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Appendix material

Locked out? Prisoners' use of hospital care

Miranda Davies, Lucina Rolewicz, Laura Schlepper
and Femi Fagunwa

nuffieldtrust

About this appendix

Using a novel approach involving the linking of data on prisoners' residences to their use of NHS hospital services, this research provides new insights into prisoners' use of secondary health care.

This appendix document provides detailed information on the mixed-methods research approach used. The main report and accompanying summary can be accessed at www.nuffieldtrust.org.uk/locked-out

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Appendix A: Literature review

Executive summary

For this research we conