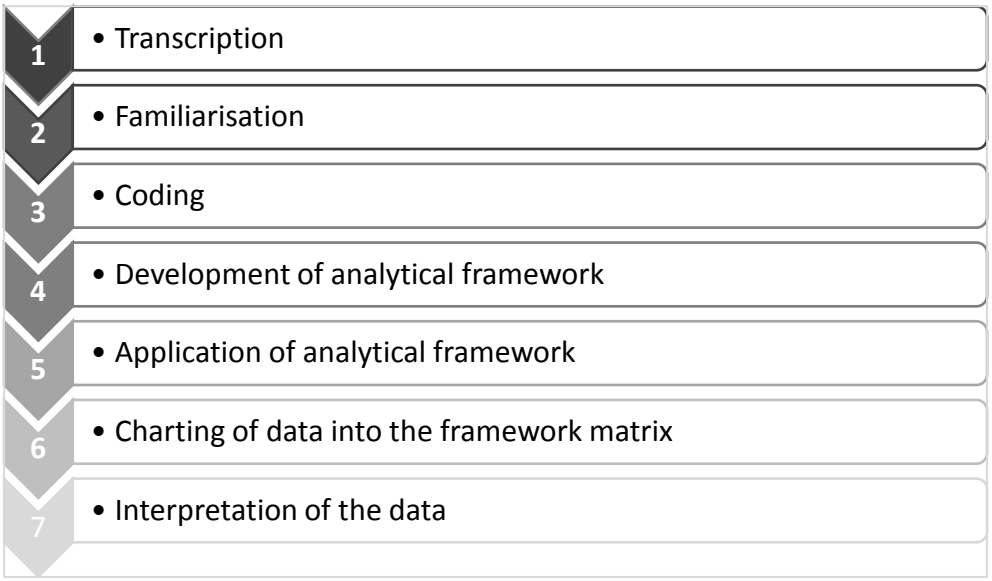
The structured data collection tool was completed following obtaining consent for participation and audio recording. Participants were asked to indicate their age range; their smoking status; the amount of time spent in their current role; and where appropriate their job grade (e.g. RCO 1, RCO 2, or RCO 3). Narrative data were obtained through systematically working through each topic and the subsequent questions listed in the topic guide. Detailed accounts were generated from participants using conversational prompts. Summation was employed during discussions to ensure understanding and to provide an opportunity for participants to

correct any accounts, thus improving the accuracy and validity of accounts. Discussions were audio recorded using a voice recorder application for Apple I-Pad®. Participants were offered the opportunity to review a transcript of their own interview; none, however, exercised this right. None of the participants withdrew from the study.

7.3.3.8 Data analysis

Structured data were entered into Microsoft Excel® and descriptively summarised for frequencies and proportions. Narrative data were analysed using a thematic framework approach. The framework method lies in a broad collection of analysis methods, often termed thematic analysis or qualitative content analysis. These approaches identify commonalities and differences in qualitative data, before focussing on relationships between different parts of the data, seeking to draw descriptive and/or explanatory conclusions. Developed by Jane Richie and Liz Spencer at the Qualitative Research Unit at the National Centre for Social Research in the UK in the late 1980's, the framework method is now widely used in other areas including health research.[368] A summary of the stages of the framework approach is shown in Figure 7.9.

Figure 7.9 Thematic Framework approach



Narrative data were transcribed verbatim and any identifying data (e.g. the names of places, individuals, agencies and particular circumstances related to LAC) removed. Both interview groups were analysed in accordance with thematic framework analysis to allow for themes to emerge from the data, alongside analysing pre-existing concepts inferred by the researcher.

Data management was facilitated by Microsoft Excel®. A separate analysis of the data generated by the unit manager and RCO interviews was planned; however, given the identical research objectives and pre-defined themes, I concluded that this offered little additional value. While maintaining an awareness of this context, data were analysed together, using an overarching framework. Analysis followed the verbatim transcription of narrative data and familiarisation with the data through multiple readings of the transcripts. A priori defined themes were informed by the main sections of the cross-sectional survey instrument and emerging key issues were developed into a thematic framework matrix, with each point divided into sub-themes that were then coded into the transcripts. Quotations from the transcripts supplemented the framework and where an interpretation of participants' narratives occurred, these were annotated in the framework, as a point for later discussion.

Attention was paid to cases that deviated from or contradicted common beliefs in the data as a method of increasing the integrity of the findings. The use of memos and annotations during the initial stages of analysis allowed for a visible 'audit trail' as analysis moved from raw data through interpretation to the generation of findings. Analytical rigour and accurate interpretation of the data were ensured through regular discussion between the researcher and academic supervisors. Discussions considered the collection of data, data analysis, and the applicability of emerging codes and categories. In order to establish the reliability of coding, the coherence of the analytical framework, and validity of findings, investigator triangulation was undertaken, in conjunction with academic supervisors (Dr Elena Ratschen and Dr Catherine Pritchard) 20 percent of the interview

transcripts were independently coded. Where disagreements or uncertainty in relation to coding arose, these were discussed and settled through discussion Table 7.11 presents the themes and sub-themes derived from the data.

Table 7.11 Thematic framework showing the themes and sub-themes concerning tobacco use in residential units

Tobacco policy	**Tobacco use in units**	**Sources of tobacco**
Employee policy ▫ Awareness of policy. ▫ Visitors to units observe policy. ▫ Staff smoke on the street outside.	Initiation of smoking ▫ Smoking is taken up prior to entry into the units. ▫ LAC reported to initiate smoking in the family or foster home. ▫ Some LAC try smoking to form peer relationships – this behaviour is generally short lived.	Community sources ▫ Tobacco is easily obtainable by LAC in the community. ▫ Use of illicit tobacco is common among LAC. ▫ Proxy purchasing by members of the public is frequent and unchallenged by retailers.
LAC policy ▫ Awareness of policy. ▫ Designated smoking areas provided – policy contravention. ▫ Concerns regarding safeguarding and stigmatisation of LAC. ▫ Previous attempts at enforcement of LAC policy presented numerous challenges in terms of behaviour and risk management.	Impact of smoking on the unit ▫ Carers report frustration in relation to managing and discouraging smoking in the unit. ▫ Risks in terms of health, safety, and environment. ▫ Bullying and violent behaviours are common as a result of tobacco and withdrawal. ▫ Friction between carers, LAC, and family. ▫ Tobacco believed to be integral to the lives of LAC – coping, self-esteem, and relationships.	Family sources ▫ Parents and family members provide tobacco or the funds by which to purchase it. ▫ Tobacco has been sent through the post to units. ▫ Contact visits often result in LAC obtaining large amounts of tobacco, which is kept by LAC or sold in order to purchase cigarettes.

Tobacco policy	Tobacco use in units	Sources of tobacco
Smoking areas ▫ Smoking areas provided in the grounds of all 3 units. ▫ Locations vary, but are away from the main accommodation and out of sight of the road. ▫ No seating or cover is provided.	▫ LAC use tobacco to manipulate or attempt to manipulate family, carers, and peers.	Peer-to-peer sources ▫ Peers selling, borrowing and gifting tobacco. ▫ School or alternative education environments facilitate obtaining and smoking tobacco.
Local Rules ▫ Rules regarding smoking exist. ▫ Rules adhered to most of the time by LAC. ▫ Staff take care to disengage and create social distance when LAC are smoking – denormalisation.	Identifying LAC who smoke ▫ LAC who smoke are frequently not identified at admission to the unit – withdrawal behaviours occur. ▫ Covert smoking is infrequent, but more likely to occur among new entrants. Managing cessation ▫ Cessation medication is covered by medicines policy. ▫ LAC are not allowed to self-manage NRT	Risky tobacco related behaviours ▫ Involvement with sellers of illicit tobacco in community houses. ▫ Exposure to exploitation and criminal activity. ▫ LAC frequent pubs and clubs to beg for or purchase single cigarettes – involvement with alcohol. ▫ Searching for and smoking discarded tobacco found in public ashtrays and on the street. ▫ Inappropriate relationships with older males – provision of tobacco forms part of the relationship. ▫ LAC girls reported to sell sexual favours for tobacco.

7.3.3 Results

7.3.3.1 Participant characteristics

Fourteen participants (three residential unit managers and eleven RCOs) were recruited and took part in the interviews lasting between 25 and 65 minutes in duration. Table 7.12 summarises participant characteristics by professional group.

Table 7.12 Participant characteristics by professional group

Participant characteristic		**Frequency (%)**	
		Unit Managers (n=3)	***Residential carers (n=11)***
Unit	*A*	1 (33.3)	4 (36.4)
	B	1 (33.3)	3 (27.2)
	C	1 (33.3)	4 (36.4)
Gender	*Female*	2 (66.7)	8 (72.8)
	Male	1 (33.3)	3 (27.2)
Age range	*20-29 years*	-	3 (27.2)
	30-39 years	-	2 (18.2)
	40-49 years	1 (33.3)	2 (18.2)
	50-59 years	2	4 (36.4)
Smoking status	*Current smoker*	-	2 (18.2)
	Former smoker	-	4 (36.4)
	Never smoker	3 (100.0)	5 (45.4)
Time in role	*Less than 1 year*	-	1 (9.1)
	1-3 years	-	2 (18.2)
	5 years or more	3 (100.0)	8 (72.7)
Role Grade	*RCO 1*	-	5 (45.4)
	RCO 2	-	1 (9.1)
	RCO 3	-	4 (36.4)
	Assistant manager	-	1 (9.1)

7.3.3.2 Thematic framework analysis

Thematic framework analysis identified six main themes for coding after organising the contents of the transcripts thematically: 1) tobacco policy rhetoric and operational reality; 2) tobacco use in residential units; 3) sources of tobacco; 4) residential carer beliefs towards smoking and quitting by LAC; 5) strategies to address tobacco use by LAC; and 6) tobacco-related staff development and training needs. Two emergent themes were identified: 1) electronic cigarettes and 2) new psychotropic substances (legal highs).

Theme 1: Tobacco policy rhetoric and operational reality

All participants reported an awareness of the local authority's smoke-free policy and adherence, without exception to the policy by employees and visitors to the residential units. However, for LAC accommodated in the units, and despite policy and national guidance prohibiting the facilitation of tobacco use, a designated outdoor smoking area was provided at each site. The reason for this exemption was believed by participants to minimise risk in terms of safeguarding LAC, both protecting them from potential exploitation and reducing involvement in anti-social or criminogenic behaviours. One participant, a manager of a residential unit said "*If young people have to go off of site to smoke that increases the risk. If we had young people constantly at the top of the driveway, you would get are undesirable people thinking that there is a group of young people stood there and would want to see what was going on. We have to balance their safety with trying to enforce no-smoking*" (Manager 01).

The designated smoking areas were located in the garden of each of the residential units and away from communal outdoor areas, out of sight of passers-by, and away from the main building. The smoking areas, while located in secluded areas of the units' grounds were not covered or sheltered from the elements, and seating was not provided.

Participants recounted a number of rules in the units in relation to smoking by LAC. In addition to a blanket indoor no-smoking policy participants described "*limits to the numbers of LAC using the designated smoking areas"* (Manager 01), *"not engaging with children while they are smoking*" (RCO 05), the *"handing in of smoking paraphernalia"* (Manager 03). The majority of LAC were perceived to comply with these rules.

Theme 2: Tobacco use in residential units

Participants claimed that very few LAC initiated smoking after entry to the residential units, and expressed the belief that the majority had commenced smoking while living with birth parents or foster carers. One RCO reported *"Most of the young people smoke before they come here, there is only one in the last year or so since I have been here that has started while they had been in the unit. I think the reason he started was because he had come from home and wanted to be socially accepted. He just wanted to be one of the boys I think!" (RCO 02).*

All participants identified smoking by LAC accommodated in the residential units to be problematic, frustrating, and complex. Smoking was perceived by participants to create environmental and health and safety risks, not only to the smoker, but also other LAC in the residential unit and carers. One RCO exemplified this by saying *"You get children smoking in their rooms, falling out, passing and bribing cigarettes; you get them flicking lighters, burning things, stubbing fags out here, there, and everywhere. It's a health and safety nightmare!" (RCO 06).*

Other participants commented that tobacco caused tensions between LAC and their carers that were considered intimidating and at times violent. For example, an experienced RCO described *"One young person came here from a home where I used to work so I already knew him. He was a big lad and if he didn't have his tobacco he would smash things up. I do think maybe at one point we did have permission from his mum to actually supply him with tobacco, if it got really, really bad" (RCO 03).*

Participants voiced frustration in relation to tobacco's impact on the running of the residential unit. One residential unit manager reported *"It [smoking] is an issue, and has been previously. Young people use it as an excuse for not doing things, that the really should be doing. For example, we've had young people saying "I can't go to school, without a cigarette". So sometimes, it's very cleverly used by young people to avoid doing things that they really need to be doing"* (Manager 01).

Tobacco use was considered to form the basis for many peer-to-peer relationships in the units, and often the cause of turbulence in friendships. LAC were also described as using tobacco as a tool to control or manipulate other LAC in the unit, residential carers, or family members. One RCO illustrated this by saying *"Smoking is used to cause disruption or issues in the unit. Most of them [LAC] are smoking because they can and it's a big thing to hit out at the world and adults around them with. It [addiction to tobacco] is used as an excuse… for example, if a young person has run out of tobacco, they will kick off claiming that another young person has stolen it—they're just trying it on with their behaviour to get us on side… to give them tobacco or ask another young person to share theirs—not that we ever would!" (RCO 07).*

Participants, particularly residential unit managers reported that parents used tobacco as a means of controlling their child's behaviour or to prevent engagement in criminal activity. One manager described *"She [Mother] is intimidated by her son, and so she gets worried because he gets aggressive without tobacco; even though she doesn't live anywhere close to him. He becomes so abusive, that she puts some money into his bank, to please him, and that's how it continues." (Manager 03).*

Theme 3: Sources of tobacco

Participants described how LAC living in the residential units sourced tobacco with relative ease in the local community. A number of sources were identified, from which LAC could obtain tobacco, including parental

supply during contact visits, or occasionally through the post to the unit; socially through sharing or selling/purchasing tobacco between peers; proxy purchases by members of the general public; or direct purchasing from retailers willing to make under-age sales or from "fag houses" selling illicit tobacco in the local community. Both residential unit managers and RCOs considered LAC astute in their ability to identify sources of illicit tobacco in the community in relatively short periods of time after entering the units. One RCO reported "*The places that they [LAC] know in town where they can go and get the under the counter stuff—they'll know all about that... Some will just go outside on the road here begging cigarettes, or they'll go into town, outside of the pub—it's very dangerous, but if they are addicted…"* (RCO 01).

LAC were reported to adopt a number of risky practices when they were without the means to purchase tobacco. These included: approaching members of the public, to whom they are not known, in a variety of locations, including public houses, to "*cadge*" cigarettes; smoking previously discarded cigarettes, retrieved from pavements or public ashtrays; and young females were reported to engage in inappropriate relationships with older males through which they were provided with tobacco. Participants claimed a small number of LAC had provided sexual favours in return for cigarettes; such a practice was considered prevalent by participants in other local authorities across the region. One experienced RCO described *"A lot of the time its "well, I gave 'em a shag, cause I wanted a fag!" It's that casual. The young people don't see anything wrong with that—just another commodity…" (RCO 03).*

Theme 4: Residential carer beliefs towards smoking and quitting by children in care

Participants believed smoking to be harmful. However, for some tobacco use was perceived to have a positive effect, particularly in assisting LAC to overcome issues with, self-esteem, attachment, or negative pre-care experiences. For example one RCO said *"If they [LAC] have experienced*

any type of abuse in their family home, smoking is used as a coping mechanism, that really needs to be addressed, or if they have low self-confidence or a lack of identity we need to address those issues, perhaps before we then move on to think about giving up smoking. Those needs are greater and smoking fills the void until those problems are resolved" (RCO 04).

Participants reported a perceived responsibility to encourage LAC to address their tobacco use. While engagement by LAC in discussions regarding smoking was reported, participants questioned the impact of their practice to discourage tobacco use among LAC. Reasons for this related to beliefs that: anti-smoking messages lost meaning since they were repeated *"ad nauseam";* making offers of treatment to smokers who were not sufficiently motivated to quit added to *"the stigma already experienced by young people";* and that LAC's *engagement* with cessation services was a *"tokenistic gesture"* made as a means of placating and maintaining good relations with residential carers.

Participants expressed pessimism in relation to LAC successfully quitting smoking. This is highlighted in one RCO'S response *"I don't think its [smoking] something that they are afraid of or uncomfortable discussing! They'll agree with us, probably to stay on side, but when it comes down to it [attending the smoking cessation service] they always find reasons not to go—there is always something else they need to do. These young people find it very difficult to talk to people they don't know!"* (RCO 06).

<u>*Theme 5: Strategies to address tobacco use by LAC*</u>

Participants reported confidence in their ability to advise and support LAC in addressing smoking. A number of strategies were reportedly adopted by participants to reduce the use of tobacco in residential units. These included positive role modelling and highlighting to LAC the negative aesthetic and monetary aspects of smoking. In one unit, temporary abstinence was reported to be incentivised, through the use of adventure type short-breaks for LAC, during which smoking was not permitted.

Participants considered confronting LAC with the adverse health impacts of tobacco use to be ineffective, as described by this RCO *"Because of the situations they're [LAC] in with their lives, not living with their families, being moved from place to place; I really don't think that they give a monkeys' about their future! Everything is day to day, talking to them about smoking causing cancer, maybe in 50 years' time—I don't think that they can see that far ahead!" (RCO 05).*

Participants who reported current smoking claimed to take care not to reveal their own smoking behaviour to LAC accommodated in the residential units. Discovery of staff smoking by LAC living in the residential unit was reported to have led to incidents of staff harassment. While some participants believed that the awareness of LAC of staff smoking was positive, and promoted frank discussions, the majority considered it to counter the positive image that residential carers were required to portray. For example, one manager admitted *"…and it can be difficult for a smoker to say to a young person "you shouldn't be doing this" "this is bad for your health"—I think that some staff that feel uncomfortable with that double standard*" (Manager 01).

Participants provided accounts of interactions with social care professionals and health services in relation to smoking and suggested that interest and engagement with reducing smoking were varied. A need to improve the process of sharing information about the smoking status of LAC was highlighted by participants. In particular, the importance of information relating to dependence on tobacco was identified. This was felt to be particularly important during the "*settling in phase*" due to the child encountering limited sources of tobacco and the potential psychological challenges related to a placement change, that may be confounded by nicotine withdrawal. One residential unit manager explained that *"Some social workers will tell you..."oh they [LAC] don't smoke that much!" …and suddenly you find that most of their [LAC] challenging behaviours are around the fact that haven't got a cigarette—so*

they must smoke a fair amount because their behaviour tells you they're desperate" (Manager 01).

The statutory health assessment for LAC provides an opportunity for addressing tobacco dependence. However, given the additional needs of residentially accommodated LAC, participants described smoking as being overlooked, particularly in the context of wider health needs. For example, one residential unit manager commented that *"During the health assessments, they'll [specialist nurses for LAC] ask "do you smoke?", and if yes they just put a 'Y' in the box and then it's on to the next bit..."* (Manager 02).

Links with local health services including smoking cessation teams were reported to be positive, with joint working and an understanding of the complexities of "*being in care*" being displayed by local smoking cessation advisors. Such attributes were suggested by participants to allow LAC to engage with services if they wish and on their own terms. A proactive approach to limiting LAC's access to tobacco was also adopted. Partnerships forged in the local community were believed by participants to be invaluable in addressing issues of underage, proxy, or illicit tobacco purchasing, as one residential unit manager recounted *"We work really closely with the PCSOs [Police Community Support Officers]. We build relationships between them and the young people so that they [PCSOs] can monitor our young people—if they see them in town. With it being a fairly small town, we get a lot of telephone calls from retailers as well saying that someone [from our unit] is trying to buy cigarettes… Friends of people who work here will ring in to say one of the young people is stopping passers-by in the street [to obtain cigarettes]. That's a big thing, if you have a community reporting back to you, then it's a fantastic network!"* (RCO 07).

Theme 6: Tobacco-related staff development and training needs

Despite the provision of a mandatory e-learning package in relation to smoking being available to residential carers, few participants reported its

completion. Among those participants who took part in the training, the majority felt it could be improved. In particular, participants mentioned the need to "*challenge staff attitudes towards smoking*" (RCO 07), the *"inclusion of strategies to better engage LAC"* (RCO 09) who believe tobacco use to be normative, and the "*provision of an overview of the current evidence base relating to smoking and cessation*" (RCO 3), which should include harm reduction strategies, such as electronic cigarettes and temporary abstinence. Others believed the method of training delivery required improvement, for example, one participant said "*I think training is always useful. Compared to the e-learning, which is just a click of a mouse and yep, I've got my certificate; with things like health issues face to face (training) is always better as it brings out debate. You will get a debate between the staff who smoke and the non-smokers*" (Manager 01).

Participant's knowledge of tobacco use and smoking cessation was claimed to be based on personal experience and a tacit awareness obtained through health promotion campaigns in the media, as one RCO who smoked admitted *"Not training as such. But I smoke, so I know about smoking and how to give up and the things that might be helpful if I wanted to stop smoking"* (RCO 01).

For others, knowledge was gained through the use of web-based resources. The use of informal sources of information was believed by many participants to negatively impact their ability to effectively deliver smoking-related advice and support to LAC accommodated in the units where participants worked. For instance, one residential unit manager claimed *that "It's always difficult because there's lots of stuff [new research and practice guidance] going on—with that way is best, this way is best. It would useful for staff to be able to provide information and evidence so they are able to engage young people and to provide factual information"* (Manager 01).

In addition to basic tobacco-related knowledge, undertaking in-depth training in smoking cessation was considered to be of benefit by participants, particularly when working with LAC who were perceived as difficult to engage. A residential unit manager suggested the benefits of RCOs undertaking higher-level training in relation to smoking cessation, suggesting that *"Often the children, especial the ones we look after can often be quite intimidated by going into a formal setting like the doctors or something like that. If we had someone in the home, who was trained, who was constant, and who could give guidance to other staff—it wouldn't necessarily mean that they would have to do everything, but they could give guidance to key workers"* (Manager 03).

7.3.3.3 Emergent themes

Two minor themes were generated from the transcripts. These were the use of electronic cigarettes and new psychotropic substances (so-called legal highs).

Emergent theme 1: Electronic cigarette use

Electronic cigarette use was discussed by participants across all three units. Concerns were expressed in relation to the safety of products, including the potential health implications and the media reported the risk of fire. Other concerns related to the tensions that electronic cigarette use reportedly caused in the units. The general consensus was summed up by one residential carer who explained *"One of our smokers has one of those bloody vape things! I don't agree with them at all, I think they are disgusting… there is not enough research into them. I think they are just as bad as cigarettes, if not more so. People use them more and they are flavoured for god's sake! They're like Alco-pops used to be and they should be banned"* (RCO 03).

Emergent theme 2: New psychotropic substances ('Legal Highs')

Defined by the UK Home Office's expert panel review in October 2014, new psychotropic substances (NPS) are "psychoactive drugs, newly available in

the UK, which are not prohibited by the United Nations Drug Conventions, but which may pose a public health threat comparable to those substances listed in those conventions. The key features are that NPS are psychoactive, in that they stimulate or suppress the nervous system, or cause dependence; have a comparable level of potential harm to internationally controlled drugs; and are newly available, rather than newly invented". [369] Legal highs were mentioned by participants from two units. Frustration was expressed by both residential unit managers and RCOs in being unable to remove the substances from LAC, given that possession of such substances was not illegal[3], at the time that this research was carried out.

Other participants highlighted the contribution of legal highs to tobacco-related adverse behaviours in the units and impact on the capacity of the unit as a whole. For instance, one residential unit manager recalled their experience *"[Young person] doesn't only smoke tobacco, but legal highs also. It creates a massive issue for us and we do get the flips between being completely unconscious and his additional needs in terms of being monitored to really violent outbursts because he is coming down and really needing tobacco and that's when he becomes violent—harassing people, and banging on doors to get people up because he knows that they have tobacco*" (Manager 02).

7.3.4 Summary of qualitative findings

Fourteen residential carers [RCOs (*n*=11) and unit managers (*n*=3)] from three units participated in semi-structured interviews. All participants identified smoking in residential units to be problematic and frustrating. LAC were identified as engaging in tobacco-related behaviours that posed risks, in excess of those of smoking. The provision of designated smoking areas for LAC was considered to protect LAC from exploitation and to reduce involvement in anti-social behaviours. Many carers perceived smoking to have positive benefits in assisting LAC to overcome issues with

[3] Importing and selling legal highs has now been criminalised by the Psychoactive Substances Act 2016.

self-esteem and adverse pre-care experiences. Participants also questioned the effect of their efforts to address smoking in the units, with some questioning if they were contributing to the stigma already experienced by many LAC. While others considered that LAC engagement with advice and offers of smoking cessation treatment were tokenistic and a means of placating or maintaining good relations with carers. Despite reporting confidence in their ability to encourage and support LAC in quit attempts, the knowledge of carers was largely based on tacit awareness and personal experience. Very few had received tobacco-related training and among those who had attended, the majority felt that it was not relevant to LAC.

7.4 Discussion

This section will provide an integrated discussion of the findings of each of the phases of this mixed-methods study.

7.4.1 Main findings

The studies demonstrate that tobacco smoking is highly prevalent in LA operated residential units for LAC and has wide-ranging impacts that include exposing LAC to the risks of exploitation, psychological harm, and physical health risks that exceed those of tobacco smoking, and appears to be rarely addressed in appropriate ways. The findings convey the necessity to develop an intervention that takes account of the factors that challenge or facilitate reductions in the use of tobacco in residential units for LAC.

7.4.2 Adherence to and effect of smoke-free policy

The findings from this mixed-methods study illustrate that current smoke-free policies pertaining to residential units are insufficient in discouraging or addressing tobacco use by LAC. While participants expressed a substantial awareness of local authority policies that prohibit smoking on the residential premises; smoking by LAC is common. With past research finding smoking among youth to be influenced by growing up in environments in which smoking is an acceptable or commonplace

behaviour, this lack of adherence and enforcement of the policy and proactive health promotion is concerning.[145-149] While a number of potential reasons for permitting smoking in the grounds of residential units have been suggested, including preventing involvement in crime or anti-social behaviour, or minimising risks related to child sexual exploitation (CSE), like any responsible parent, RCOs seek to manage the risk LAC may face and often this requires a balance to be struck between safeguarding and risky health behaviour.[370,371] However, permitting smoking by LAC has a number of negative implications. Given the difficulty some LAC experience in developing peer relationships, smoking may facilitate this and potentially lead to the initiation of smoking, as a means of engaging with peers.[20] In addition to establishing relationships, smoking contributes to peer to peer bullying of LAC, harassment, and aggression in the units. Permitting smoking may sabotage the efforts of LAC contemplating or attempting cessation.[364] Finally, the finding that some residential carers smoke in the grounds of the units may mean that inadvertently, this behaviour is witnessed by LAC; thereby adding to the normalisation of tobacco use and undermining efforts to promote healthy behaviours.

7.4.3 Tobacco use in residential units

Tobacco smoking by LAC is highlighted as complex and bound in the negotiation of power, relationships, and social belonging. While these interactions are reported to some extent among youth in the general population, the role of tobacco in exerting power or control, social contexts and interaction is compounded among LAC, given the uncertainty experienced and the difficulties encountered with building and maintaining relationships.[163,372] Proxy purchasing and the use of community-based illicit sources of tobacco appeared to be frequently used methods by which LAC acquire tobacco. Supported by previous research, these findings indicate that tobacco control policy bans on under-age purchasing are easily circumvented.[159,167] While the purchasing of tobacco from illicit sources, has not been explored in under-age smokers, findings from

research with adult smokers suggest a relationship between illicit tobacco use and significantly worse health.[373] Furthermore, in addition to the risks of smoking illicit tobacco, the risk from potential exploitation or coercion is high, given the links between the black market and crime. With the advent of the Children and Families Act 2014 that came into force on 1 October 2015, which provides enforcement and fines to regulate proxy purchasing and sales of nicotine-containing products to children under the age of 18, pathways to share intelligence with trading standards may be beneficial in reducing the supply of tobacco to LAC. Family members have been identified in previous research to be a likely source of tobacco for youth.[374] With the findings of this study illustrating the frequent occurrence of parents supplying LAC with tobacco, and of LAC sharing, trading and selling tobacco to peers, parents of LAC may well be indirectly supplying tobacco to other young people. Effective engagement is critical if parents are to be dissuaded from supplying LAC with tobacco or the means by which to purchase it.

7.4.4 Wider tobacco-related risks

The study highlights the desperate measures LAC will resort to in order to obtain tobacco. Previous research has highlighted the practice of youth smoking cigarettes that have been discarded in the street or approaching unknown adults in order to 'cadge' a cigarette.[159,374] The smoking of discarded cigarettes is particularly concerning, given that the practice places the smoker at risk of disease transmission.[375] While smoking-related practices that exceed the risks of smoking have been identified in disadvantaged adult populations, such as the homeless, LAC in this study are reported to engage in risky behaviours that have not been reported previously.[375] Their engagement in sexual behaviour in return for tobacco and the formation of inappropriate relationships with older males is highly concerning, especially in light of recent reports of the sexual exploitation and trafficking of LAC in the UK, by criminal gangs.[376] Approaches that

promote self-esteem and protective factors for LAC identified during key working and therapeutic sessions may be useful to address wider harms.

7.4.5 Opportunities and challenges to address tobacco use

Attitudes towards addressing tobacco dependence among LAC were generally positive, and despite a lack of training in relation to smoking, levels of confidence in providing advice and support to LAC who smoke to address their tobacco dependence were high. However, a reliance on tacit and web-acquired information raises questions over the accuracy of smoking-related advice provided to LAC and is likely to limit the effectiveness of strategies to promote cessation. A number of misattributions regarding smoking were apparent. Prevailing beliefs that LAC have greater issues to deal with than addressing their tobacco use indicates a lack of awareness of the importance of smoking cessation and the benefits which can be gained. For example, it is widely reported that many LAC experience mental health problems related to their pre-care experiences.[17,20] This, however, should not be considered a barrier to smoking cessation; while, motivation to quit smoking among youth with mental disorders is not well researched, one study found, as many as 42% of youth in the psychiatric population report a desire to quit and two-thirds report having made a quit attempt.[236] Similarly, in the homeless population, many of whom are reported to have spent some of their childhood in care, smoking cessation interventions have been shown to be effective, despite higher levels of nicotine dependence and co-occurring mental disorders.[25] Pessimism in relation to the capacity of LAC to be motivated to attempt and achieve smoking cessation is likely to result in opportunities to engage LAC in constructive discussion regarding smoking cessation being overlooked.

A number of potential challenges to the implementation of comprehensive smoke-free residential units were described by participants. These

included concerns such as safeguarding, disruptive behaviours, and stigmatisation of LAC. While there is a lack of smoke-free policy implementation evaluations in residential units in the literature, in acute, in-patient mental health settings, that have implemented comprehensive smoke-free policies, many of the perceived barriers such as violent incidents were not borne out in practice.[377] In fact, research conducted in the prison system in New Zealand found no incidents of related violence, reported improvements in tensions between prisoners and staff, and over half of prisoners stated they intended to remain non-smokers after release.[25] Given the importance of addressing tobacco use among LAC and the successful implementation of smoke-free settings for other vulnerable populations, there appears to be a case for the use of consultation in the development of smoke-free policies applicable to residential units for LAC.

7.4.6 Study strengths and limitations

A number of limitations are acknowledged. These are discussed below. Overall, and despite the benefits of established research governance and approval pathways, recruitment of local authorities was challenging. Just half of the eligible local authorities in the East Midlands region responded to requests to conduct a cross-sectional survey of residential carers, with a lack of capacity in the service cited as the main reason for refusal to host the research. In the case of the qualitative, a series of service inspections and subsequent restructuring meant that interviews were only conducted within one local authority. A critique is now provided of Phase I, followed by a discussion of the limitations of Phase II.

7.4.6.1 Phase I (survey)

From a methodological perspective, critiques of quantitative methods to investigate the experiences of individuals include that they do not allow for rich or detailed responses. In that there is no "correct" way to interpret a question; as such respondents may hold conflicting views, and which may not correspond with those of the researcher. The differences between responses such as "strongly agree" and "agree" and their antonyms are

subjective, and it may not be possible to find certainty in participant's perceptions. This is especially true since questions in the survey inquired about respondents' views and experiences of tobacco use in residential units for LAC. Respondents may have found difficulty in applying a single response to their perceptions since such views are formed in complex contextual and experiential systems. However, the adoption of a mixed-methods approach means that meanings and perceptions in relation to these questions may be explored in phase II, thereby adding to the reliability of the data collected.

Other limitations to the quantitative phase relate to concerns regarding the generalisability of findings. First the cross-sectional design of the survey means that the data is a snap-shot and as such the views and practice of RCOs in this region, and may not be reflective of those reported by RCOs in other areas of the country. Further issues relating to the generalisation of survey findings also relate to the response rate of 16% that was achieved. However, while relatively low, it does compare to responses achieved by other surveys conducted within local authority social care departments, that utilised electronic distribution.[336,378]

7.4.6.2 Phase II (interviews)

With regard to the qualitative interview phase, similar issues of generalisability are present. Since the study was conducted in one predominantly rural county in England, responses may differ among residential carers in urban settings, particularly due to the increased opportunities for LAC to obtain tobacco and variations in safeguarding concerns that may be present. Furthermore, residential carers in other local authorities may perceive the use of tobacco and its management differently, due to different and varied organisational and supporting agency approaches.

For both the quantitative and qualitative phases, participants were likely to be individuals with an interest in the topic, and survey selection and

reporting bias may have influenced the favourable responses to survey and interview questions pertaining to participant confidence in their ability to support smoking cessation attempts for LAC. Finally, while this study attempted to explore the smoking-related training that participants had undertaken, this was not verified by viewing training records, and the content of reported training provided was not ascertained. Despite these limitations, the findings from this study are important, given that it is the first of its kind to explore tobacco use, its impacts, and its management in English residential units for LAC, from the perspective of front-line carers, across a variety of residential settings, and locations.

7.5 Chapter conclusion

In this chapter, the detrimental impact of tobacco use in residential units for LAC has been highlighted and the findings suggest that opportunities for promoting smoking cessation and discouraging smoking initiation among LAC are likely being missed by residential carers. Furthermore, smoke-free policies appear to be ineffective and unsupported. Addressing smoking in residential units has been shown to be complex and will require a consistent approach tailored to the concerns and needs of residential carers. In the next chapter, I will explore those factors that influence the use of tobacco in residential units.

Chapter Eight: Designing an intervention to address tobacco use in residential units

Guidance from the MRC advocates the use of theory to inform the development of complex interventions, yet suggestions for its application are not provided.[262] Using an adapted model, based on a framework described by French et al. (outlined in Chapter Three), in this Chapter I describe the development of an evidence- and theoretically informed intervention to address tobacco use in residential units.[257]

The overall aim of this chapter is to describe the design an intervention to address tobacco use in residential units. The objectives are to:

1. Identify the influences on tobacco use in residential units.
2. Prioritise those factors to target with an intervention.
3. Identify barriers to and enablers of change.
4. Identify likely implementation issues and what is likely to be relevant, feasible, and acceptable.
5. Identify and select behaviour change techniques and modes of delivery.
6. Combine components into a user-orientated intervention.

In the first section (8.1) of this chapter, Objective 1 is addressed through identification of the factors influencing tobacco use in residential units are identified utilising a socioecological model. Section 8.2 addresses objectives 2-4 using a multiple-methods stakeholder consultation to explore the prioritisation of target behaviours, barriers and facilitators to behaviour change, and the identification of potential implementation issues. This evidence is then applied to the Theoretical Domains Framework (TDF) in order to identify behaviours to target with an intervention. Stakeholder perceived challenges and enablers to intervention implementation are then applied to the Diffusion of Innovation in Service Organisations (DISO) model together with information gained from the narrative review of the literature (Chapter

Five) to identify likely implementation issues. In the next section (8.3), the methods of behavioural change and modes of intervention component delivery which were selected using the Behaviour Change Technique taxonomy (BCTt) are outlined and address the Chapter Objective 5. Finally, I end this Chapter by presenting the components of a proposed intervention to address tobacco use in residential units for LAC, addressing Objective 6. A discussion of potential organisational implications and its relevance and acceptability to the local context, as well as a critique of the theoretical frameworks that contributed to intervention design are also provided.

8.1 Factors influencing the use of tobacco in residential units

Many theoretical perspectives organise intra- and inter-personal factors and their relation with one another to account for adaptive, disruptive, or maladaptive behaviours in children and young people, particularly LAC and include, but are by no means limited to, concepts of attachment, developmental psychopathy, complex trauma, neurodevelopmental perspectives, and resilience.[379-384] However, while these models are useful in terms of understanding the individual child, they are insufficient to influence, entirely, the use of tobacco by LAC in residential units. In so far as they do not take account of the ecology of the corporate parent(s) and wider social and political systems, within which LAC are embedded.

Research has shown that smoking among all youth involves multiple levels of influence.[4] The literature assimilated in Chapter Two indicates that these factors and those specific to children in care will also influence tobacco use by LAC. In order to identify the many and inter-related factors influencing tobacco use in residential units, the socioecological model for health promotion was iteratively selected to synthesise and explore the empirical evidence.[4,273] Socioecological approaches recognise that individuals participate in risky behaviours, including tobacco smoking, due

to and within complex social systems.[385] The socioecological model (previously detailed in Chapter Three), proposed by McLeroy et al., suggests that behaviour results from influences across five levels (intrapersonal, interpersonal, organisational, community, and public policy) and emphasises the interaction between, and interdependent of, factors within and across all levels of a health problem.[273]

8.1.1. Aim and objectives

8.1.1.1 Study aim

This study meets objective 1 of this chapter and aims to identify the multiple levels of influence on the use of tobacco in residential units for LAC, as well as the interaction between these levels.

8.1.1.2 Study objectives

To meet this research aim, the objectives of this study were to:

1. Synthesise findings from empirical research (Chapters Six and Seven) to identify the factors that influence of the use of tobacco in residential units for LAC.
2. Theoretically conceptualise the relationship between social factors and social context that influence tobacco use in residential units for LAC, using the socioecological model on health promotion.

8.1.2 Method

8.1.2.1 Design

A socioecological analysis of the evidence generated in Chapters Six and Seven was conducted to identify the levels of influence on tobacco use in residential units.

8.2.2 Analytic framework

A socioecological perspective on tobacco use in residential units for LAC makes several assumptions. These are that:

a) the multiple contexts in which LAC live influence tobacco use

b) factors present in any one social context are best understood by considering factors present in other social contexts
c) LAC inhabit multiple and layered contexts nested in complex levels of influence and it is this embeddedness which may amplify those factors that counter or influence tobacco use by residentially accommodated LAC
d) In focussing on only one context risks overestimating its contribution to smoking residentially placed LAC as well as attributing effects that may confound how contexts may jointly impact tobacco use.

Initial review of the results of the studies described in Chapters Six and Seven identified a need to take account of additional influences on the use of tobacco in residential units for LAC. McLeroy et al.'s socioecological model was therefore modified at the personal- and interpersonal-level to allow the inclusion of factors specific to LAC and residential carers.[273] This revised framework is shown in Table 8.1 and includes descriptions of the factors influencing each level.

8.1.2.3 Procedure

Data generated from the studies presented in Chapters Six and Seven were reviewed and the attitudes, practices, and circumstances that contribute to the use of tobacco by LAC identified. These were then mapped to the framework (shown in Table 8.1), to ascertain the relationship both between and within the concepts identified as influencing tobacco use in residential units.

Table 8.1 Modified socioecological framework for the investigation of influences on the use of tobacco in residential units

Level of influence	Description
Personal characteristics (LAC)	*Constitutional and biological factors associated with variations in health behaviour.* *Individual characteristics that reside within the individual and which may influence health behaviours.*
Personal characteristics (Residential carers)	*Constitutional and biological factors associated with variations in health behaviour.* *Individual characteristics that reside within the individual and which may influence health behaviours.*
Interpersonal-level (LAC)	*Individual relationships and social environment that affect behaviour by providing norms, social support, and behaviour modelling.*
Interpersonal level (Residential Carer)	*Individual relationships and social environment that affect behaviour by providing norms, social support, and behaviour modelling.*
Organisation- Level (Unit)	*Policies, informal structures and rules within the home that constrain or promote health.*
Community-level (Unit)	*Relationships between units and other organisations and informal social networks in the units themselves.*
Macro-level (Organisation)	*Policy and legislation at local or national levels that regulate or support health promotion in residential units.*

8.1.3 Results

Factors influencing the use of tobacco use in residential units for LAC were framed according to the six levels of influence. These are presented in detail and summarised in Table 8.2.

8.1.3.1 Individual-level (LAC and residential carer) factors

Factors that influenced tobacco at the LAC individual-level included: the normalisation of tobacco smoking in families and social networks of LAC, prior to and during their time in residential care; and tobacco smoking to ameliorate negative psychosocial stressors and the subsequent perceived benefits of tobacco use. At the individual-level of residential carers, there was superficial awareness of the harms of smoking and its treatment, and limited prioritisation of and capacity to address tobacco use due to perceptions concerning the alleged 'benefits' of tobacco use and the individually held beliefs and attitudes of residential carers.

8.1.3.2 Interpersonal-level (LAC and residential carer) factors

Interpersonal-level factors influencing the tobacco use by LAC resulted from smoking to construct 'normal' childhoods including the forming of social relationships and interests, and as a mediator of maintaining ties between LAC and their corporate parents, families, friends, and peers. Influential factors at the interpersonal-level for residential carers related to the giving and receiving of conflicting messages regarding tobacco use, underpinned by inconsistent restrictions on tobacco use in the unit and fears concerning resultant negative LAC behaviours and safeguarding LAC from wider harms.

8.1.3.3 Organisational-level factors (Unit)

Organisational influences identified practices which undermined current anti-tobacco strategies, such as the provision of designated, on-site smoking areas for LAC, limited resources to promote and support cessation among LAC who smoke, and an absence of tobacco-related information sharing between professionals in the organisation and other agencies concerned with LAC.

8.1.3.4 Community-level factors (Unit)

Community factors that facilitated the use of tobacco by LAC included an ease of access to illicit tobacco products in the community, under-age sales and proxy purchases by members of the public, and limitations in access to and timely response from community stop smoking services.

8.1.3.5 Macro-level factors (Organisation)

Macro-organisational-policy perspective limitations in tobacco-related policies prescribed at a local and national level were identified. These included: a lack of prioritisation of addressing tobacco use among LAC generally, and particularly in residential units, failures to raise awareness of local tobacco policy and its application to residential units, and a lack of process for the reporting of tobacco policy breaches, beyond that of the residential unit.

Table 8.2 Factors influencing the use of tobacco in residential units

Level of influence	Themes supporting tobacco use
Individual-level factors (LAC)	▫ *Individual risk factors of age, mental illness, and socio-economic deprivation.* ▫ *Histories of tobacco use prior to entering care.* ▫ *Normalisation of tobacco use prior to entry into care.* ▫ *Knowledge about harms of smoking.* ▫ *Perceived benefits of smoking.* ▫ *Lack of motivation to quit smoking.* ▫ *Limited health related support seeking behaviours.*
Individual-level factors (Residential carers)	▫ *Superficial and tacit awareness of harms of tobacco smoking.* ▫ *Limited prioritisation of smoking among LAC.* ▫ *Limited capacity to address smoking by LAC.* ▫ *Carer smoking behaviour and beliefs.*
Interpersonal-level factors (LAC)	▫ *Smoking as a means of building relationships.* ▫ *Smoking as a leisure activity.* ▫ *Smoking as a means of connection with birth families.* ▫ *Smoking as rebellion and seeking control.* ▫ *Tobacco as gift, reward, or sanction.* ▫ *Limited restrictions on smoking.*
Interpersonal-level factors (Residential carers)	▫ *Limited confidence in knowledge and ability to effectively encourage and support smoking cessation attempts.* ▫ *Concern regarding anti-social behaviour and safeguarding LAC from exploitation.* ▫ *Concerns regarding stigmatisation of LAC.*
Organisational-level factors	▫ *Normalised violation of smoke-free policy.* ▫ *Provision of designated smoking areas in residential unit grounds.* ▫ *Limited practice to identify and treat tobacco dependence among LAC during statutory health assessments.* ▫ *Limited resources to engage LAC in health promotion activity.* ▫ *Incomplete or absence of smoking-related information shared between social workers, health professionals, schools, and placements.* ▫ *Limited processes to allow or facilitate self-administration of nicotine replacement therapies.*

Level of influence	Themes supporting tobacco use
Community-level factors	▫ *Access to illicit tobacco.* ▫ *Underage and proxy purchasing.* ▫ *Response of stop smoking services not timely enough to seize opportunities to support LAC when support is requested (time lags between referral and appointment).*
Macro-level factors (Organisation)	▫ *Limited prioritisation of addressing tobacco use.* ▫ *Limited awareness raising of smoke free policies relating to LAC.* ▫ *Lack of reporting of policy breaches.* ▫ *Limited information sharing between other agencies (e.g. trading standards) in relation to tobacco related harms and LAC.*

8.2 Identifying targets for behavioural change and potential implementation issues

The previously described socioecological model highlights the complexities involved in the use of tobacco in residential units for LAC. To translate this evidence into the development of a potentially effective intervention to address smoking in these settings, an understanding of how stakeholders perceive and prioritise the most relevant behaviours in the research context was required. Furthermore, it was necessary to identify and understand the barriers to and facilitators of behavioural change, to inform an understanding of challenges and enablers of implementation of a future intervention.

8.2.1 Aim and objectives

8.2.1.1 Study aim

This study addresses objectives 2, 3 and 4 of this chapter. The aim of this study was to identify contextually relevant targets for behaviour change and to ascertain which issues may challenge or enable intervention implementation.

8.2.1.1 Study objectives

The objectives of this study were to:

1. Investigate which potential intervention functions are prioritised by central stakeholders
2. Identify barriers and facilitators to behavioural change
3. Identify perceived challenges and enablers to intervention implementation
4. Qualitatively explore stakeholders perceptions of potential barriers and enablers to behaviour change and intervention implementation
5. Map barriers and facilitators to behaviour to the TDF and Enablers and challenges to implementation issues to the DISO model and integrate the findings of the narrative review (Chapter Five).

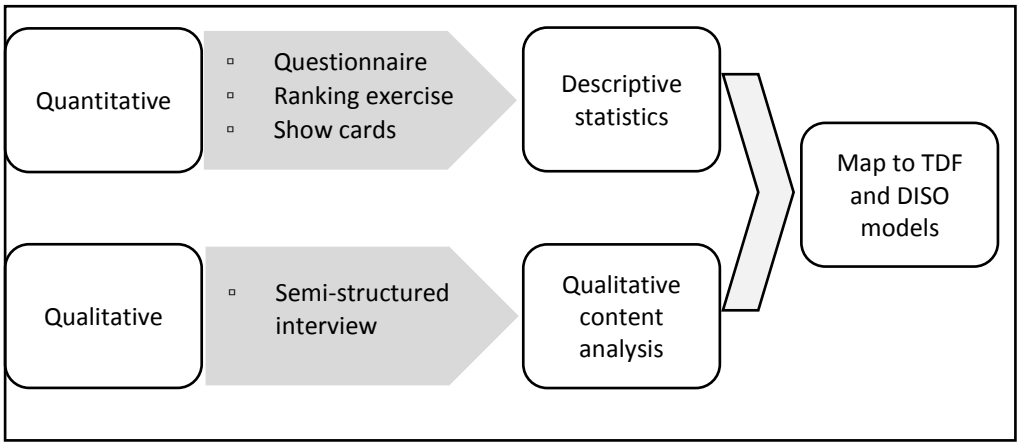
8.2.2 Methods

8.2.2.1 Design

A multiple methods stakeholder consultation was conducted with representatives from LAC health services and children's social care in a large rural county in the East Midlands.[318]

As Figure 8.1 illustrates, quantitative data were collected through a questionnaire, ranking exercise, and the completion of show cards and analysed using descriptive statistics (frequencies, proportions, and means with standard deviations). Qualitative data were collected through semi-structured interviews. Discussions targeted stakeholder's responses to the quantitative instruments, guided by a schedule of topics. Narrative data were analysed using a deductive approach to qualitative content analysis. Both quantitative and qualitative findings were then integrated and mapped to the TDF and DISO model.

Figure 8.1 Schematic representation of the multiple methods approach



8.2.2.2 Participants

Identification and selection

To reduce the risk of bias, the composition of the stakeholder group was reflective of the population sub-group professionals delivering health and social care to residentially placed LAC. Potential stakeholders were identified in one of two ways: directly through researcher contacts or indirectly through the networks of social care professionals familiar with the research.

Sampling was stratified and purposive and aimed to capture the various perspectives and interests of residential carers, healthcare professionals, social workers, leaders and commissioners of services. However, due to time constraints and the research burden on participants in the residential units (many of whom had previously contributed to the previous studies), it was not possible to consult residential carers individually. Rather, therefore, it was considered acceptable to invite a manager from one of the residential units to feedback on behalf of residential carers.

Eligibility

Local authority participants: Employees and elected representatives of the local authority who have a professional interested in the planning or delivery of services for residentially placed LAC were eligible for participation in the study.

Other agencies: Health professionals and health promotion professionals whose role included the delivery of services to support the health needs of LAC or the delivery of smoking cessation services to young people were eligible inclusion in the study.

Inclusion and exclusion criteria

The inclusion and exclusion criteria for participation in the stakeholder consultation is shown in Figure 8.2.

Figure 8.2 Inclusion and exclusion criteria for participant recruitment to the stakeholder consultation

Inclusion criteria	Exclusion criteria
Has a professional interest in the planning or delivery of services in non-specialist residential units for LAC.	Has a professional interest in the planning or delivery of services in specialist residential units for LAC only.
Aged 18 years or older (no maximum age limit).	Aged under 18 years.
Able to understand, read and communicate in the English language.	Unable to understand, read and communicate in the English language.
Able and willing to provide written informed consent.	Unable or unwilling to provide written informed consent.

8.2.2.3 Instruments and measures

Questionnaire

A brief questionnaire was developed to obtain details of participant characteristics and attitudes regarding smoking among LAC (Appendix I). In relation to participant characteristics, multiple choice questions assessed: professional role (elective representative, social worker, LAC service manager, Independent Reviewing Officer, residential unit manager, RCO, children's services leader, LAC Nurse, stop smoking service representative); gender (male or female); age range (under 20 years, 20-29 years, 30-39 years, 40-49 years, 50-59 years, 60-69 years, and 70 years or older); and smoking status (never smoker, former smoker, current smoker). Five statements assessed participants attitudes towards tobacco smoking by LAC, agreement with each statement was measured using a five-point

Likert scale (strongly agree, agree, disagree, strongly disagree, and undecided).

Show cards

Cards were designed to facilitate the collection of data on participants' prioritisation of intervention functions and potential barriers and facilitators to behavioural change, and implementation issues (Appendix J).

Prioritisation of intervention functions

The behaviours identified in the socioecological analysis as influencing tobacco use in residential units for LAC were reviewed and mapped to the six potential solutions outlined in the survey, described previously in Chapter Seven. These potential solutions were then refined further and resulted in five distinct strategies to address the factors that influence the use of tobacco in residential units for LAC. The potential solutions were: 1) implementation of completely smoke-free residential units for LAC; 2) pathways and processes to identify LAC who smoke and which encourage and support smoking cessation among LAC; 3) strategies to address the wider harms of tobacco use by LAC; 4) training and development of residential carers in relation to smoking and smoking cessation; and 5) educating LAC about the harms of smoking and the benefits of quitting. Table 8.3 provides details of each solution and the behaviours it seeks to address. The potential solutions and their corresponding behaviours were explained to participants and rankings in relation to importance were obtained using a five-point scale ranging from 1=least important to 5=most important.

Barriers and facilitators to behaviour change

Two separate cards were designed to obtain participant perceptions of the five main barriers and five main facilitators to achieving behaviour change. Free-text boxes were provided for participants to enter those barriers and facilitators which they believed were most relevant to addressing tobacco

use in residential units for LAC. An additional box was included on the card for participants to offer explanations for the answers, if desired.

Challenges and enablers to intervention implementation

Two cards were developed to ascertain the challenges and the enablers to the successful implementation of an intervention to address tobacco use in residential units for LAC. The cards also provided a free-text box for participants to offer explanations for their answers, if desired.

Table 8.3 Influences in tobacco smoking in residential units and potential solutions

Solution	Influences addressed
Implementation of completely smoke free units	▫ *Carer smoking behaviour and beliefs.* ▫ *Limited restrictions on smoking.* ▫ *Normalised violation of smoke-free policy.* ▫ *Provision of designated smoking areas in residential unit grounds.* ▫ *Lack of reporting of policy breaches.*
Pathways and processes to identify smoking and address cessation	▫ *Histories of tobacco use prior to entering care.* ▫ *Limited health related support seeking behaviours.* ▫ *Lack of motivation to quit smoking.* ▫ *Limited capacity to address smoking by LAC* ▫ *Smoking as a means of building relationships.* ▫ *Smoking as a leisure activity.* ▫ *Smoking as a means of connection with birth families.* ▫ *Limited practice to identify and treat tobacco dependence among LAC during statutory health assessments.* ▫ *Limited resources to engage LAC in health promotion activity.* ▫ *Incomplete or absence of smoking-related information shared between social workers, health professionals, schools, and placements.* ▫ *Limited processes to allow or facilitate self-administration of nicotine replacement therapies.* ▫ *Response of stop smoking services not timely enough to seize opportunities to support LAC when support is requested (time lags between referral and appointment).* ▫ *Limited information sharing between other agencies (e.g. trading standards) in relation to tobacco related harms and LAC.*

Solution	Influences addressed
Strategies to address the wider harms of smoking	▪ *Tobacco as gift, reward, or sanction.* ▪ *Smoking as rebellion and seeking control.* ▪ *Access to illicit tobacco.* ▪ *Underage and proxy purchasing.*
Training and development	▪ *Superficial and tacit awareness of harms of tobacco smoking.* ▪ *Limited prioritisation of smoking among LAC.* ▪ *Limited confidence in knowledge and ability to effectively encourage and support smoking cessation attempts.* ▪ *Concern regarding anti-social behaviour and safeguarding LAC from exploitation.* ▪ *Concerns regarding stigmatisation of LAC.* ▪ *Limited prioritisation of addressing tobacco use.* ▪ *Limited awareness raising of smoke free policies relating to LAC.*
Educating LAC about harms of smoking and benefits of quitting	▪ *Individual risk factors of age, mental illness, and socio-economic deprivation.* ▪ *Normalisation of tobacco use prior to entry into care.* ▪ *Lack of knowledge about harms of smoking.* ▪ *Perceived benefits of smoking.*

Topic guide

A topic guide was designed to ascertain participants' views in-depth regarding behaviours to target with an intervention, how change may be achieved, and implementation issues at unit-, organisational-, and other agency-levels. Finally, participants were asked to consider how the success of any intervention may be monitored or measured. Particular attention was paid to the availability relevant organisational data and what additional data may need to be identified to support a pilot evaluation. The topic guide is shown in Figure 8.3.

8.2.2.4 Ethical and governance procedures

Participant recruitment materials, study procedures, and study instruments were reviewed and provided with a favourable opinion by the University of Nottingham, Faculty of Medicine and Health Sciences REC, (Reference: J15102016) (Appendix K). An application to conduct the consultation was made to the local authority. Following discussions with the Research governance lead and review of the study procedures and documentation, approval was provided.

Figure 8.3 Topic guide for interviews with stakeholders

Topic	Questions
Behaviours to target with an intervention	▫ *Reasons for the priority given to behaviours identified in the structured questions.* ▫ *Perceived benefits of addressing these behaviours - including personal and organisational impacts.* ▫ *Perceived adverse implications of addressing these behaviours – including personal and organisational impacts.*
Achieving behavioural change	▫ *Perceived behavioural facilitators to addressing influences on tobacco use.* ▫ *Perceived behavioural barriers to addressing influences on tobacco use by LAC and in residential units.* ▫ *Perceptions of how barriers and facilitators may be overcome or exploited.*
Implementation issues	▫ *Perceived challenges to implementing an intervention to address tobacco use in residential units for LAC.* ▫ *Reasons for this perception – including experience of previous implementation of interventions.* ▫ *How challenges might be addressed – including examples of previous intervention strategies.* ▫ *Perceived enablers to implementing an intervention to address tobacco use in residential units for LAC.* ▫ *Reasons for this perception – including experience of previous implementation of interventions.* ▫ *How enablers might be exploited – including examples of previous intervention strategies.* ▫ *Perceptions of the key issues to successful implementation of an intervention – reasons for this belief.* ▫ *Identification of additional stakeholders who might contribute to the development and implementation of an intervention.*
Monitoring and measuring outcomes	▫ Awareness and identification of current systems to monitor tobacco use among LAC, smoke-free policy, and staff development – are these perceived to be amenable to adaption? ▫ *Perceptions of how outcomes may be fed back to stakeholders – including current systems of communication in the LA and other agencies.*

8.2.2.5 Recruitment

Three separate recruitment strategies were adopted due to the inclusion of several professional groups from three organisations. The recruitment strategies were as follows:

Residential unit participants

An email was sent to the residential unit manager by the researcher to introduced the study and invite participation. The manager of the residential unit was already known to the researcher and familiar with the research.

Non-residential unit local authority and NHS participants

In the recruitment of local authority and NHS participants, the Lead Social Worker for LAC was provided with an introductory email, provided by the researcher, which was forwarded to potential participants. The email introduced the researcher and provided a brief outline of the previous and current studies. A follow-up email was then sent by the researcher to formally introduce the study and invite participation.

Stop smoking service lead for young people

The stop smoking service lead for young people in the local authority was identified through an internet search. An email was sent to introduce the study, invite participation in the consultation, and to provide a participant information sheet.

8.2.2.6 Data collection

Prior to each of the consultations, each participant was provided with an introductory pack. The pack outlined the aims of the consultation meeting and presented factors identified from research as contributing to the use of tobacco in residential units for LAC. Written informed consent for participation was obtained from all participants. A separate consent for the audio recording of the face-to-face and telephone interviews was obtained from each participant prior to the commencement of each consultation.

The residential unit manager was also asked to discuss the findings of the previous research with the members of residential unit staff prior to the consultation, to ascertain overall perceptions of what might be needed to address tobacco use, and views on the barriers or facilitators to successful implementation or delivery of any interventions. These views were then fed back during the consultation meeting.

Dependent on the preference of participants, three data collection procedures were utilised. These were a face-to-face meeting between the researcher and the stakeholder; telephone consultations; and consultation by email. In consultations with stakeholders, the questionnaire and show cards were completed. The topic guide steered discussions that took place in person or over the telephone and these discussions were audio recorded. In the case of email discussions, questions from the topic guide were incorporated into a free-text questionnaire to enable participants to respond in detail. Completed data collection tools were then returned via email to the researcher, who acknowledged receipt.

8.2.2.7 Theoretical frameworks

The Theoretical Domains Framework (TDF) and the Diffusion of Innovation in Service Organisations (DISO) model and its application to the development of an intervention are provided in Chapter Three. To summarise, however, the theoretical domains Framework (TDF) is an integrated framework developed from the synthesis psychological theories through an expert consensus process as a means to assist in the application of theoretical approaches to interventions aimed at behaviour change.[290] Following refinement, the TDF now comprises 14 domains and 84 constructs that allows a multitude of coherent behavioural change theories to be synthesised into a single framework, and which provides assessment and explanation of behaviour problems and associated barriers and enablers.[267,291]

While the Diffusion of Innovation in Service Organisations (DISO) model, developed in 2004, sought to both inform and modernise the spread of

innovation with the NHS through the identification of "critical success factors" for the spread and sustainability of innovations in organisational settings.[310] Using a meta-narrative review technique, 495 sources of empirical and non-empirical studies from 13 independent, yet relevant research areas were reviewed.[309,310] The model provides a conceptual framework for considering various aspects of complex contents and their interactions.[310]

8.2.2.8 Data analysis

Quantitative data

Structured data relating to participant characteristics were coded and entered into IBM SPSS (version 22) and frequencies and proportions were obtained. Quantitative data pertaining to participant attitudes towards addressing tobacco dependence among LAC, ratings of the prioritisation of behaviours that influence tobacco use in residential units for LAC, and the barriers and facilitators of behavioural change were entered into IBM SPSS (version 22). Frequencies were calculated for participant attitudinal responses and means with standard deviations (SD) were calculated for participant ratings of the prioritisation of behaviours that influence tobacco use in residential units. Free-text show card responses were coded and organised into categories using a qualitative content analytic approach.

Qualitative data

Audio data were transcribed verbatim. Qualitative content analysis of the data was undertaken.[386,387] A deductive approach to qualitative content analysis was adopted and was guided by the process described by Elo et al.[387] The goal of the deductive approach to qualitative content analysis is to build on prior evidence and theory.[387] Firstly transcripts were read and re-read to allow for familiarisation with the data. Categorisation matrices were developed for each of the areas under investigation. These individual matrices related to: barriers to behavioural change; facilitators of behavioural change; challenges to intervention implementation; and enablers of intervention implementation. Categories concerning barriers

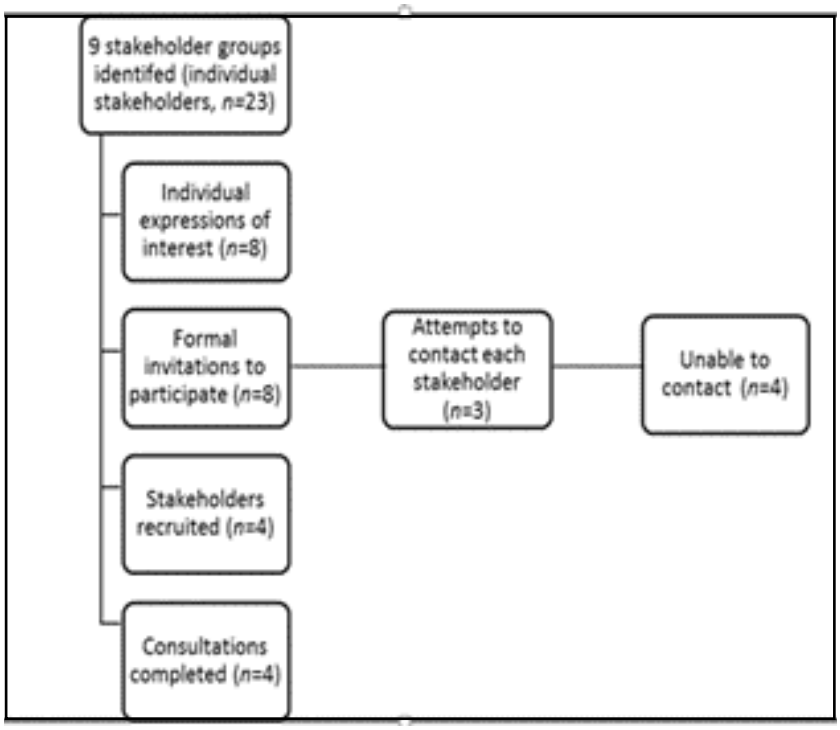
and facilitators to behavioural change were mapped to the TDF model. While categories concerning challenges and enablers to implementation were mapped to the domains of the DISO model. Next, narrative and show card data were reviewed and coded to the categories in the matrices.

8.2.3 Results

8.2.3.1 Participant recruitment

Eight stakeholders expressed an interest in participation the consultation and four were recruited. Despite a number of attempts at engaging potential participants following their initial expressions of interest, it was not possible further secure a response to emails and telephone calls (*n*=4). A recruitment flow-chart is presented in Figure 8.4.

Figure 8.4 Flow chart showing the recruitment of participants to the stakeholder consultation



8.2.3.2 Participant characteristics

Four participants were recruited to the consultation. Participant characteristics are shown in Table 8.4

Table 8.4 Participant characteristics

Characteristic		Frequency
Professional group	*Residential unit*	1
	Local authority	1
	Health Service	1
	Stop smoking Service	1
Age range	*30-39 years*	1
	50-59 years	3
Smoking status	*Never smoker*	4

8.2.3.3 Attitudes towards addressing tobacco use in residential units

All participants strongly agreed that it is important to address tobacco use by LAC – three of whom strongly agreed that it was in their remit of professional responsibility to address smoking among LAC, the remaining participant reported agreeing with the statement. All participants agreed that tobacco use by LAC is associated with poor health and social outcomes. All participants reported the belief that LAC have 'greater issues to deal with' before addressing their tobacco use, but that 'more' should be done to address tobacco use among LAC.

8.2.3.4 Prioritisation of potential intervention functions

All participants provided ratings prioritising potential intervention functions. Mean ratings of importance are presented in Table 8.5. A rating of five was believed to be the most important, while a rating of one was believed to be least important. Participants identified that an intervention that promoted organisational support and partnership working to address the risks of smoking by LAC should be a priority [mean score 4.5 (SD 0.57) from a maximum of five]. Conversely, interventions addressing behaviours concerning tobacco-related education, including knowledge among

residential carers and LAC was considered to be less of a priority [mean score 2.25 (SD 1.89) and 2.0 (SD 0.81) out of a maximum of five respectively] by participants.

Table 8.5 Participant ratings for the prioritisation of targets for an intervention to address tobacco use in residential units

Targets for an intervention to address tobacco use in residential units	Mean rating out of 5, (SD)
Strategies to address the wider harms of tobacco use by LAC.	4.5 (0.57)
Implementation of completely smoke-free residential units for LAC.	3.25 (1.25)
Pathways and processes to identify LAC who smoke and which encourage and support smoking cessation among LAC.	3.0 (1.41)
Training and development of residential carers in relation to smoking and smoking cessation.	2.25 (1.89)
Educating LAC about the harms of smoking and the benefits of quitting.	2.0 (0.81)

8.2.3.5 Identification of barriers to and facilitators of behavioural change

Analysis of the show cards and interview transcripts generated 21 themes that stakeholders considered barriers to or facilitators of behavioural change. These were mapped to the six domains of the TDF, and are presented in Table 8.6.

Table 8.6 Barriers and facilitators identified as influencing behavioural change mapped to domains of the TDF

TDF Domains	Themes
Knowledge	▫ *Limited knowledge of tobacco use and smoking cessation.* ▫ *Limited knowledge of resources available and how to access them.* ▫ *Knowledge should be relevant to carers and LAC.*
Skills	▫ *Limited tobacco related training.* ▫ *Limited awareness of how best to engage and support LAC in cessation attempts.* ▫ *Training delivery should be flexible.* ▫ *Staff should be recognised for undertaking additional skills training.*
Beliefs about capability	▫ *Some are uncomfortable discussing tobacco use with LAC.* ▫ *Younger staff members find discussion more difficult due to limited experience.*
Beliefs about consequences	▫ *Some staff may not see benefits of addressing tobacco use by LAC, particularly in light of the additional stressors in the lives of LAC.* ▫ *Ban on smoking by LAC perceived to create difficulties in the unit (behavioural and safeguarding issues).* ▫ *Addressing smoking and supporting cessation perceived as time consuming, with little benefit.*
Social/professional identity	▫ *Supporting LAC in cessation is perceived to be part of the role of carers.* ▫ *Uncertainty in role of supporting LAC in cessation attempts (managing NRT).* ▫ *Discomfort in sharing LAC smoking-related information across agencies/individuals.* ▫ *Intervention should be flexible to allow staff to use professional judgement, recognising the wealth of experience among the workforce.*
Context and resources	▫ *Disregard of current tobacco related policies.* ▫ *Lack of procedures and processes to address tobacco use and support cessation among LAC.* ▫ *No unified system to share tobacco related information.* ▫ *Competing pressures on staff.* *Working patterns should include time for professional development.*

8.2.3.6 Identification of potential implementation issues

Analysis of the qualitative data identified 13 potential implementation issues. Four were considered enablers and nine were perceived as potential challenges to the implementation process. These potential implementation issues were then mapped to four domains of the DISO model to identify the context in which they may impact the implementation of a potential intervention to address tobacco use in residential units for LAC. The challenges and enablers of implementation and the domains in which they may operate are shown in Table 8.7. Challenges and enablers to implementation were then compared to those reported in the narrative review of implementation literature (Chapter Four) in order to inform the section of behaviour change techniques and modes of intervention delivery. The comparison, organised using the DISO domains, are detailed as follows:

Intervention

In relation to the 'intervention' domain, stakeholders considered that if the intervention or topic were perceived as a low priority by the local authority or residential carers or if it were under-resourced then this could challenge implementation. Similar issues were outlined by Mezey et al., Dale et al., and Dale and Watson in the narrative review detailed in Chapter Five.[357-359] However, enablers to implementation were considered by stakeholders to be flexibility and building the potential for a degree of reinvention of the intervention, by stakeholders. This was found to be important due to the likelihood of time constraints and limited resource and capacity. Similarly, Dale et al. also advocate the need to include flexibility in intervention implementation and delivery.[357] While both Dale et al. and Mezy et al. also identified that provision of clear and meaningful information to organisations and stakeholders proved vital in securing interest in the intervention and subsequent recruitment.[357,359]

Other enablers of intervention implementation suggested by stakeholders were that change needs to observable and the intervention needs to have

a clear advantage over current practice. Furthermore, strategies that promote communication; manage expectations of the intervention, its methodological approach; and which ensure effective inter- and intra-organisational working and communication was also felt by Mezey et al. to be crucial to successful implementation.[359]

Organisational readiness

Organisational readiness was suggested by stakeholders to challenge implementation of an intervention. For instance, the variety of views and beliefs among and between various professional groups and within and between organisations on the need to address the use of tobacco in residential units means that securing support at all levels may be difficult. While these were factors not identified in the previous review of implementation literature, the authors did, however, note the value of implementation strategies that generate co-operation and interest among social care and as well as establishing the credibility of the research team.[186,188]

Implementation practices

Stakeholder considered that without top-down buy-in stakeholders, particularly RCOs, had limited influence to facilitate behavioural and cultural change and identified that different units and organisations had varying systems and processes for communicating change. Stakeholders were unable to offer any enablers to implementation. However, Mezy et al. suggest that familiarity of the researcher with organisational and practical structures of children's social care may generate co-operation between units, professionals, and other partner organisations.[359] This preparatory activity may facilitate information sharing or the development of communication approaches.

Existing processes and procedures

In common with the findings reported by Dale and colleagues and Mezy et al. stakeholders identified limited organisational capacity to challenge the

implementation of an intervention to address tobacco use in residential units. For example, time constraints may cause carers to not address gaps in their own knowledge. Furthermore, a lack of awareness may cause carers to not recognise the need to address health-risk behaviours among LAC.[58]

Stakeholders also reported changing and challenging LAC cohorts in residential care to present barriers to the implementation of interventions, particularly those involving group based innovations. Reasons for these beliefs may be related to the perception of carers that LAC are more concerned about placement instability, have competing physical or mental health needs, or are resistant to engaging with services.[348,358] Furthermore, carers may also perceive LAC to be too vulnerable to taking part in a pilot or trial study of a health behaviour intervention.[358]

Less frequently reported barriers to intervention implementation include: an absence of agreed cross agency/unit pathways or protocols, which may contribute to a lack of prioritisation tobacco use in the context of other behaviours that may be considered more risky, such as the use of alcohol or illicit drugs.[58] Obtaining agreement between stakeholders, particularly when working across agencies was considered a challenge among stakeholders. Indeed, the studies reported by Mezy et al. and Dale and colleagues also considered that limited ownership, commitment, and support at an organisational level challenges intervention implementation.[358,359]

Table 8.7 Implementation issues mapped to the domains of the DISO model

Domain	Perceived implementation issues	
	Challenge	**Enabler**
Intervention	▫ Low prioritisation. ▫ Limited resources.	▫ Potential for reinvention (due to availability of resources). ▫ Changes need to be observable. ▫ Needs clear advantage over current practice. ▫ LAC should be involved in development at unit level.
Readiness of organisation	▫ Mixed views on need for change. ▫ Top down agenda – competing priorities in organisations and residential units.	
Implementation practices	▫ Influence in social networks, not across them (particularly among RCOs). ▫ Different professionals and agencies have their own systems of organisation and communicating change.	
Existing processes/procedures	▫ Limited organisational capacity. ▫ Changing cohorts' challenges group based approaches. ▫ Absence of agreed cross agency/unit pathways or protocols. ▫ Agreement between stakeholders difficult to organise.	

8.3 Identifying behavioural change methods and modes of delivery: a component mapping exercise

Previously I have provided information on the levels of influence on tobacco use in residential units and how these influential behaviours are prioritised for change by stakeholders. The barriers to and facilitators of behavioural change have been identified and mapped to the TDF. Implementation issues have also been explored and categorised according to the DISO model, and compared to the findings of the narrative review. Now I will describe the conceptual process of determining the function and modes of delivery of an intervention to address tobacco use in residential units for LAC. I will firstly identify potential behaviour change techniques (BCTs) from the Behavioural Change Technique taxonomy (BCTt) and select suitable approaches and methods to deliver the intervention.

This section addresses Objective 5 of this chapter and aims to identify behaviour change techniques and modes of intervention delivery.

8.3.1 Selection of behaviour change techniques, content, and methods of delivery

Based on those targets prioritised by stakeholders as being most important in addressing tobacco use in residential units, and after consideration of the identified barriers to and facilitators of behavioural change, nine behaviours were considered amenable to change. These are presented in Table 8.8.

Table 8.8 Behaviours and attitudes amenable to change

1.	Limited knowledge of tobacco use and smoking cessation
2.	Limited knowledge of resources available and how to access them
3.	Low levels of participation in tobacco-related training
4.	Limited awareness and confidence in how best to engage and support LAC in cessation attempts
5.	Benefits of addressing tobacco use by LAC is not recognised by staff
6.	Prohibiting smoking by LAC perceived to create difficulties in the unit
7.	Supporting LAC in cessation is perceived to be part of the role of carers, but efforts are limited by a number of factors
8.	Disregard of current tobacco-related policies
9.	Competing demands on staff

These targets for change were then mapped to the six previously identified TDF domains (knowledge, skills, beliefs about capability, beliefs about consequences, professional role and identity, and context and resources). Next, BCTs were selected, from those advocated in the BCT taxonomy, described in Chapter Three.[268]

The identified target behaviours and selected BCTs were reviewed and potential BCT content was developed based on the BCT taxonomy (shown in Appendix B) and experience of the researcher. Following the identification of the potential content of BCTs that may operate to change behaviours that influence the use of tobacco in residential units for LAC, it was necessary to identify the most suitable methods to achieve behavioural change. From the findings of the narrative literature review conducted in Chapter Five, the experience of the researcher, and feedback from social care professionals to ensure acceptability of methods to the current organisational context, potential methods of delivery were developed. The development process is summarised in Table 8.9.

Table 8.9 Description of the development of the behavioural change techniques, content, and potential methods of delivery

TDF Domain	Factors influencing tobacco use	BCT advocated by BCTTv1	Potential BCT content	Potential method of delivery
Knowledge	Limited knowledge of tobacco use and smoking cessation.	*Information regarding outcomes.*	Training/education on tobacco use and smoking cessation. Information on the consequences of tobacco use among LAC. Information in the consequence of performing the behaviour. Importance of addressing tobacco use among LAC.	*Online individual or face-to-face group training programme.*
	Limited knowledge of resources available and how to access them.		Information on where to obtain evidence-based and reliable information. Tool-kit of resources. Staff member to co-ordinate smoking-related activities.	*Written material.*

TDF Domain	Factors influencing tobacco use	BCT advocated by BCTTv1	Potential BCT content	Potential method of delivery
Skills	*Limited tobacco related training.*	Target specified behaviour or outcome. Monitoring. Rewards and incentive.	*Set goals for staff training completion.* *Monitoring.* *Build staff capacity.*	Audit Support for staff development
Beliefs about capabilities	*Limited awareness and confidence of how best to engage and support LAC in cessation attempts.*	Increasing skills in problem solving and decision making. Rehearsal of skills. Modelling or demonstration by others.	*Training programme to include: skills development, rehearsal of behaviours.*	Workshop.
Beliefs about consequences	*Benefits of addressing tobacco use by LAC not recognised by staff.* *Prohibiting smoking by LAC perceived to create difficulties in the unit.*	Persuasive communication Information regarding behaviour/outcome. Information regarding behaviour/outcome. Monitoring. Feedback to staff.	*Persuasive communication from leaders.* *Information provision.* *Information provision including: examples of successful smoke-free policy implementation.* *Monitoring of policy consequences.*	Communication and dissemination through various mediums. Workshops. Workshops. Written information. Working group. Audit/evaluation of policy.

TDF Domain	Factors influencing tobacco use	BCT advocated by BCTTv1	Potential BCT content	Potential method of delivery
Social professional role and identity	*Supporting LAC in cessation is perceived to be part of the role of carers.*	Social processes of encouragement, pressure, and support.	*Persuasive messages from leaders in relation to the importance of addressing tobacco use.*	Communication and dissemination through a range of mediums. Workshops. Training/skills development.
Environmental context and resources	*Disregard of current tobacco related policies*	Environmental change.	*Prompts and procedures.* *Monitoring and feedback.*	Working group Dissemination and communication from leaders. Audit/evaluation with results fed back to units.
	Competing demands on staff		*Recruitment and training of staff member to co-ordinate smoking-related activities, feedback, and monitoring.*	Training course. Dissemination and communication.

8.4 An intervention to address tobacco use in residential units for LAC

This section details the proposed intervention to address the use of tobacco in residential units and addresses objective six of this chapter. The intervention is designed to support the implementation of a comprehensive smoke-free policy in residential units for LAC. It comprised five components which are shown in Table 8.10 and described in the following section, the intervention provides a package which will facilitate the development and embedding of policy into practice.

8.4.1 Intervention components

8.4.1.1 Stakeholder engagement

Initially, a meeting with stakeholders should be conducted to create the opportunity to promote organisational buy-in at a senior level in the local authority. The support of organisational leaders is considered paramount to the success of this intervention. The success of a smoke-free policy depends not only on it being adopted, but also implemented and enforced.[388] The stakeholder meeting will allow for this support to be obtained and the implications of recommendations for behavioural and cultural change to be discussed. Communication of support for the intervention may be disseminated downwards through persuasive communication, which will result in greater support at local levels and the setting up of a steering-group which will explore the use and provision of nicotine replacement therapy as an adjunct to the policy, and monitor and evaluate policy implementation. The stakeholder meeting will target the TDF domains of knowledge, beliefs about capability, and professional identity or role. The organisational domains of organisational readiness and existing processes and procedures are also addressed or enabled.

8.4.1.2 Engagement with local leaders

Local leaders (unit managers) are identified as being key to the communication and dissemination of the intervention, as well as providing

additional capacity to permit staff to undertake the tobacco-related training programme. Indeed, research evaluating the impact of smoking cessation pilot schemes targeting disadvantaged populations has shown the interest of local leaders to be critical to the success of the intervention.[389] For example, in a study conducted in UK prisons, support from governors and other senior officers was found to be key in promoting the importance of tobacco control and smoking cessation inside the institutions.[390] Furthermore, the study highlighted the importance of good communication and networking and helped to join together various staff groups to enable shared learning and development of partnerships and service improvements.[390] This component will through engagement with local leaders, target the behaviours of knowledge, professional role or identity, and beliefs about consequences and capability and will address the challenges and enhance enablers in the organisational domains of the intervention, implementation practices and existing processes and procedures.

8.4.1.3 Tobacco training programme

Increasing residential carer capacity in relation to tobacco knowledge is a key component in the implementation and success of any intervention to address tobacco use in residential units. This component seeks to inform and promote anti-smoking attitudes among residential carers. It recognises the important relationship that carers have with LAC and provides a foundation to deliver smoking cessation advice and support. Indeed, there is strong evidence that brief interventions delivered by health care professionals can increase rates of smoking cessation.[391] Residential carers will be provided with access to a package of online, National Centre for Smoking Cessation and Training (NCSCT) accredited training materials to enable the delivery of smoking-related information and advice, smoking cessation medications, and the creation of smoke-free environments. This existing online resource (http://www.ncsct.co.uk/pub_training-resources.php) is freely available to

health and social care professionals, requiring only a short online registration process. The provision of this component of the intervention modifies the behaviours of knowledge, skills, and beliefs about capability, beliefs about consequences, and professional roles and identity. Following completion of the training, residential staff could deliver information and support for smoking cessation during daily interaction with LAC, thus addressing concerns concerning the further stigmatisation of LAC and overcoming the reported reluctance of LAC in engagement with formal services, identified in chapters Six and Seven.

8.4.1.4 Smoke-free Coordinator

A smoke-free coordinator or 'Tobacco Champion' will be located in each residential unit and will be a resource for other residential carers and LAC. The 'Tobacco Champion' will be a residential care officer who has undertaken extended training in relation to smoking and smoking cessation and will also facilitate the referral of LAC to smoking cessation services, monitor the smoke-free policy, and coordinate any sharing of smoking-related information between residential units and other agencies. A number of UK projects that have sought to mitigate inequality in smoking cessation services have utilised the existing workforce, who after receiving training in smoking cessation, delivered advice and support. This decision stemmed from the premise that staff working in settings are: more familiar with clients, know how best to approach and engage them, and potentially be perceived to be a more trusted source of support and advice. Indeed, this approach is reported to result in increased referrals.[389]

The utility of "local champions" is identified by McEwan et al., in a report on the evaluation of a pilot programme using referral liaison advisors to increase referral of parents and carers from children's centres to NHS stop smoking services or Smoke-free families scheme in Nottingham and Liverpool.[392] The programme resulted in a substantial increase in referrals to stop smoking services in both cities, although few [four from 77 referrals (5.1%)] successfully quit smoking.[392] The role of the referral liaison

advisors supported the embedding of recording and referral systems into the children's centres, through ensuring the recording of smoking status was routine and sufficient time was built into engagement activities to ensure systems were accepted and integrated into current practice and processes.[392] The authors found that the presence of a dedicated role raised the profile of smoking cessation and led to an increase in engagement, as evidenced by a decline in referrals during periods when referral liaison advisors took leave.[392] The Smoke-free Co-ordinator component will target behaviours that increase knowledge, skills, professional role and identity, and lead to social influence, at an organisational, institutional, and interpersonal level.

8.4.1.5 Resources and tools

Printed educational materials and the addresses of credible websites concerning tobacco use and smoking cessation will be compiled to form a toolkit for residential carers to use to support discussions with LAC or as part of self-directed learning. In the toolkit, research evidence and recommendations for practice will be included and will enhance carers understanding and delivery of best practice. This component will target behaviours concerning knowledge, skills, and environmental change. Audit and feedback concerning staff training uptake, training relevance, and adherence to policy should be undertaken as part of the intervention. This will not only provide a measure of behavioural change but also will contribute to changing behaviours in terms of beliefs about capability and environmental change.

Table 8.10 Framework detailing the function of individual components

Component	Organisational domains	TDF domains	Mode of delivery	Component function
Stakeholder engagement	*Organisational readiness; Existing processes and procedures.*	Knowledge; beliefs about capability; professional identity or role.	*Face to face meetings with service leaders and local stakeholders.*	Build organisational buy-in; Discuss implications for change at organisational level; information provision; consequences; and persuasive communication.
Local leaders	*The intervention; Implementation practices; Existing processes and procedures.*	Knowledge; beliefs about capability; professional identity or role.	*Face-to-face meetings with unit managers.*	Build local buy-in and support; Discuss implications for change at local level; information provision; consequences; and persuasive communication.
Tobacco training	*The intervention; Organisational readiness; Existing processes and procedures.*	Knowledge; Skills; professional role or identity; Beliefs about consequences; Beliefs about capabilities.	*Brief regular training. Workshops.*	Flexible online training package. Opportunities for discussions and sharing of practice.
Smoke-free co-ordinator	*The intervention; Organisational readiness; Implementation practices; Existing processes and procedures.*	Knowledge; Skills; Beliefs about consequences; Environmental change.	*On-line tobacco training to Level 2 accreditation. Workshops and self-directed learning.*	Higher level training; skills development; persuasive communication.
Tools and resources	*The intervention*	Knowledge; Environmental change.	*Provision of information.*	Training materials; Local policy guidelines; Clinical and research recommendations.

8.5 Discussion

In this section, I discuss the findings of each of the studies in this conceptual chapter and in order to avoid duplication of previous discussions (Chapter Six and Seven) no comparisons will be drawn with existing literature. This will be followed by consideration of the methodological strengths and limitations.

8.5.1 Summary of findings

Integration of findings from the case-note evaluation (Chapter Six) and the mixed-methods study (Chapter Seven) informed the development of a socioecological model which indicated a range of influences across and within multiple levels that may complicate and compound typical youth smoking behavioural influences and measures to address them. The challenge of balancing child protection, safeguarding, and normalised childhoods was also highlighted. Furthermore, organisational and community approaches to addressing tobacco use were found to be facilitating and demonstrated the need for comprehensive and consistent macro-level approaches in terms of policy and organisational procedures.

The stakeholder consultation demonstrated that multiple-level approaches tailored to the organisational context are needed to empower residential carers to address smoking by LAC in residential care. In addition, given the conflicts and competing issues perceived by stakeholders as challenging tobacco-related practice and smoke-free policy adherence and enforcement, a need for consultation, dissemination, and practical on-going support for carers is indicated. The importance of involving LAC in directing and refining interventional components was highlighted.

Stakeholders prioritised behaviours to address and identified potential barriers and facilitators to behavioural change. Implementation issues were identified through consultation with stakeholder and the integration of findings from the narrative review (Chapter Five). Techniques for

behavioural change and the delivery of interventional components were identified using the TDF and DISO models.

Finally, the components of an intervention to address tobacco use in residential units were developed. The overall aim of the intervention was to support the refinement, implementation, and embedding of an existing smoke-free policy for residential units. Review of the intervention by social care professionals confirmed its relevance and utility to residential carers and their practice.

8.5.2 Strengths and limitations

The research presented in this chapter has a number of strengths and limitations. The methodological strengths and weakness, including the application and operationalisation of the theoretical models, will be considered in relation to the development of the intervention.

The framework used for intervention component development, adapted from French et al. has a number of strengths.[257] First, it provides a systematic method of progressing from the identification of target behaviours through theoretical domains, to behaviour change and intervention delivery techniques. By basing the intervention on theoretical frameworks and models and linking this to effective behaviour change techniques, the mechanisms of behaviour change are made explicit, and thus in the future can be investigated and evaluated. Furthermore, the modes of component delivery are guided by the local context, by what is both acceptable and feasible to residential carers. However, throughout the intervention development phase data analysis, one researcher carried out integration and mapping, thus, findings are likely to be susceptible to subjection and it should be noted that different conclusions may be reached by different researchers.

The identification of influential factors on tobacco use in residential units using a socioecological approach is novel, in the sense that it the first such study to explore this topic. Also, a socioecological model has been

developed that has identified multiple levels and inter-related factors that may explain the high prevalence of smoking among residentially accommodated LAC and offers much need direction for tobacco-related interventions targeting this population. Since the influential factors identified in this study are derived from primary research, the findings are subject to the inherent strengths and limitations of those initial studies. For example, the data represents a nuanced view from the perspective of a relatively small sample of residential carers in a specific geographic region of England.

Additionally, a greater number of different influences may have been identified had the research included the views and experience of LAC. Furthermore, not all of the influential factors fitted clearly into one level of the socioecological model, and thus a degree of researcher interpretation was required. Further research should be undertaken to explore interactions across levels, including what influences individual perceptions (e.g. health advice, anti-social behaviour or stigmatisation concerns). Understanding how influential factors across levels intersect provides increased context and will improve interventions that attempt to address such issues.

In the design of the stakeholder consultation, the sampling technique adopted may have carried a risk of bias by recruiting professionals who had similar interests and opinions. Attempts were made to avoid this by inviting a range of corporate parents to participate in the study.

Furthermore, the findings of the stakeholder consultation were based on the reported perceptions of a small sample of participants from one geographic area in the country. Results, therefore, will be unlikely to generalise across other regions or organisations. The small sample size also means that the perspectives of other professionals or agencies are not represented. The inclusion of other professionals or agencies may have resulted in behaviours to target with an intervention being prioritised differently and alternative barriers and facilitators to behavioural change

being reported. Similarly, perceptions regarding contextual barriers or enablers to implementation may also differ between individuals, professions, and organisations. Finally, it is likely that stakeholder responses were influenced by the fact that all of the participants reported 'never smoking'. Had former and current smokers participated in the consultation, targets for change may have differed from those reported.

This thesis has demonstrated that the TDF is a useful, theoretically derived framework for the development of complex interventions, by providing a structured framework for the assessment of barriers and enablers, and targeting resources to influence behaviour change. However, challenges were encountered in relation to comprehension and independence of domains and how best to use the findings informed by the TDF to direct implementation. Among the most challenging aspects of using the TDF were developing an understanding of the domains and associated constructs, which was complicated by a lack of operational definitions and the significant overlap that was found between domains, that resulted in a degree of repetition. These and other similar challenges have been described previously in the literature.[298,393,394] Given the challenges of operationalising and interpreting the TDF, and the constraints on resources and time when dealing with implementation issues in practice, examples of TDF domains across various settings to illuminate the subtle differences between constructs would have been helpful.

The TDF has been previously reported as being both time and resource intensive and may be used prospectively or in retrospect.[270] In the case of this thesis, the TDF was applied retrospectively, using both quantitative and qualitative data to explore and analyse factors likely to influence practice to address tobacco use in residential units. While using the TDF is a strength since it is composed of theoretically derived domains that are commonly used in health psychology, applying the TDF to previously collected data is likely to have resulted in some loss of rigour and this is a limitation.[291] While all of the domains identified in the analysis of

stakeholder data proved to be relevant to understanding barriers across contexts and could be applied to identify issues at the individual, unit, and wider organisational levels, a prospective approach may have assured the identification of domains and potential influences. Potentially other researchers may consider using the TDF to inform the development of study instruments.

The DISO model developed by Greenhalgh et al. was chosen to inform the development of interventional components, as it is widely recognised, used, and cited as a framework for the analysis of implementation issues.[310,395,396] Although not framed as a descriptive approach, the domains provide a detailed and comprehensive map of innovation implementation.[397] In this thesis, the DISO model provided a detailed framework for the identification of barriers and enablers to the implementation of innovation in the development of an intervention. In identifying those barriers or enablers to implementation planning can be directed towards the individual needs of the organisation, considering the complexities of dissemination. However, while a range of potential factors are identified, the model does not rank them in order of importance, thus the ability of the model to inform the identification those areas that are most significant is lacking. Furthermore, it is also acknowledged that the mapping of evidence to the TDF and DISO model, is dependent on the effective operationalisation of theory.[398]

While it was possible to identify factors influencing tobacco use in residential units through the socioecological model, it was more challenging to be confident about the extent to which targeting a particular TDF or DISO domain is likely to bring about most change and highlights the need for additional research to determine which barriers or enablers should be prioritised. However, in the stakeholder consultation, an exercise in prioritisation was undertaken, in order to better plan intervention and implementation strategies.

Insufficient description of content occurs in research and is well recognised in the published literature in behavioural change interventions.[333] A primary strength of component mapping exercise is that it is able to systematically describe the intervention and is able to make theoretically informed inferences regarding mechanisms of change. Identification of these mechanisms provides a useful first step in the evaluation and refinement of an intervention to address tobacco use in residential units. Furthermore, the components of this intervention, are based on both theory and evidence, which take into account contextual factors, are more likely to be effective in addressing tobacco use in residential units for LAC than interventions that are not based on theory or evidence. However, feasibility testing, pilot studies and an RCT are required to assess the acceptability and other uncertainties relating to the intervention, the research process, and overall effectiveness.

8.5 Chapter conclusion

In this chapter, the components of a multiple-level intervention to address tobacco use in residential units for LAC have been developed using a rigorous research methodology that has assimilated theory, evidence from the literature, empirical studies, and considerable input from residential carers and other corporate parent stakeholders. On review by children's social care professionals, the intervention was considered both relevant and acceptable. Consideration has also been paid to factors requiring clarification ahead of feasibility testing and a framework to assist in intervention modelling before a trial has been suggested.

Chapter Nine: Discussion and conclusion

In the final chapter of this thesis, I discuss the significance of the findings of the research. I will first look back on the studies conducted and will provide a summary of the main findings. I discuss the empirically identified concerns and support needs of residential carers, analysing them in relation to the wider literature concerning tobacco use among LAC. I also consider the appropriateness of the overall methodology and methods underpinning this research. Finally, I reflect on the process of conducting research in children's social care and provide recommendations made for further research and refinement of the proposed intervention.

9.1 Summary of thesis context, approach, and main findings

The aim of this thesis was to develop an intervention to address the use of tobacco in residential units for LAC, which is both relevant and acceptable to its target group (residential carers). The rationale was that tobacco control measures appeared ineffective at reaching the LAC population, particularly those accommodated in residential care where prevalence was reported to be approximately eight times higher than smoking in the general youth population.[18,244] Furthermore, with smoking in adolescence known to be a predictive risk factor for smoking in adulthood and to increase the likelihood of early mortality and smoking-related morbidity, addressing tobacco use among LAC is particularly important given their widely reported poor health and social outcomes.[15,48,93,399]

A pragmatic multiple methods approach was selected, with intervention development informed by the developmental stage of the MRC framework for the development and evaluation of complex healthcare interventions, and which at each stage benefited from involvement with corporate parents, in particular, residential carers.[262]

The MRC framework places an emphasis on developing the theoretical basis of an intervention, prior to testing its feasibility.[262] In the first stage of intervention development, a review of the literature identified that no studies have reported the evaluation of interventions targeting tobacco use in residential units. However, published articles were found that described interventions targeting lifestyle behaviours among residentially accommodated LAC and which provided information on likely implementation issues (Chapter Five).

In the second stage of intervention development, to supplement theory development and identify challenges to delivering an intervention, four studies were conducted. First, a quantitative case-note evaluation explored the extent to which LAC are identified and treated for tobacco dependence during the statutory health assessment and provided information on the characteristics of LAC who smoke (Chapter Six). This study identified that during the statutory health assessment; opportunities to address tobacco use among residentially accommodated LAC are being missed, and highlighted a need to explore the factors that contribute to smoking in this population.

Next, a mixed-methods study, comprising a cross-sectional survey and semi-structured interviews, explored the use of tobacco and strategies and practice to address smoking in residential units, from the perspective of residential carers (Chapter Seven). The study identified that smoke-free policies are largely ineffective and unsupported and highlighted the wider detrimental effects of tobacco use by LAC.

In Chapter eight, the findings of the mixed-methods study (Chapter Seven) were combined with a modified socioecological model to identify factors that influence smoking in residential care. Thirty-three factors across six levels of influence identified as supporting tobacco use among LAC, and highlighted the complex and bound nature of smoking in residential care.

Following on from the socioecological analysis, a stakeholder consultation was undertaken. Four stakeholders were asked to: a) prioritise the focus of a potential intervention based on the findings of the socioecological analysis; b) identify barriers and facilitators to behavioural change; and c) identify potential implementation issues. Stakeholders prioritised an intervention that promoted organisational support and partnership working in order to address tobacco use by LAC. Stakeholders suggested 21 barriers and facilitators to behavioural change and 13 potential implementation issues. Using the Theoretical Domains Framework (TDF) nine behaviours were identified as being amenable to change. The Diffusion of Innovation in Service Organisations (DISO) model was utilised to sensitise the researcher to barriers and enablers to both behaviour change and the implementation of interventions in residential units.

In the third stage, a component modelling exercise was conducted (also Chapter Eight). This involved mapping behavioural change targets and implementation issues identified by the Theoretical Domains Framework (TDF) and Diffusion of Innovation in Service Organisations (DISO) model in order to identify and select behavioural change techniques and mode of intervention component delivery using the Behavioural Change Techniques taxonomy (BCTt). The components of an evidence- and theory-based intervention to support the implementation of a comprehensive smoke-free policy in residential units for LAC was developed. The proposed intervention comprised five components (Stakeholder engagement, Engagement with local leaders, tobacco training programme, a smoke-free coordinator, and resources and tools), and on review by two social care professionals was considered to be both relevant and useful to the practice of residential carers.

9.2 Findings in relation to the existing empirical literature

In developing an intervention to address tobacco use in residential units for LAC, this thesis clarifies several areas of uncertainty arising from the (lack of) current literature. The studies in this thesis are novel and offer a valuable contribution to the several areas of research. In this section, I will discuss the main findings of this thesis in the context of current published literature.

9.2.1 Looked-after children and smoking

This thesis identified tobacco use among residentially accommodated LAC to be highly prevalent (52% compared to 8% among general population youth).[2] Residentially accommodated LAC who smoke tend to be older; are more likely to exhibit challenging or risky behaviours, and given the increased prevalence of mental disorder may smoke as a means of self-medication.[20,25] Smoking by LAC is highlighted as complex and bound in the negotiation of power, relationships, and social belonging, and while these interactions are reported among youth in the general population, the role of tobacco in exerting power or control, social contexts and interaction is compounded, given the uncertainty and difficulties encountered with building and maintaining relationships, particularly when tobacco use is encouraged or gifted.[163,372,374]

The findings of this thesis also draw attention to LAC's engagement in risky smoking-related practices, including those which arise from tobacco-sourcing behaviours. More risky methods of sourcing tobacco were found to include proxy purchasing through unknown adults, the use of community-based illicit sources of tobacco; smoking discarded cigarettes, and engaging in sexual behaviours in return for cigarettes. While smoking-related practices that exceed the risks of smoking have been identified in disadvantaged adult populations, such as the homeless, LAC in this thesis are reported to engage in behaviours that have not been previously

reported.[159,374,375] Their engagement in sexual behaviour in return for tobacco and the formation of inappropriate relationships with older males is highly concerning, especially in light of recent reports of the sexual exploitation and trafficking of LAC in the UK, by criminal gangs.[376]

9.2.2 Addressing tobacco use among looked-after children

Unfortunately, and despite strong evidence that smoking cessation information and advice provided by nurses have a positive influence on encouraging quit attempts and patients success in quitting, this study provided evidence that opportunities to address smoking among LAC during the statutory health assessment are being missed.[400] The reasons for this are likely to be multiple and may include time and service constraints, concerns about damaging relationships with LAC, and health professionals not having received appropriate training in relation to smoking and cessation and/or lacking confidence in their own ability to discuss smoking with LAC and offer appropriate treatment pathways.[401]

Furthermore, designated health care professionals for LAC reported making fewer smoking-related enquiries among certain groups of LAC (e.g. those with special educational needs) and expressed concerns over LAC behaviour during the assessment. These perceptions need to be challenged through more consistent identification of LAC who smoke and the provision of evidence-based advice and treatment delivered as standard, as well as additional training for designated health professionals in smoking cessation.[402]

Tobacco use by LAC, despite the well-known health risks, is generally not perceived as a priority, with some corporate parents considering it to be an acceptable norm for LAC. Reasons for this lack of prioritisation may relate to perceptions about smoking as normal youth behaviour; low expectations of LAC; or the misattribution hypothesis, in which perceptions of smoking are perceived as having positive psychological effects, which are

misattributed to the effects of smoking on relieving symptoms of withdrawal.[58,234,236]

Smoking should be viewed as an addiction rather than a lifestyle choice. Nicotine dependence meets the criteria for substance dependence syndromes and that smoking behaviour is influenced by a range of psychosocial factors common to addiction.[130,131] In considering smoking by LAC as an addiction, the obligation of healthcare professionals and carers to promote healthy behaviours and not implicitly or explicitly enable addiction becomes a priority.[403]

In common with existing literature, residential carers reported smoking in residential units to be common and a cause of adverse behaviours among LAC.[19] The most prominent tobacco-related perceptions among carers were that LAC smoked as a means to connect or maintain relationships, as self-medication and to deal with stressful circumstances or mental disorder, as well as creating an identity or as a rebellious act. Such perceptions suggest that carers may continue to face ethical and personal dilemmas, as well as ambivalence when attempting to manage the smoking behaviour of LAC, particularly if it leads to aggression or agitation within the units.[404]

This thesis has provided insight into corporate parents' perceptions of LAC tobacco use and professional practice to address it. In agreement with a study conducted in Scottish children's services department, the majority of residential carers reported confidence in advising and supporting LAC to quit smoking.[19] However, the attitudes of carers were found to be more positive and proactive when compared to the 2007 study, with almost all considering it was important to address tobacco use among LAC, it was part of the professional role of residential carers to inform LAC about the harms of smoking, and carers had sufficient tobacco-related knowledge.[19] Levels of carer tobacco-related knowledge and awareness were found to be low. The research in this thesis also provides novel evidence on the

smoking-related training and acquisition of knowledge among residential carers.

Gaps in carer knowledge and misapprehensions concerning the negative impact of smoking and the perception that LAC smoke as a means of coping with their circumstances is also highlighted. The perception of carers that smoking is a coping strategy and removing it may exacerbate psychological distress predominantly arises from the self-medication hypothesis which proposes that individuals with mental disorder smoke to relieve negative symptoms and to cope with stress.[126] Concerns about LAC quitting smoking to the detriment of their psychological well-being were raised by carers during interviews. While nicotine withdrawal is associated with negative effect, cessation has been shown not to increase symptoms of mental disorder.[405,406] Moreover, it has been shown that quitting smoking can reduce the risk of mood, anxiety, and alcohol disorder among individuals with and without pre-existing mental disorders.[407]

9.2.3 Smoke-free residential units

The findings of this thesis highlight that local policies to address smoking in residential units are both ineffective and unsupported. Many of the concerns raised by residential carers in relation to the implementation and enforcement of a comprehensive smoke-free policy in residential units are similar to those reported in the literature evaluating smoke-free mental health settings, and where applicable comparisons are drawn.

Residential carers reported tensions between prohibiting LAC smoking and protecting LAC from potential disruptive behaviours, criminality, and exploitation. While it is indicated that many carers held positive beliefs about the need to address tobacco use among LAC and the benefits of supporting cessation, there was also evidence to suggest that a culture which facilitates smoking prevailed in units. Specifically, carers reported that in contravention of local authority smoke-free policy, concealed, out-door, designated smoking area were provided for LAC. Reasons for this

lack of adherence was reportedly due to a need to minimise safeguarding risks posed by LAC loitering outside of the units or leaving the unit grounds in the hours of darkness to smoke. These conflicts and competing issues impact the adoption of smoke-free policies and highlight a need for greater consultation and practical and ongoing support for carers.[408]

In practice, the consequences, however, of providing a designated smoking area, while strongly supported, condoned, and relied upon within residential units, is that it may require LAC to negotiate smoking – as a privilege- which can undermine effective care and create unintended power differences between LAC and staff.[409-411] Indeed, smoking, particularly in units where tobacco use was permitted, was found to be a source of tension and the cause of adverse and often anti-social behaviours by LAC.

The fact that LAC are able to leave the unit and smoke off-site poses challenges to implementing smoke-free policies and depending on the physical layout of the unit there may also be challenges associated with preventing covert smoking. However, this should not discourage attempts, but rather a flexible and adaptable approach, tailored to the local context should be adopted.[409]

Furthermore, partial smoking bans have been shown in psychiatric units to create more issues and often result in inconsistent enforcement.[412-414] In this respect, therefore, allowing LAC to smoke during limited periods increases the persistence of nicotine withdrawal, undermines the recognition of nicotine as a substance misuse disorder and perpetuates a culture of smoking which inadvertently implies that addressing tobacco use in residential units is too difficult.[415,416]

While keen to support LAC in cessation attempts carers were limited by a lack of organisational knowledge and capacity to support treatment of tobacco dependence. Indeed, studies of implementing smoke-free policies in mental health settings suggest that successful implementation depends

on consistent enforcement and widespread education of service users and staff.[415] Some concerns have been raised, including that mental health professionals, were unable to support patients cessation due to either lacking competencies to manage withdrawal or because organisational support was lacking.[417-419] Furthermore, and given concerns regarding adverse behaviours, strategies to minimise harm are particularly critical for LAC and residential carers. Providing LAC with relief from nicotine addiction while ensuring protection from smoking-related and other harms is necessary to minimise harms to smokers, other LAC, and residential carers. It is acknowledged, therefore, that NRT should be promoted as a harm minimisation strategies to alleviate nicotine withdrawal.[420,421] Lawn and Campion found that effective use of nicotine replacement therapies was associated with successful implementation of smoke-free policies in Australian psychiatric inpatient units.[412]

Avoiding the stigmatisation of LAC was of concern to residential carers, both in terms of smoking in public and in restricting access to opportunities to smoke. As described in Chapter Six, rates of smoking among LAC substantially exceed that of the general youth population. The burden of smoking goes beyond LAC's physical health, often having profound effects on social, psychological, and financial well-being. LAC who smoke are doubly stigmatised. Firstly as a looked-after child, and secondly with the increase in the social unacceptability of smoking.[422] Smoke-free environments in conjunction with appropriate support may empower LAC to address their addiction and generate behaviours that improve health and well-being. Furthermore, in exempting LAC from local authority smoke-free policies the stigmatisation already experienced by LAC may be worsened since this separates them from the rest of the LAC population and their peers in the general population.

9.3 Contribution to the existing empirical literature

The proposed intervention, as previously detailed in Chapter Eight, requires refinement and evaluation before it can be made available for use. Nevertheless, the studies informing its development have useful implications for current practice. Specifically, findings from the thesis provide new knowledge concerning the use of tobacco by LAC and the influences on tobacco use in residential units which can be applied by social care professionals and policymakers who are likely to develop and deliver tobacco-related support to LAC.

9.3.1 Interventions addressing smoking in residential care

The findings of this thesis stress the need for interventions to address tobacco use among LAC and in residential units. For example, with many LAC reported to initiate smoking prior to entering care, it would be beneficial to identify those who smoke during the placement planning, and for LAC to be informed of smoke-free policies in residential units and smoking cessation treatment or temporary abstinence support, and for these treatment options to be taken account of on an individual basis. It is therefore important that pathways for treatment are in place. These may include referral and prescribing pathways, medication management protocols in residential units, and rapid access to stop smoking support for young people.

9.3.2 Prevalence data

The practical contribution of the research is that it provides data on the prevalence and characteristics of residentially accommodated LAC who smoke. This information is important given that the only comparable data, concerning LAC in residential care dates back 15 years.[2] The case-note evaluation (Chapter Six), therefore explored the recorded smoking behaviours of LAC in residential care and found prevalence to be 52.1%;

with the characteristics found to be similar to that previously identified in the literature, and which suggests current legislation to promote health and well-being of LAC and comprehensive tobacco control efforts have limited impact on LAC in residential care.[18,360,361]

9.3.3 Tobacco-related recording practice

The research detailed in Chapter Four provides evidence on the tobacco-related recording and referral practices of health professionals during the annual and initial statutory health assessment. This evidence is important for commissioners of health services for LAC. For example, commissioners may note that few LAC who receive an offer for referral for treatment of tobacco dependence take up such support or actually attend stop smoking services. Commissioners may also wish to ensure that direct and clear pathways for smoking cessation support and that these are in line with published NICE guidance. Furthermore, evidence concerning the selective screening of LAC for tobacco dependence and delivery of stop smoking advice may assist commissioners in ensuring that providers of health services for LAC receive smoking related-training. This would ensure that those delivering advice are aware of the evidence base and the support available to assist LAC to quit or manage their own tobacco use.

The evaluation tool, developed in this thesis, provides a means to understand practice to address tobacco use among all LAC. To improve understanding, a minimum data set to collect is: LAC screened for smoking status and whose results are recorded; percentage of LAC who smoke and are offered brief advice; percentage of LAC who are recorded as smokers and are offered evidence-based smoking cessation support or referral. Furthermore, auditing tobacco-related recording may provide opportunities for commissioners, providers, and health professionals to develop practice, provide information for policy development or redesign and service innovation, and to highlight and disseminate good practice.

Attention is also drawn to limitations in the statutory health assessment documentation. The findings highlight that in common with other smoking-related documentation, the sections of the statutory health assessment forms which relate to tobacco use are poor.[401] Therefore, to ensure that LAC who smoke are identified, advised, and followed-up, it is essential that smoking status is recorded and reviewed to ensure that access to tobacco dependence treatment is ensured. Furthermore, the statutory annual health assessment documentation does not provide information on the context in which LAC smoke. This combined with the need to cover specific substances separately during the health assessments indicates the need for amendments to BAAF forms IHA-YP and RHA-YP.

9.3.4 Smoke-free residential units

A major contribution of this research is that it provides much needed empirical data on the use and management of tobacco in residential units; its impact on the operation of the units; and role of residential carers in addressing tobacco use by LAC, including their smoking-related knowledge, attitudes, and beliefs. Understanding these issues will allow policymakers, local authorities, trainers, and others to design initiatives, tools and actions based on the reality and practice of addressing smoking among LAC in residential care, rather than on what is prescribed rhetorically. For example, authors of policy documents may note that a smoke-free policy for residential units results in adverse behaviours or safety issues. Awareness of this issues will allow for policy redesign to include the provision to support temporary abstinence.

This thesis has also provided evidence on the implementation of and adherence to smoke-free policies in residential units. The findings identify that units frequently grant exemptions to smoke-free policies, for a variety of reasons. This information is important for local authorities and highlights the need to adopt a developmental, rather than an instrumental approach to transitioning to smoke-free residential units. With this

information local authorities may decide to adopt a project management approach, to include consultation, risk assessment with monitoring and reporting, and the collection of a minimum data set for evaluation. Outcomes should be reported consistently and accurately and best practice shared.

9.3.5 Wider tobacco-related harm

A further important implication of this research derives from findings in relation to LAC's sourcing of tobacco. The findings indicate that in addition to the known risks of smoking, LAC adopt practices that expose them to risks that exceed that of tobacco use and of particular concern is LAC's engagement in inappropriate relationships with older males and exchanging sexual favours for cigarettes. In this sense, the research in this thesis is timely, particularly in the aftermath of the Jay inquiry into CSE in Rotherham and the OFSTED report into CSE which found large numbers of children in these reports were already involved with social services. [376,423] While CSE is now well established in child protection and safeguarding policy, guidance, and legislation, the discourse surrounding CSE has become synonymous with the grooming of children by adult males.[424] The findings of thesis firstly, add to a growing body of evidence that outlines risk and vulnerability factors of CSE, and which recognises that CSE is a complex multi-level problem that extends beyond the individual to wider familial and socio-economic factors.[425] Secondly, attention is drawn to the care experiences of LAC and the relationships between LAC and the adults around them, and why LAC may turn to exchanging or selling sex as a solution over seeking support from those who provide care to them. This evidence may be used in frameworks to sensitise policy makers and practitioners to the need to: consider CSE as a problem caused by and experienced as grooming and coercive relationships; and acknowledge the role of the carers and the care system as a whole, in identifying and addressing the factors that increase LAC vulnerability to CSE.

9.3.6 Misapprehensions concerning smoking and psychological well-being

The belief held by many residential carers that LAC have greater issues to deal with than smoking indicates an assumption that smoking may be therapeutic and that cessation may be psychologically harmful.[236] In adopting these beliefs carers may be deterred from addressing LAC smoking in times of stress and among LAC with a mental disorder. This misapprehension may also contribute to the inequality experienced by LAC, in such that the smoking population is over-represented by people with mental disorder. Carers reported problematic and aggressive behaviours among LAC who are without the means to smoke. This behaviour is likely to be related to nicotine withdrawal which is alleviated by smoking, rather than the carer held perception that smoking alleviates negative or low mood. Residential carers should be informed that there are consistent data showing that smoking relieves symptoms of nicotine withdrawal, and does not remedy stressors or unwanted emotions.

9.4 Appraisal of overall methodological approach and methods

The strengths and limitations of the methodological and theoretical approaches adopted in each of the seven studies have been appraised in their relevant chapters. This section, therefore, reflects on the adoption of a pragmatic multiple methods approach, underpinned by the MRC framework in the development of an intervention to address tobacco use in residential units for LAC.[262] Consideration is also given to the strengths and limitations of the thesis overall.

9.4.1 Multiple methods approach

The findings of this thesis have contributed to the continuing debate concerning the use of multiple methods research approaches in a number of ways.[318] First, the research presented demonstrates that using multiple

methods while adopting a pragmatic approach can be used to develop complex health-related interventions. Indeed, the importance of integrating quantitative and qualitative methods during the evolution from development through modelling interventional components to evaluation has been highlighted previously, given that health interventions which often include psychological, behavioural, or social processes, can be challenging to examine using either methodological approach alone.[258,262]

Second, the value of adopting mixed-methods research has been debated by researchers, with calls to establish the ways in which this practice could lead to better findings than the adoption of quantitative or qualitative methods alone.[318] A methodological benefit of this thesis is the combining the complementary strengths from both quantitative and qualitative approaches to uncover new evidence on the use of tobacco in residential units for LAC. For example and as indicated in Chapter Four, quantitative research can be employed to test hypothesises, whereas qualitative research can be used to describe complex phenomena in rich detail and to explore the interpretation of contructs.[318] Accordingly, the quantitative cross-sectional survey of residential carers (Chapter Seven) provided information on the detrimental impact of tobacco use on the daily operation of residential units and a limited adherence to smoke-free policies, yet the challenges and barriers to addressing tobacco use among residential accommodated LAC remained elusive. These limitations were overcome in the qualitative study (Chapter Seven), within which residential carers both confirmed and described in detail the specific ways in which tobacco use disrupts and facilitates the operation of residential units, the challenges to addressing tobacco use by LAC, and the perceived impact of the efforts to discourage smoking and promote cessation among LAC.

Thirdly, triangulating a variety of data using multiple methods and the use of rigorous, evidence-based steps to intervention development, means that a high level of confidence in the proposed intervention can be assumed.

Indeed, the mixed-methods approach enabled the integration of frameworks, existing and new evidence, theory, and the opinions of stakeholders, all of which informed the development of an intervention to address tobacco use in residential units for LAC. Furthermore, the integration of qualitative and quantitative methods has consequently enhanced the limited knowledge concerning smoking by LAC, generally and specifically in residential care through triangulation and complementarity, which are two justifications for the adoption of mixed-methods.[329] These findings, therefore support the fundamental principle of mixed-research, where the mixing of methods is argued to be superior to those resulting from the adoption of qualitative or quantitative methods alone.[317,318,325]

Finally, this thesis has made a contribution to the mixed-methods literature, within which researchers have called for a differentiation between mixing methods in a single study and combining methods across phases.[318] This thesis adopted a mixed-methods, multi-phase design, whereby both concurrent components (or in close time, but not integrated until the main interpretation of findings) and sequential components (the findings of one approach informs the next study employing another approach) were combined.[318] Indeed, the case note evaluation and sequential mixed-methods study (survey and interviews) were conducted as separate studies. However, their findings were integrated and combined with a modified socioecological model to sequentially identify those factors that influence tobacco use in residential units. The socioecological model findings informed the development of instruments used in the stakeholder consultation, which is the third justification for the adoption of multiple methods approach. Data obtained from stakeholders was then combined with the findings of the separately conducted narrative review of implementation literature to inform the component mapping exercise. This thesis, therefore, highlights the benefit of combining

concurrent and sequential components in a multiple phase programme of research.

9.4.2 Medical Research Council Framework

The MRC framework was chosen to guide the development of an intervention to address tobacco use in residential units, due to its potential to facilitate research design and to improve understanding of the processes and outcomes of complex interventions. However, in practice, the utility of the MRC framework has become less clear, particularly given the limited guidance provided. For example, the choice to adopt a multiple methods approach was made in advance of deciding on the overarching framework for intervention development. Next, the framework offered no advice on the integration and interpretation of 'theory' in the modelling stage of the development phase. This required a further framework to be adopted in order to guide the application of theory in the development of the intervention.[257] Therefore, although in this thesis the MRC framework refined the development of methods and provided a post-hoc justification for the approach, it could not be described as having guided them. However, in accordance with the MRC framework's assertion of the importance of collaborating with experts and stakeholders and also recommends that researchers make clear how this involvement influenced the development process, a strength of this thesis is that it clearly demonstrates and documents how corporate parent stakeholders informed the development of a complex intervention.[262]

9.4.3 Looked-after children's participation in research

It is important to reflect on the absence of LAC involvement in the development of an intervention to address tobacco use in residential care. Reasons for focussing the research on organisational and workforce perspectives have been provided in Chapter Four and while the smoking-related behaviours of LAC were explored through documentary and

anecdotal means, the research would have benefited from direct participation by LAC. On reflection, the inclusion of LAC would have been established from the beginning of the research programme, whereby a local *'Children in Care Council'* could have shared opinions and insights on the planned research to ensure recruitment methods, documents, and study instruments and procedures were of relevance to the population. Furthermore, including LAC in the development of evidence on smoking in residential units would have revealed additional influential factors on smoking that residential carers were unaware of could have provided a deeper explanation of behaviours (e.g. in relation to wider tobacco-related risk or sourcing tobacco). The participation of children in care in the stakeholder consultation and their contribution to developing interventional components would have increased the likelihood of the resulting intervention being acceptable and relevant to LAC. Further studies to explore the smoking-related behaviours and perceptions of LAC should be undertaken to refine the intervention. Prior to evaluation, the involvement of LAC in the co-production of participant materials and policy refinement should be sought.

The barriers reported by corporate parents regarding LAC interest in participation in research appear unfounded. Indeed, during visits to the residential units, informal conversations took place between the researcher and LAC and great interest in the research was expressed. LAC were interested in developing and contributing to the formulation of improvements to their placements and the systems that surround them. It was clear from these informal conversations that despite the essentialist view of LAC and the recognised challenges in research participation, the knowledge, experience, and perceptions of LAC will be crucial in the further development of such interventions attempting to improve both outcomes and systems in relation to the health and well-being of LAC.

9.5 Conducting Research in Children's Social Care

9.5.1 Applying to conduct research in local authorities

The Research Group of the Association of Directors of Children's Services (ADCS) recommends that any study involving more than four local authorities should be submitted to them in the first instance, using their standard application form. The ADCS evaluates the study proposal and provides a recommendation that local authorities co-operate with an approved proposal. The time span between proposal submission and approval was two weeks. The ADCS describes the procedure as a benefit to children's services departments by eliminating the need for local authorities to evaluate research proposals themselves. However, this was not my experience and full applications were required by all of the local authorities approached.

Making applications to local authorities was time-consuming and preliminary telephone calls to Assistant Directors of Children's Services (or their representatives) facilitated co-operation in ascertaining the research governance procedures and practices of individual organisations. However, even after securing provisional co-operation, changing service demands meant that in some cases strong support for the research was withdrawn.

9.5.2 Research timelines and timings

The timing of the research is important and will likely influence the adoption of the research by the local authority and recruitment of residential units. Indeed, of particular note is the influence of regulatory and quality inspections, such OFSTED. Substantial delays were encountered while local authorities and residential units prepared for and took part in externally and internally driven inspections. Delays in arranging interviews with RCOs were also encountered, particularly around

school holidays, when staff capacity was limited. At other times incidents and circumstance in the units required visits or individual interviews to be rearranged or postponed for several weeks.

After securing the support of the lead specialist nurse for LAC, an invitation to submit a proposal for the case-note evaluation study was made by the Trust. On review by the NHS Trust's department for clinical effectiveness, I was asked to present the proposed study to the Clinical Audit, Standards, Effectiveness and Research (CASER) Group. This meeting centred around two main issues: the acceptability of the research and the proposed methods of accessing and collecting data on LAC. Concerns of the group were related to confidentially and the reporting of data in any dissemination materials, and my competence as a researcher to carry out the intended programme of work. While the administrative process was straightforward, time delays resulted from the cancellation and the re-arrangement of CASER meetings.

9.5.3 Research prioritisation

In common with the literature, major issues were experienced in the planning of this research in relation to corporate parent attitudes towards LAC involvement in research. Authors have reported the tendency of corporate parents to protect LAC from the perceived adverse effects of research participation and thus prevent the participation in research despite LAC expressing a wish to do so. [337,343,348] However, in the residential units that participated in the qualitative study, these perceptions were not apparent and the inclusion of LAC in research activity was encouraged. Unfortunately, in practice, time and resource constraints meant that the addition of LAC involvement at a late stage in the research was not feasible, and as previously discussed is identified as a substantial limitation of this thesis.

Having obtained approval to proceed with the research from directors of children's services, negotiation with middle managers was required. While

the majority of service managers were supportive of the research, others refused to support the study, which resulted in the loss of a research site. All but one of the local authorities approached required the completion of their own research application for internal review. Given that eight local authorities were contacted, the amount of time required to complete this task was significant. Only one local authority (the primary research site), had a designated research lead, who provided co-ordination of study approvals, set-up and recruitment.

9.5.4 Lessons learned

The conduct of research in children's social care is a time-consuming process, as has been previously reported. It is important therefore that researchers considering research in children's social care settings anticipate delays and incorporate additional time into the research timetable. It is also important that researchers expect different administrative requirements and competing priorities which may influence and refine the study or procedures, and the levels of research support and co-operation that may be offered at various points in the research. The requirement for a pragmatic strategy which allows flexibility to adapt to the fluctuating demands on local authorities and residential carers is also highlighted. Finally, researchers should provide opportunities to promote and support the inclusion of LAC in research.

9.6 Recommendations

9.6.1 The proposed intervention

The proposed intervention was considered both relevant and useful to the practice of residential carers. However, in order to increase the evidence base and establish feasibility and effectiveness further refinement and evaluation is required.

9.6.1.1 Identifying potential implications for the organisation

As previously stated in Chapter Three, the importance of considering implementation during the early stages of intervention development is highlighted in the MRC framework.[262] Components of the intervention have been designed to facilitate the implementation of a comprehensive smoke-free policy in residential units by addressing important organisational barriers and enhancing enablers to tobacco-related practices. For example, the stakeholder meeting and engagement with local leaders proposed to overcome issues such as buy-in on organisational and unit level, as well as facilitating further engagement with staff groups. Furthermore, these components were designed to address more than one target behaviour and to increase the likelihood of the intervention being compatible with existing structures inside the organisation. Other organisational factors influenced decisions regarding the mode of delivery. For example, competing demands on the time of carers meant that training should be flexible and able to be undertaken when the time was available. In this respect, structured training in a group format was likely to be unfeasible and unacceptable. The inclusion of an accredited training programme also responded to the need for leaders to reward staff for undertaking professional development. The decision to include a smoke-free co-ordinator was taken in response to the limited feasibility of training all staff to an advanced level.

9.6.1.2 Moving forward: Planning ahead of a full-scale evaluation

Outstanding issues requiring clarification

Prior to undertaking a pre-trial evaluation and modelling the intervention for feasibility/pilot testing a number of factors require addressing. First, aligned with wider policy relating to LAC, the findings of the stakeholder consultation indicated a strong need to incorporate the views of LAC in the development of interventions that will have an impact on them. The need,

therefore, to understand this issue from a wider (LAC) perspective and to develop strategies to encourage and support the inclusion of LAC in research is highlighted. Furthermore, as encountered in this thesis, it is likely that challenges in recruitment and sustaining commitment from local authorities will be present. It is, therefore, crucial to secure buy-in from service leads in the organisation at the earliest opportunity.

The development of resources to support the implementation of intervention components such as promotional materials, printed literature, and workshop materials is required prior to piloting. These may be developed and designed through co-production with stakeholders to ensure relevance to the target population. Finally, outcomes should be developed, as well as measures for the reporting of outcome data.

Modelling before trial

Given financial constraints on research and health and social care, methods that provide an indication of the likely effectiveness and cost-effectiveness in advance of a trial and maximise the chances of interventions being successful have become increasingly important. Modelling ahead of a trial can clarify the likely effectiveness of different stages of the intervention and can ensure as far as possible that each interventional component is contributing to improved outcomes.[262,426] Models can also highlight areas where the intervention may be improved.[262] Additionally, the incorporation of costs into models, further informs the decision as to whether to proceed to trial and which components may drive cost-effectiveness. One such framework that can assist in the planning, review and refinement and evaluation of interventions is RE-AIM.[427] The RE-AIM model emphasises the importance of focussing on the dimensions of Reach, Effectiveness, Adoption, Implementation, and Maintenance, as discussed in Chapter Three. Specific guidance is available on the application of RE-AIM for intervention planning, reporting and reviewing articles, and for health policy interventions.[428-431] To ensure the genuine

application of the model, Glasgow and colleagues state that to be most effective all five dimensions of the RE-AIM model should be concurrently measured.[432]

9.6.2 Research concerning smoking and looked-after children

In the process of exploring tobacco use in residential units for LAC, a number of gaps in the existing literature have been identified. As a result, researchers may wish to:

- Explore co-morbidity between the physical and mental health needs of LAC.
- Update the research evidence in relation to the association between mental disorder and tobacco dependence among LAC and between different care placements.
- Extend the exploration of the barriers and facilitators to implementation of smoke-free residential units for LAC, with a particular focus on the environmental, psychosocial, and risk.
- Explore smoking cessation behaviour of LAC including the effectiveness of approaches, including the use of electronic cigarettes.
- Explore in-depth how LAC perceive discussions concerning tobacco use in the statutory health assessment and the barriers and facilitators to engaging with a health professional for the purposes of treatment for tobacco dependence.
- Investigate how LAC view these discussions with residential carers and how they are experienced, with a particular focus on the language used in the delivery of tobacco-related advice and information, and the barriers LAC perceive to smoking cessation.
- Examine the ways in which residential carers can encourage and support LAC to address their tobacco dependence particularly during times of stress or instability, and develop strategies for providing

consistent, evidence-based support to enable LAC to view smoking cessation as positive and beneficial.

- Explore the wider tobacco-related harms and risks to LAC from smoking and identify those LAC who may be additionally vulnerable and develop protective strategies.

9.7 Conclusion

In the development of a theory- and evidence-based, multi-level intervention, this thesis has examined the influence of multiple factors on tobacco use in residential units and explored how tobacco use by LAC is prioritised and addressed by corporate parents. Findings from this research indicate that despite the well-known health risks, smoking is not perceived as a priority, with some corporate parents considering it to be an acceptable norm for LAC. Findings also suggest that policies aiming to address smoking in residential units tend to be both ineffective and unsupported. The need, therefore to develop locally tailored interventions targeting tobacco use among residentially accommodated LAC is highlighted.

While further refinement and pilot testing of the intervention will be required before determining effectiveness and ahead of dissemination, this thesis, nevertheless, has addressed calls from successive governments, third-sector organisations, and health and social care professionals to examine and address the health needs of LAC. It is hoped that this research will lead to better awareness of the risks of smoking among LAC, provide a means of support for carers in addressing the use of tobacco in residential units, and ultimately assist in improving the health and social outcomes of LAC.

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Appendix A: Four-step model for the development of theory-informed behaviour change interventions

Step	Tasks
Step 1: Who needs to do what, differently?	· Identify the evidence-practice gap · Specify the behaviour change needed to reduce the evidence-practice gap · Specify the health professional group whose behaviour needs changing
Step 2: Using a theoretical framework, which barriers and enablers need to be addressed	From the literature, and experience of the development team, select which theory(ies), or theoretical framework(s), are likely to inform the pathways of change · Use the chosen theory(ies), or framework, to identify the pathway(s) of change and the possible barriers and enablers to that pathway · Use qualitative and/or quantitative methods to identify barriers and enablers to behaviour change
STEP 3: Which intervention components (behaviour change techniques and mode(s) of delivery) could overcome the modifiable barriers and enhance the enablers?	· Use the chosen theory, or framework, to identify potential behaviour change techniques to overcome the barriers and enhance the enablers · Identify evidence to inform the selection of potential behaviour change techniques and modes of delivery · Identify what is likely to be feasible, locally relevant, and acceptable and combine identified components into an acceptable intervention that can be delivered
STEP 4: How can behaviour change be measured and understood?	Identify mediators of change to investigate the proposed pathways of change · Select appropriate outcome measures · Determine feasibility of outcomes to be measured

Appendix B: BCT Taxonomy (v1)

No.	Label	Definition
1. Goals and planning		
1.1	*Goal setting (behaviour)*	Set or agree on a goal defined in terms of the behaviour to be achieved *Note: only code goal-setting if there is sufficient evidence that goal set as part of intervention; if goal unspecified or a behavioural outcome, code 1.3, Goal setting (outcome); if the goal defines a specific context, frequency, duration or intensity for the behaviour, also code 1.4, Action planning*
1.2	*Problem solving*	Analyse , or prompt the person to analyse, factors influencing the behaviour and generate or select strategies that include overcoming barriers and/or increasing facilitators (includes 'Relapse Prevention' *and* 'Coping Planning') *Note: barrier identification without solutions is not sufficient. If the BCT does not include analysing the behavioural problem, consider 12.3, Avoidance/changing exposure to cues for the behaviour, 12.1, Restructuring the physical environment, 12.2, Restructuring the social environment, or 11.2, Reduce negative emotions*
1.3	*Goal setting (outcome)*	Set or agree on a goal defined in terms of a positive outcome of wanted behaviour *Note: only code guidelines if set as a goal in an intervention context; if goal is a behaviour, code 1.1, Goal setting (behaviour); if goal unspecified code 1.3, Goal setting (outcome)*
1.4	*Action planning*	Prompt detailed planning of performance of the behaviour (must include at least one of context, frequency, duration and intensity). Context may be environmental (physical or social) or internal (physical, emotional or cognitive) (includes *'*Implementation Intentions*'*) *Note: evidence of action planning does not necessarily imply goal setting, only code latter if sufficient evidence*
1.5	*Review behaviour goal(s)*	Review behaviour goal(s) jointly with the person and consider modifying goal(s) or behaviour change strategy in light of achievement. This may lead to re-setting the same goal, a small change in that goal or setting a new goal instead of (or in addition to) the first, or no change *Note: if goal specified in terms of behaviour, code 1.5, Review behaviour goal(s), if goal unspecified, code 1.7, Review outcome goal(s); if discrepancy created consider also 1.6, Discrepancy between current behaviour and goal*

1.6	*Discrepancy between current behaviour and goal*	Draw attention to discrepancies between a person's current behaviour (in terms of the *form, frequency, duration, or intensity* of that behaviour) and the person's previously set outcome goals, behavioural goals or action plans (goes beyond self-monitoring of behaviour) *Note: if discomfort is created only code 13.3, Incompatible beliefs and <u>not</u> 1.6, Discrepancy between current behaviour and goal; if goals are modified, also code 1.5, Review behaviour goal(s) and/or 1.7, Review outcome goal(s); if feedback is provided, <u>also</u> code 2.2, Feedback on behaviour*
1.7	*Review outcome goal(s)*	Review outcome goal(s) jointly with the person and consider modifying goal(s) in light of achievement. This may lead to re-setting the same goal, a small change in that goal or setting a new goal instead of, or in addition to the first *Note: if goal specified in terms of behaviour, code 1.5, Review behaviour goal(s), if goal unspecified, code 1.7, Review outcome goal(s); if discrepancy created consider also 1.6, Discrepancy between current behaviour and goal*
1.8	*Behavioural contract*	Create a written specification of the behaviour to be performed, agreed on by the person, and witnessed by another *Note: <u>also</u> code 1.1, Goal setting (behaviour)*
1.9	*Commitment*	Ask the person to affirm or reaffirm statements indicating commitment to change the behaviour *Note: if defined in terms of the behaviour to be achieved <u>also</u> code 1.1, Goal setting (behaviour)*
2. Feedback and monitoring		
2.1	*Monitoring of behaviour by others without feedback*	Observe or record behaviour with the person's knowledge as part of a behaviour change strategy *Note: if monitoring is part of a data collection procedure rather than a strategy aimed at changing behaviour, do not code; if feedback given, code only 2.2, Feedback on behaviour, and <u>not</u> 2.1, Monitoring of behaviour by others without feedback; if monitoring outcome(s) code 2.5, Monitoring outcome(s) of behaviour by others without feedback; if self-monitoring behaviour, code 2.3, Self-monitoring of behaviour*
2.2	*Feedback on behaviour*	Monitor and provide informative or evaluative feedback on performance of the behaviour *(e.g. form, frequency, duration, intensity)* *Note: if Biofeedback, code only 2.6, Biofeedback and <u>not</u> 2.2, Feedback on behaviour; if feedback is on outcome(s) of behaviour, code 2.7, Feedback on outcome(s) of behaviour; if there is no clear evidence that feedback was given, code 2.1, Monitoring of behaviour by others without feedback; if feedback on behaviour is evaluative e.g. praise, also code 10.4, Social reward*
2.3	*Self-monitoring of behaviour*	Establish a method for the person to monitor and record their behaviour(s) as part of a behaviour

		change strategy *Note: if monitoring is part of a data collection procedure rather than a strategy aimed at changing behaviour, do not code; if monitoring of outcome of behaviour, code 2.4, Self-monitoring of outcome(s) of behaviour; if monitoring is by someone else (without feedback), code 2.1, Monitoring of behaviour by others without feedback*
2.4	*Self-monitoring of outcome(s) of behaviour*	Establish a method for the person to monitor and record the outcome(s) of their behaviour as part of a behaviour change strategy *Note: if monitoring is part of a data collection procedure rather than a strategy aimed at changing behaviour, do not code ; if monitoring behaviour, code 2.3, Self-monitoring of behaviour; if monitoring is by someone else (without feedback), code 2.5, Monitoring outcome(s) of behaviour by others without feedback*
2.5	*Monitoring outcome(s) of behaviour by others without feedback*	Observe or record outcomes of behaviour with the person's knowledge as part of a behaviour change strategy *Note: if monitoring is part of a data collection procedure rather than a strategy aimed at changing behaviour, do not code; if feedback given, code only 2.7, Feedback on outcome(s) of behaviour; if monitoring behaviour code 2.1, Monitoring of behaviour by others without feedback; if self-monitoring outcome(s), code 2.4, Self-monitoring of outcome(s) of behaviour*
2.6	*Biofeedback*	Provide feedback about the body *(e.g. physiological or biochemical state)* using an external monitoring device as part of a behaviour change strategy *Note: if Biofeedback, code only 2.6, Biofeedback and <u>not</u> 2.2, Feedback on behaviour or 2.7, Feedback on outcome(s) of behaviour*
2.7	*Feedback on outcome(s) of behaviour*	Monitor and provide feedback on the outcome of performance of the behaviour *Note: if Biofeedback, code only 2.6, Biofeedback and <u>not</u> 2.7, Feedback on outcome(s) of behaviour; if feedback is on behaviour code 2.2, Feedback on behaviour; if there is no clear evidence that feedback was given code 2.5, Monitoring outcome(s) of behaviour by others without feedback; if feedback on behaviour is evaluative e.g. praise, also code 10.4, Social reward*
3. Social support		
3.1	*Social support (unspecified)*	Advise on, arrange or provide social support *(e.g. from friends, relatives, colleagues,' buddies' or staff)* or non-contingent praise or reward for performance of the behaviour. It includes encouragement and counselling, but only when it is directed at the behaviour *Note: attending a group class and/or mention of 'follow-up' does not necessarily apply this BCT, support must be explicitly mentioned; if practical, code*

		3.2, Social support (practical); if emotional, code 3.3, Social support (emotional) (includes 'Motivational interviewing' and 'Cognitive Behavioural Therapy')
3.2	*Social support (practical)*	Advise on, arrange, or provide practical help *(e.g. from friends, relatives, colleagues, 'buddies' or staff)* for performance of the behaviour *Note: if emotional, code 3.3, Social support (emotional); if general or unspecified, code 3.1, Social support (unspecified) If only restructuring the physical environment or adding objects to the environment, code 12.1, Restructuring the physical environment or 12.5, Adding objects to the environment; attending a group or class and/or mention of 'follow-up' does not necessarily apply this BCT, support must be explicitly mentioned.*
3.3	*Social support (emotional)*	Advise on, arrange, or provide emotional social support *(e.g. from friends, relatives, colleagues, 'buddies' or staff)* for performance of the behaviour *Note: if practical, code 3.2, Social support (practical); if unspecified, code 3.1, Social support (unspecified)*
1.	***Shaping knowledge***	
4.1	*Instruction on how to perform a behaviour*	Advise or agree on how to perform the behaviour (includes 'Skills training') *Note: when the person attends classes such as exercise or cookery, code 4.1, Instruction on how to perform the behaviour, 8.1, Behavioural practice/rehearsal and 6.1, Demonstration of the behaviour*
4.2	*Information about antecedents*	Provide information about antecedents (*e.g. social and environmental situations and events, emotions, cognitions)* that reliably predict performance of the behaviour
4.3	*Re-attribution*	Elicit perceived causes of behaviour and suggest alternative explanations *(e.g. external or internal and stable or unstable)*
4.4	*Behavioural experiments*	Advise on how to identify and test hypotheses about the behaviour, its causes and consequences, by collecting and interpreting data
2.	***Natural consequences***	
5.1	*Information about health consequences*	Provide information (e.g. written, verbal, visual) about health consequences of performing the behaviour *Note: consequences can be for any target, not just the recipient(s) of the intervention; emphasising importance of consequences is not sufficient; if information about emotional consequences, code 5.6, Information about emotional consequences; if about social, environmental or unspecified consequences code 5.3, Information about social and environmental consequences*
5.2	*Salience of consequences*	Use methods specifically designed to emphasise the consequences of performing the behaviour with the aim of making them more memorable (goes beyond informing about consequences)

		Note: if information about consequences, also code 5.1, Information about health consequences, 5.6, Information about emotional consequences or 5.3, Information about social and environmental consequences
5.3	*Information about social and environmental consequences*	Provide information (e.g. written, verbal, visual) about social and environmental consequences of performing the behaviour *Note: consequences can be for any target, not just the recipient(s) of the intervention; if information about health or consequences, code 5.1, Information about health consequences; if about emotional consequences, code 5.6, Information about emotional consequences; if unspecified, code 5.3, Information about social and environmental consequences*
5.4	*Monitoring of emotional consequences*	Prompt assessment of feelings after attempts at performing the behaviour
5.5	*Anticipated regret*	Induce or raise awareness of expectations of future regret about performance of the unwanted behaviour *Note: <u>not</u> including 5.6, Information about emotional consequences*; *if suggests adoption of a perspective or new perspective in order to change cognitions <u>also</u> code 13.2, Framing/reframing*
5.6	*Information about emotional consequences*	Provide information (e.g. written, verbal, visual) about emotional consequences of performing the behaviour *Note: consequences can be related to emotional health disorders (e.g. depression, anxiety) and/or states of mind (e.g. low mood, stress); <u>not</u> including 5.5, Anticipated regret; consequences can be for any target, not just the recipient(s) of the intervention; if information about health consequences code 5.1, Information about health consequences; if about social, environmental or unspecified code 5.3, Information about social and environmental consequences*
3.	***Comparison of behaviour***	
6.1	*Demonstration of the behaviour*	Provide an observable sample of the performance of the behaviour, directly in person or indirectly e.g. via film, pictures, for the person to aspire to or imitate (includes '<u>Modelling</u>'). *Note:* if advised to practice, <u>also</u> code, *8.1, Behavioural practice and rehearsal; If provided with instructions on how to perform, <u>also</u> code 4.1, Instruction on how to perform the behaviour*
6.2	*Social comparison*	Draw attention to others' performance to allow comparison with the person's own performance *Note: being in a group setting does not necessarily mean that social comparison is actually taking place*
6.3	*Information about others' approval*	Provide information about what other people think about the behaviour. The information clarifies whether others will like, approve or disapprove of what the person is doing or will do

4.	***Associations***	
7.1	*Prompts/cues*	Introduce or define environmental or social stimulus with the purpose of prompting or cueing the behaviour. The prompt or cue would normally occur at the time or place of performance *Note: when a stimulus is linked to a specific action in an if-then plan including one or more of frequency, duration or intensity also code 1.4, Action planning.*
7.2	*Cue signalling reward*	Identify an environmental stimulus that reliably predicts that reward will follow the behaviour (includes *'*Discriminative cue')
7.3	*Reduce prompts/cues*	Withdraw gradually prompts to perform the behaviour (includes *'*Fading')
7.4	*Remove access to the reward*	Advise or arrange for the person to be separated from situations in which unwanted behaviour can be rewarded in order to reduce the behaviour (includes *'*Time out')
7.5	*Remove aversive stimulus*	Advise or arrange for the removal of an aversive stimulus to facilitate behaviour change (includes *'*Escape learning*'*)
7.6	*Satiation*	Advise or arrange repeated exposure to a stimulus that reduces or extinguishes a drive for the unwanted behaviour
7.7	*Exposure*	Provide systematic confrontation with a feared stimulus to reduce the response to a later encounter
7.8	*Associative learning*	Present a neutral stimulus jointly with a stimulus that already elicits the behaviour repeatedly until the neutral stimulus elicits that behaviour (includes *'*Classical/Pavlovian Conditioning') *Note: when a BCT involves reward or punishment, code one or more of: 10.2, Material reward (behaviour); 10.3, Non-specific reward; 10.4, Social reward, 10.9, Self-reward; 10.10, Reward (outcome)*
5.	***Repetition and substitution***	
8.1	*Behavioural practice/ rehearsal*	Prompt practice or rehearsal of the performance of the behaviour one or more times in a context or at a time when the performance may not be necessary, in order to increase habit and skill *Note: if aiming to associate performance with the context, also code 8.3, Habit formation*
8.2	*Behaviour substitution*	Prompt substitution of the unwanted behaviour with a wanted or neutral behaviour *Note: if this occurs regularly, also code 8.4, Habit reversal*
8.3	*Habit formation*	Prompt rehearsal and repetition of the behaviour in the same context repeatedly so that the context elicits the behaviour *Note: also code 8.1, Behavioural practice/rehearsal*
8.4	*Habit reversal*	Prompt rehearsal and repetition of an alternative behaviour to replace an unwanted habitual behaviour *Note: also code 8.2, Behaviour substitution*
8.5	*Overcorrection*	Ask to repeat the wanted behaviour in an exaggerated way following an unwanted behaviour

8.6	*Generalisation of a target behaviour*	Advise to perform the wanted behaviour, which is already performed in a particular situation, in another situation
8.7	*Graded tasks*	Set easy-to-perform tasks, making them increasingly difficult, but achievable, until behaviour is performed
6.	***Comparison of outcomes***	
9.1	*Credible source*	Present verbal or visual communication from a credible source in favour of or against the behaviour *Note: code this BCT if source generally agreed on as credible e.g., health professionals, celebrities or words used to indicate expertise or leader in field and if the communication has the aim of persuading; if information about health consequences, also code 5.1, Information about health consequences, if about emotional consequences, also code 5.6, Information about emotional consequences; if about social, environmental or unspecified consequences also code 5.3, Information about social and environmental consequences*
9.2	*Pros and cons*	Advise the person to identify and compare reasons for wanting (pros) and not wanting to (cons) change the behaviour (includes 'Decisional balance'*) Note: if providing information about health consequences, also code 5.1, Information about health consequences; if providing information about emotional consequences, also code 5.6, Information about emotional consequences; if providing information about social, environmental or unspecified consequences also code 5.3, Information about social and environmental consequences*
9.3	*Comparative imagining of future outcomes*	Prompt or advise the imagining and comparing of future outcomes of changed versus unchanged behaviour
7.	***Reward and threat***	
10.1	*Material incentive (behaviour)*	Inform that money, vouchers or other valued objects *will be* delivered if and only if there has been effort and/or progress in performing the behaviour (includes *'*Positive reinforcement') *Note: if incentive is social, code 10.5, Social incentive if unspecified code 10.6, Non-specific incentive, and not 10.1, Material incentive (behaviour); if incentive is for outcome, code 10.8, Incentive (outcome). If reward is delivered also code one of: 10.2, Material reward (behaviour); 10.3, Non-specific reward; 10.4, Social reward, 10.9, Self-reward; 10.10, Reward (outcome)*
10.2	*Material reward (behaviour)*	Arrange for the delivery of money, vouchers or other valued objects if and only if there *has been* effort and/or progress in performing the behaviour (includes 'Positive reinforcement') *Note: If reward is social, code 10.4, Social reward, if unspecified code 10.3, Non-specific reward, and not 10.1, Material reward (behaviour); if reward is for outcome, code 10.10, Reward (outcome). If informed*

		of reward in advance of rewarded behaviour, also code one of: 10.1, Material incentive (behaviour); 10.5, Social incentive; 10.6, Non-specific incentive; 10.7, Self-incentive; 10.8, Incentive (outcome)
10.3	*Non-specific reward*	Arrange delivery of a reward if and only if there *has been* effort and/or progress in performing the behaviour (includes 'Positive reinforcement') *Note: if reward is material, code 10.2, Material reward (behaviour), if social, code 10.4, Social reward, and not 10.3, Non-specific reward; if reward is for outcome code 10.10, Reward (outcome). If informed of reward in advance of rewarded behaviour, also code one of: 10.1, Material incentive (behaviour); 10.5, Social incentive; 10.6, Non-specific incentive; 10.7, Self-incentive; 10.8, Incentive (outcome)*
10.4	*Social reward*	Arrange verbal or non-verbal reward if and only if there *has been* effort and/or progress in performing the behaviour (includes 'Positive reinforcement') *Note: if reward is material, code 10.2, Material reward (behaviour), if unspecified code 10.3, Non-specific reward, and not 10.4, Social reward; if reward is for outcome code 10.10, Reward (outcome). If informed of reward in advance of rewarded behaviour, also code one of: 10.1, Material incentive (behaviour); 10.5, Social incentive; 10.6, Non-specific incentive; 10.7, Self-incentive; 10.8, Incentive (outcome)*
10.5	*Social incentive*	Inform that a verbal or non-verbal reward *will be* delivered if and only if there has been effort and/or progress in performing the behaviour (includes 'Positive reinforcement') *Note: if incentive is material, code 10.1, Material incentive (behaviour), if unspecified code 10.6, Non-specific incentive, and not 10.5, Social incentive; if incentive is for outcome code 10.8, Incentive (outcome). If reward is delivered also code one of: 10.2, Material reward (behaviour); 10.3, Non-specific reward; 10.4, Social reward, 10.9, Self-reward; 10.10, Reward (outcome)*
10.6	*Non-specific incentive*	Inform that a reward *will be* delivered if and only if there has been effort and/or progress in performing the behaviour (includes 'Positive reinforcement') *Note: if incentive is material, code 10.1, Material incentive (behaviour), if social, code 10.5, Social incentive and not 10.6, Non-specific incentive; if incentive is for outcome code 10.8, Incentive (outcome). If reward is delivered also code one of: 10.2, Material reward (behaviour); 10.3, Non-specific reward; 10.4, Social reward, 10.9, Self-reward; 10.10, Reward (outcome)*
10.7	*Self-incentive*	Plan to reward self in future if and only if there has been effort and/or progress in performing the behaviour *Note: if self-reward is material, also code 10.1, Material incentive (behaviour), if social, also code*

		10.5, Social incentive, if unspecified, also code 10.6, Non-specific incentive; if incentive is for outcome code 10.8, Incentive (outcome). If reward is delivered also code one of: 10.2, Material reward (behaviour); 10.3, Non-specific reward; 10.4, Social reward, 10.9, Self-reward; 10.10, Reward (outcome)
10.8	*Incentive (outcome)*	Inform that a reward *will be* delivered if and only if there has been effort and/or progress in achieving the behavioural outcome (*includes '*Positive reinforcement*'*) *Note: this includes social, material, self- and non-specific incentives for outcome; if incentive is for the behaviour code 10.5, Social incentive, 10.1, Material incentive (behaviour), 10.6, Non-specific incentive or 10.7, Self-incentive and not 10.8, Incentive (outcome). If reward is delivered also code one of: 10.2, Material reward (behaviour); 10.3, Non-specific reward; 10.4, Social reward, 10.9, Self-reward; 10.10, Reward (outcome)*
10.9	*Self-reward*	Prompt self-praise or self-reward if and only if there *has been* effort and/or progress in performing the behaviour *Note: if self-reward is material, also code 10.2, Material reward (behaviour), if social, also code 10.4, Social reward, if unspecified, also code 10.3, Non-specific reward; if reward is for outcome code 10.10, Reward (outcome). If informed of reward in advance of rewarded behaviour, also code one of: 10.1, Material incentive (behaviour); 10.5, Social incentive; 10.6, Non-specific incentive; 10.7, Self-incentive; 10.8, Incentive (outcome)*
10.10	*Reward (outcome)*	Arrange for the delivery of a reward if and only if there *has been* effort and/or progress in achieving the behavioural outcome (includes 'Positive reinforcement') *Note: this includes social, material, self- and non-specific rewards for outcome; if reward is for the behaviour code 10.4, Social reward, 10.2, Material reward (behaviour), 10.3, Non-specific reward or 10.9, Self-reward and not 10.10, Reward (outcome). If informed of reward in advance of rewarded behaviour, also code one of: 10.1, Material incentive (behaviour); 10.5, Social incentive; 10.6, Non-specific incentive; 10.7, Self-incentive; 10.8, Incentive (outcome)*
10.11	*Future punishment*	Inform that future punishment or removal of reward will be a consequence of performance of an unwanted behaviour (may include fear arousal) (includes *'*Threat*'*)
11. Regulation		
11.1	*Pharmacological support*	Provide, or encourage the use of or adherence to, drugs to facilitate behaviour change *Note: if pharmacological support to reduce negative emotions (i.e. anxiety) then also code 11.2, Reduce negative emotions*

11.2	*Reduce negative emotions* [b]	Advise on ways of reducing negative emotions to facilitate performance of the behaviour (includes 'Stress Management') *Note: if includes analysing the behavioural problem, also code 1.2, Problem solving*
11.3	*Conserving mental resources*	Advise on ways of minimising demands on mental resources to facilitate behaviour change
11.4	*Paradoxical instructions*	Advise to engage in some form of the unwanted behaviour with the aim of reducing motivation to engage in that behaviour
12. Antecedents		
12.1	*Restructuring the physical environment*	Change, or advise to change the physical environment in order to facilitate performance of the wanted behaviour or create barriers to the unwanted behaviour (other than prompts/cues, rewards and punishments) *Note: this may also involve 12.3, Avoidance/reducing exposure to cues for the behaviour; if restructuring of the social environment code 12.2, Restructuring the social environment;* *if only adding objects to the environment, code 12.5, Adding objects to the environment*
12.2	*Restructuring the social environment*	Change, or advise to change the social environment in order to facilitate performance of the wanted behaviour or create barriers to the unwanted behaviour (other than prompts/cues, rewards and punishments) *Note: this may also involve 12.3, Avoidance/reducing exposure to cues for the behaviour; if also restructuring of the physical environment also code 12.1, Restructuring the physical environment*
12.3	*Avoidance/reducing exposure to cues for the behaviour*	Advise on how to avoid exposure to specific social and contextual/physical cues for the behaviour, including changing daily or weekly routines *Note: this may also involve 12.1, Restructuring the physical environment* and/or *12.2, Restructuring the social environment*; if the BCT includes analysing the behavioural problem, only code *1.2*, *Problem solving*
12.4	*Distraction*	Advise or arrange to use an alternative focus for attention to avoid triggers for unwanted behaviour
12.5	*Adding objects to the environment*	Add objects to the environment in order to facilitate performance of the behaviour *Note: Provision of information (e.g. written, verbal, visual) in a booklet or leaflet is insufficient. If this is accompanied by social support, also code 3.2, Social support (practical); if the environment is changed beyond the addition of objects, also code 12.1, Restructuring the physical environment*
12.6	*Body changes*	Alter body structure, functioning or support directly to facilitate behaviour change
13. Identity		
13.1	*Identification of self as role model*	Inform that one's own behaviour may be an example to others

13.2	*Framing/reframing*	Suggest the deliberate adoption of a perspective or new perspective on behaviour (e.g. its purpose) in order to change cognitions or emotions about performing the behaviour (includes 'Cognitive structuring'); *If information about consequences then code 5.1, Information about health consequences, 5.6, Information about emotional consequences or 5.3, Information about social and environmental consequences instead of 13.2, Framing/reframing*
13.3	*Incompatible beliefs*	Draw attention to discrepancies between current or past behaviour and self-image, in order to create discomfort (includes *'*Cognitive dissonance')
13.4	*Valued self-identity*	Advise the person to write or complete rating scales about a cherished value or personal strength as a means of affirming the person's identity as part of a behaviour change strategy (includes *'*Self-affirmation')
13.5	*Identity associated with changed behaviour*	Advise the person to construct a new self-identity as someone who 'used to engage with the unwanted behaviour'
14. Scheduled consequences		
14.1	*Behaviour cost*	Arrange for withdrawal of something valued if and only if an unwanted behaviour is performed (includes 'Response cost'). Note if withdrawal of contingent reward code*, 14.3, Remove reward*
14.2	*Punishment*	Arrange for aversive consequence contingent on the performance of the unwanted behaviour
14.3	*Remove reward*	Arrange for discontinuation of contingent reward following performance of the unwanted behaviour (includes 'Extinction')
14.4	*Reward approximation*	Arrange for reward following any approximation to the target behaviour, gradually rewarding only performance closer to the wanted behaviour (includes *'*Shaping*'*) *Note: also code one of 59-63*
14.5	*Rewarding completion*	Build up behaviour by arranging reward following final component of the behaviour; gradually add the components of the behaviour that occur earlier in the behavioural sequence (includes *'*Backward chaining') *Note: also code one of 10.2, Material reward (behaviour); 10.3, Non-specific reward; 10.4, Social reward, 10.9, Self-reward; 10.10, Reward (outcome)*
14.6	*Situation-specific reward*	Arrange for reward following the behaviour in one situation but not in another (includes *'*Discrimination training') *Note: also code one of 10.2, Material reward (behaviour); 10.3, Non-specific reward; 10.4, Social reward, 10.9, Self-reward; 10.10, Reward (outcome)*
14.7	*Reward incompatible behaviour*	Arrange reward for responding in a manner that is incompatible with a previous response to that situation (includes *'*Counter-conditioning') *Note: also code one of 10.2, Material reward (behaviour); 10.3, Non-specific reward; 10.4, Social reward, 10.9, Self-reward; 10.10, Reward (outcome)*

14.8	*Reward alternative behaviour*	Arrange reward for performance of an alternative to the unwanted behaviour (includes *'*Differential reinforcement*'*) *Note: also code one of 10.2, Material reward (behaviour); 10.3, Non-specific reward; 10.4, Social reward, 10.9, Self-reward; 10.10, Reward (outcome); consider also coding 1.2, Problem solving*
14.9	*Reduce reward frequency*	Arrange for rewards to be made contingent on increasing duration or frequency of the behaviour (includes *'*Thinning*'*) *Note: also code one of 10.2, Material reward (behaviour); 10.3, Non-specific reward; 10.4, Social reward, 10.9, Self-reward; 10.10, Reward (outcome)*
14.10	*Remove punishment*	Arrange for removal of an unpleasant consequence contingent on performance of the wanted behaviour (includes *'*Negative reinforcement')
15. Self-belief		
15.1	*Verbal persuasion about capability*	Tell the person that they can successfully perform the wanted behaviour, arguing against self-doubts and asserting that they can and will succeed
15.2	*Mental rehearsal of successful performance*	Advise to practise imagining performing the behaviour successfully in relevant contexts
15.3	*Focus on past success*	Advise to think about or list previous successes in performing the behaviour (or parts of it)
15.4	*Self-talk*	Prompt positive self-talk (aloud or silently) before and during the behaviour
16. Covert learning		
16.1	*Imaginary punishment*	Advise to imagine performing the unwanted behaviour in a real-life situation followed by imagining an unpleasant consequence (includes *'*Covert sensitisation')
16.2	*Imaginary reward*	Advise to imagine performing the wanted behaviour in a real-life situation followed by imagining a pleasant consequence (includes *'*Covert conditioning')
16.3	*Vicarious consequences*	Prompt observation of the consequences (including rewards and punishments) for others when they perform the behaviour *Note: if observation of health consequences, also code 5.1, Information about health consequences; if of emotional consequences, also code 5.6, Information about emotional consequences, if of social, environmental or unspecified consequences, also code 5.3, Information about social and environmental consequences*

Appendix C: Case Note Evaluation Data Collection Tool

Date of review:							
Demographic							
1.1	Gender				Male	Female	
1.2	Age		1.3	Age at first placement			
1.4	Is the young person accommodated out of area?				Yes	No	
1.5	Placement location?				Leicester City	Leicestershire	
1.6	Placement provider type?				Local authority	Private/third sector	
1.7	Are there any current physical health problems? (detail)						
1.8	Are there any current emotional/mental health problems? (detail)						
Smoking-related recording							
2.1	Has a Health Assessment been completed in last 12 months?				Yes	No	
a	If no, if there evidence to suggest a reason for non-completion?				Yes	No	
b	If yes, detail						
2.2	Health assessment completed by whom?				Doctor	Nurse	N/A
2.3	Has the young person's smoking status been recorded?				Yes	No	
a	If no, is a reason stated?				Yes	No	
b	If yes, detail.						
2.4	Is the young person a smoker?				Yes	No	N/A
a	If yes, is consumption recorded?				Yes	No	

b	If yes, detail.			
2.5	If the young person is a smoker, has a discussion about smoking taken place?	Yes	No	N/A
a	If no, is a reason stated	Yes	No	
b	If yes, detail			
2.6	Has the young person received brief advice relating to smoking?	Yes	No	N/A
a	If no, if there evidence for non-completion?	Yes	No	
b	If evidenced, detail			
2.7	Has the young person been offered support/treatment for tobacco dependence?	Yes	No	N/A
a	If no, if there evidence for non-completion?	Yes	No	
b	If evidenced, detail.			
2.8	Was treatment/support accepted?	Yes	No	N/A
a	If no, is there evidence of the reason treatment/support not accepted?	Yes	No	
b	If evidenced, detail.			
c	If treatment/ support was accepted detail type.			

Appendix D: Survey Tool: Residential Care Officers

Please indicate which local authority operates the looked after children's home where you work			
Derby City Council	☐	Lincolnshire County Council	☐
Derbyshire County Council	☐	Northamptonshire County Council	☐
Leicester City Council	☐	Nottingham City Council	☐
Leicestershire County Council	☐	Nottinghamshire County Council	☐

Information about you

1	Are you	Male	☐
		Female	☐

	What is your age?					
2	19 or under	20-29	30-39	40-49	50-59	60-69
	☐	☐	☐	☐	☐	☐

3	Smoking status	Current smoker **(Go to Q4)**	☐
		Ex-smoker **(Go to Q9)**	☐
		Never smoker **(Go to Q9)**	☐

Questions about smoking

	Please say how many cigarettes you smoke each day?			
4	1-10	11-20	21-30	31 or more
	☐	☐	☐	☐

	How soon after you wake do you smoke your first cigarette?			
5	Within 5 minutes	6-30 minutes	31-60 minutes	More than 60 minutes
	☐	☐	☐	☐

6	Do you smoke during your working day?	Yes	☐
		No	☐

	When you smoke at work, where in the home do you smoke? Please tick all that apply.				
7	Inside the home	Out of a window	Out of a door	In the garden	On the street outside
	☐	☐	☐	☐	☐

	Within your working hours, do you smoke in sight of young people?			
8	Always	Often	Occasionally	Never
	☐	☐	☐	☐

Questions about your exposure to second hand smoke

9	Is smoking accepted/permitted in the home where you work?	Yes	☐
		No	☐

10	I often see other members of staff smoking in the home (including the outside areas).				
	Always	Often	Occasionally	Never	Don't know
	☐	☐	☐	☐	☐

11	I often see LACYP smoking in the home (including the outside areas).				
	Always	Often	Occasionally	Never	Don't know
	☐	☐	☐	☐	☐

12	I often see visitors smoking in the home (including the outside areas).				
	Always	Often	Occasionally	Never	Don't know
	☐	☐	☐	☐	☐

13	Within my role, I often travel in a vehicle where someone is smoking.				
	Always	Often	Occasionally	Never	Don't know
	☐	☐	☐	☐	☐

14	I believe that exposure to other people's cigarette smoke is harmful to health.	True	☐
		False	☐

About your professional practice related to smoking

15	Are you aware of any policies in the home where you work relating to smoking?	Yes **(Got to Q17)**	☐
		No. **(Go to Q18)**	☐
		Unsure. **(Go to Q18**)	☐

16	Using the box below, please say which policies you are aware of?

17	Are you aware of a specific policy for LACYP in relation to smoking within the home where you work?	Yes. **(Got to Q19)**	☐
		No. **(Go to Q20)**	☐
		Unsure. **(Go to Q20)**	☐

18	Using the box below, please say which policies you are aware of?

19	Have you received any training about smoking in your role?	Yes. **(Go to Q21)**	☐
		No. **(Go to 23)**	☐

20	Using the box below, please say the type(s) of training you have received?

21	Out of 100 young people in the general UK population, how many do you think smoke? Please write a number between 1 and 100.	

22	Out of 100 young people living in children's residential units how many do you think are smokers? Please write a number between 1 and 100.	

23	Please indicate your level of agreement with the following statements. Tick only one option for each statement.

a	I feel it is important to address smoking among LACYP.

	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
	☐	☐	☐	☐	☐

b	I feel it is in my remit as a social care professional to help LACYP support them to quit.				
	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
	☐	☐	☐	☐	☐

c	I feel that I have enough knowledge of smoking and its treatments to provide young people with information about smoking.				
	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
	☐	☐	☐	☐	☐

d	I regularly give LACYP advice about the benefits of quitting smoking.				
	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
	☐	☐	☐	☐	☐

e	I feel comfortable discussing smoking with young people in my role.				
	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
	☐	☐	☐	☐	☐

f	I would be confident in supporting young people in stopping smoking.				
	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
	☐	☐	☐	☐	☐

g	Looked after young people have greater problems than tobacco use to deal with.				
	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
	☐	☐	☐	☐	☐

h	Smoking can be a gateway to other risky health behaviours.				
	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
	☐	☐	☐	☐	☐

i	Smoking can contribute to poor health social outcomes among LACYP later in life.				
	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
	☐	☐	☐	☐	☐

j.	Smoking can contribute to poor social outcomes among LACYP later in life.				
	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
	☐	☐	☐	☐	☐

24	Please say whether you believe the following statements to be true or false in the unit where you work. Tick only one option. Choose not applicable if none of the young people in the home where you work smoke.

a	Smoking by young people is regularly a source of tension in the home.

	True	False	Not applicable
	☐	☐	☐

	Tobacco is used as a tool to negotiate behaviour in the home.		
	True	False	Not applicable
b	☐	☐	☐

	I have experienced aggressive or violent behaviours from young people over smoking.		
	True	False	Not applicable
c	☐	☐	☐

	Cigarettes and tobacco contribute to bullying and other anti-social behaviour among LACYP in the home.		
	True	False	Not applicable
d	☐	☐	☐

25	Please indicate how effective you feel each of these options would be in addressing smoking by young people in children's homes. Tick only one option.

	To provide young people with information on the dangers of smoking and smoking cessation on moving in to the home.			
	Very effective	Effective	Somewhat effective	Not effective
a	☐	☐	☐	☐

	Tobacco awareness sessions for young people and staff.			
	Very effective	Effective	Somewhat effective	Not effective
b	☐	☐	☐	☐

	Information and resources made available to staff to assist in supporting young people to quit.			
	Very effective	Effective	Somewhat effective	Not effective
c	☐	☐	☐	☐

	Creating smoke-free environments for LAC.			
	Very effective	Effective	Somewhat effective	Not effective
d	☐	☐	☐	☐

	Challenging the attitudes of LAC and staff with regards to smoking			
	Very effective	Effective	Somewhat effective	Not effective
e	☐	☐	☐	☐

	A tailored referral pathway to stop smoking services for LAC.			
	Very effective	Effective	Somewhat effective	Not effective
f	☐	☐	☐	☐

Thank you very much for your help!

Appendix E: Letter of favourable ethical opinion (Survey)

Direct line/e-mail
+44 (0) 115 8232561
Louise.Sabir@nottingham.ac.uk

The University of Nottingham

Faculty of Medicine and Health Sciences

Research Ethics Committee
School of Medicine Education Centre
B Floor, Medical School
Queen's Medical Centre Campus
Nottingham University Hospitals
Nottingham
NG7 2UH

17th September 2014

Lisa Huddlestone
PhD Student
Division of Epidemiology & Public Health
Clinical Sciences Building
City Hospital Campus
Nottingham University Hospitals
Hucknall Road
NG5 1PB

Dear Lisa

Ethics Reference No: A11092014 SoM EPH **– please always quote**
Study Title: Developing and evaluating a complex intervention to reduce tobacco use within residential homes for looked after children and young people: A Survey of residential care workers in the East Midlands.
Chief Researcher/Academic Supervisor: Dr Elena Ratschen, Lecturer in Tobacco Control, Dr Catherine Pritchard, Associate Professor, Division of Epidemiology & Public Health, School of Medicine.
Other key researchers/student: Lisa Huddlestone
Duration of Study: 10/14-12/14 2mths **No of Subjects:** 400 (+18 yrs)

Thank you for your recent application which was considered by the Committee at its meeting on 11th September 2014 and the following documents were received:

Tobacco and LACYP: A Survey of Residential Care Workers:
- FMHS Research Ethics Application form dated 8/11/2014
- - Protocol Draft version 1.0, Final Version 1.0 date 01/08/2014
- Invitation/Info Sheet, Final version 1.0 Date 08/08/2014
- Tobacco Use in Children's Homes Survey Tool. Final Version 1.0 Date: 08/08/2014.
- Prize draw reply slip.

These have been reviewed and the study was approved.

Approval is given on the understanding that the Conditions of Approval set out below are followed.

1. You must follow the protocol agreed and inform the Committee of any changes using a notification of amendment form (please request a form).

2. You must notify the Chair of any serious or unexpected event.

3. This study is approved for the period of active recruitment requested. The Committee also provides a further 5 year approval for any necessary work to be performed on the study which may arise in the process of publication and peer review.

4. An End of Project Progress Report is completed and returned when the study has finished (Please request a form).

Yours sincerely



Dr Clodagh Dugdale
Chair, Faculty of Medicine & Health Sciences Research Ethics Committee

Appendix F: ADCS Letter of favourable opinion (Survey)

ADCS
Leading Children's Services

Lisa Huddlestone
Division of Epidemiology & Public Health,
University of Nottingham
Clinical Sciences Building,
City Hospital Campus,
Hucknall, Road,
Nottingham, NG5 1PB.

By email

25 September 2014

Dear Lisa,

Request for ADCS research approval – University of Nottingham – Developing and evaluating a complex intervention to reduce tobacco use within residential homes for looked after children and young people: A survey of residential care workers in the East Midlands

ADCS ref: RGE140922

I write on behalf of Sue Wald, Chair of the ADCS Research Group regarding your request for research approval for the above named project.

The Research Group has considered your request and given its approval believing that the results of the project will be useful to local authorities. We would be grateful if when contacting local authorities you would quote the reference above.

The Group's encouragement to respond to the survey will be communicated to ADCS members in local authorities in England in the next edition of the ADCS weekly e-bulletin which is produced and circulated on Friday afternoons. A list of approved research projects can be found on the ADCS website. The Research Group wishes you well with the project.

As mentioned in the ADCS Guidelines for Research Approvals, please send the Research Group a copy of the full report and the summary of your main findings when the research is complete.

If you have any queries about this feedback, please contact me in the first instance.

Yours sincerely

Gary Dumbarton, **on behalf of Sue Wald, Chair of the ADCS Research Group**

The Association of Directors of Children's Services
Research Group, The ADCS Ltd, Piccadilly House, 49 Piccadilly, Manchester, M1 2AP
Tel: 0161 826 9484 Email: research@adcs.org.uk Website: www.adcs.org.uk/research
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Appendix G: Letter of favourable opinion (Unit manager interviews)

The University of Nottingham

Faculty of Medicine and Health Sciences

Research Ethics Committee
School of Medicine Education Centre
B Floor, Medical School
Queen's Medical Centre Campus
Nottingham University Hospitals
Nottingham
NG7 2UH

Direct line/e-mail
+44 (0) 115 8232561
Louise.Sabir@nottingham.ac.uk

27th January 2015

Lisa Huddlestone
PhD Student, Room C109
Division of Epidemiology & Public Health
Clinical Sciences Building
City Hospital Campus
Nottingham University Hospitals
Hucknall Road
Nottingham
NG5 1PB

Dear Lisa

Ethics Reference No: J15012015 SoM EPH – please always quote
Study Title: Tobacco use in residential children's homes: Semi-structured interviews to explore the experiences of 6 home managers in the East Midlands.
Chief Researcher/Academic Supervisor/s: Dr Elena Ratschen, Lecturer in Tobacco Control, Dr Cath Pritchard, Associate Professor, Division of Epidemiology & Public Health, School of Medicine.
Co Researcher/student: Lisa Huddlestone, PhD Student, Division of Epidemiology & Public Health, School of Medicine
Duration of Study: 02/2015-04/2015 2mths **No of Subjects:** 6

Thank you for submitting the above application which has been reviewed by the Committee and following documents were received:

Tobacco use in residential children's homes: Semi-Structured interviews to explore the experiences of 6 home managers in the East Midlands:

- FMHS Research Ethics application form 14/1/2015
- Protocol final version 1.0 14 January 2015
- E-mail Invitation Letter to be sent via the Local Authorities version 1, 14/01/2014
- Participant Information Sheet (CHM) Final Version 1.1 Date: 14/01/2015
- Consent form Final Version 1.1: date 14/01/2015
- CRF: Children's Home Managers
- Interview Schedule, date: 14/01/2015

These have been reviewed and are satisfactory and the study is approved.

Approval is given on the understanding that the Conditions of Approval set out below are followed.

1. You must follow the protocol agreed and inform the Committee of any changes using a notification of amendment form (please request a form).

2. You must notify the Chair of any serious or unexpected event.

3. This study is approved for the period of active recruitment requested. The Committee also provides a further 5 year approval for any necessary work to be performed on the study which may arise in the process of publication and peer review.

4. An End of Project Progress Report is completed and returned when the study has finished (Please request a form).

Yours sincerely



Dr Clodagh Dugdale
Chair, Faculty of Medicine & Health Sciences Research Ethics Committee

Appendix H: Letter of favourable opinion (RCO interviews)

The University of Nottingham

Faculty of Medicine and Health Sciences

Research Ethics Committee
School of Medicine Education Centre
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Louise.Sabir@nottingham.ac.uk

20th May 2015

Lisa Huddlestone
PhD Student
Division of Epidemiology & Public Health
Room C109, Clinical Sciences Building
City Hospital Campus
Nottingham University Hospitals
Hucknall Road
NG5 1PB

Dear Lisa

Ethics Reference No: A14052015 SoM EPH – please always quote
Study Title: Tobacco use in residential children's homes: A qualitative exploration of the experiences of residential care workers.
Chief Researcher/Academic Supervisors: Dr Elena Ratschen, Lecturer in Tobacco Control, Dr Cath Pritchard, Associate Professor, Division of Epidemiology & Public Health, School of Medicine.
Lead Researcher/Student: Lisa Huddlestone, PhD Student, Division of Epidemiology & Public Health, School of Medicine.
Duration of Study: 05/2015-07/2016 2 mths **No of Subjects:** 24 (+18yrs)

Thank you for submitting the above application which was reviewed by the Committee at its meeting on 14th May 2015 and the following documents were received:

Smoking in children's homes: interviews with care staff.

- FMHS Research Ethics Application Form dated 20/04/2015
- Protocol Final Version 1.0 date 10.04.2015
- Invite letter to care staff dated 10.04.2015
- Participant Information Sheet Final version 1.0 Date 10/04/2015
- Consent Form Final Version 1.0, Date: 10/04/2015
- CRF: Residential Staff, date 10/04/2015
- Interview Schedule, date 10/04/2015

These have been reviewed and are satisfactory and the study is approved.

Approval is given on the understanding that the Conditions of Approval set out below are followed.

1. You must follow the protocol agreed and inform the Committee of any changes using a notification of amendment form (please request a form).

2. You must notify the Chair of any serious or unexpected event.

3. This study is approved for the period of active recruitment requested. The Committee also provides a further 5 year approval for any necessary work to be performed on the study which may arise in the process of publication and peer review.

4. An End of Project Progress Report is completed and returned when the study has finished (Please request a form).

Yours sincerely



Dr Clodagh Dugdale
Chair, Faculty of Medicine & Health Sciences Research Ethics Committee

Appendix I: Stakeholder consultation: Questionnaire

ABOUT YOU				
Professional Role	Elected Representative	☐	Social Worker	☐
	LAC Services Manager	☐	IRO	☐
	Residential Unit Manager	☐	Residential Care Officer	☐
	Children's services leader	☐	LAC Nurse	☐
	Stop smoking service representative	☐	Other (if other please detail below)	☐
	If other, please state.			

Gender	Male	☐	Female	☐

Age range	Under 20	20-29	30-39	40-49	50-59	60-69	70 or over
	☐	☐	☐	☐	☐	☐	☐

Cigarette smoking status	Never smoker	☐	
	Former smoker	☐	
	Current smoker	☐	

ATTITUDES REGARDING TOBACCO USE BY RESIDENTIAL LAC

Below are a number of statements regarding attitudes towards smoking by LAC placed in residential units? Please read each one and indicate to what extent you agree or disagree with each statement.

	Strongly agree	**Agree**	**Undecided**	**Disagree**	**Strongly disagree**
It is important to address tobacco smoking by LAC.	☐	☐	☐	☐	☐
It is within my remit of responsibility to address tobacco use by LAC.	☐	☐	☐	☐	☐
Tobacco use by LAC is implicated in poor health and social outcomes.	☐	☐	☐	☐	☐
LAC have greater issues to deal with than addressing tobacco dependence.	☐	☐	☐	☐	☐
More should be done to address tobacco use by LAC.	☐	☐	☐	☐	☐

Appendix J: Stakeholder consultation: Show cards

1. Please rank the following solutions to addressing smoking in residential units for LAC in order of **priority**. *1 = least important to 5 = most important*

Area addressed by the Smoke-free LACYP Strategy	Rank
Implementation of completely smoke-free residential units for LAC	
Pathways and processes to identify LAC who smoke and which encourage and support smoking cessation among LAC	
Strategies to address the wider harms of tobacco use by LAC	
Training and development of residential carers in smoking and smoking cessation	
Educating LAC about the harms of smoking and the benefits of quitting	

2. Please say in your opinion, what you believe the top 5 **facilitators** to changing behaviours related to tobacco use within residential units for LAC may be.

1.	
2.	
3.	
4.	
5.	

Please use the box below to provide any additional information

3. Please say in your opinion, what you believe the top 5 **challenges** to changing behaviours related to tobacco use within residential units for LAC may be.

1.	
2.	
3.	
4.	
5.	

Please use the box below to provide any additional information

4. Please say, in your opinion, what you believe the top 5 **barriers or challenges** to implementing an intervention to address tobacco use within residential units for LAC.

1.	
2.	
3.	
4.	
5.	

Please use the box below to provide any additional information

5. Please say, in your opinion, what you believe the top 5 **facilitators or enablers** to implementing an intervention to address tobacco use within residential units for LAC.

1.	
2.	
3.	
4.	
5.	

Please use the box below to provide any additional information

Appendix K: Letter of favourable opinion (stakeholder consultation)

The University of Nottingham

E-mail: FMHS-ReschEthics@nottingham.ac.uk

Faculty of Medicine and Health Sciences

Research Ethics Committee
C/o Faculty PVC Office
School of Medicine Education Centre
B Floor, Medical School
Queen's Medical Centre Campus
Nottingham University Hospitals
Notting ham
NG7 2UH

10th January 2017

Lisa Huddlestone (PhD Student)
The University of Nottingham
Division of Epidemiology & Public Health
Clinical Sciences Building, City Hospital Campus
Hucknall Road
Nottingham
NG5 1PB

Dear Ms Huddlestone

Ethics Reference No: J15102016 — **please always quote**	
Study Title: Developing a complex intervention to address tobacco use within residential units for looked-after children: A knowledge transfer stakeholder consultation. **Short Title:** Tobacco and LAC: A stakeholder consultation	
Chief Investigator/Supervisor: Dr Catherine Pritchard, Non-clinical Assistant Professor, Division of Epidemiology & Public Health.	
Lead Investigators/student: Lisa Huddleston, PhD Student Division of Epidemiology & Public Health.	
Other Key Investigators: Dr Elena Ratschen (Co-supervisor), Senior Lecturer in Health Services Research, The University of York, Department of Health Sciences, Faculty of Sciences.	
Type of Study: Stakeholder Consultation/Service Evaluation Workshop	
Proposed Start Date: 01/09/2016	**Proposed End Date:** 31/3/17 6 months
No of Subjects: 25	**Age:** 18+years
School: Medicine	

Thank you for submitting the above application which does not require full research ethics committee review because it is a Stakeholder consultation workshop. The following documents were received:

Short Title: Tobacco and LAC: A Stakeholder Consultation:

- Protocol Final version 1.0 Date 09/09/2016
- Workshop invite and Information Sheet v1.0 09/09/2016
- Workshop consent form v1.0 12/09/2016

These have been reviewed and are satisfactory and this stakeholder consultation as part of your PhD studies has been noted and given a favourable opinion.

Yours sincerely

pp

Professor Ravi Ravi Mahajan
Chair, Faculty of Medicine & Health Sciences Research Ethics Committee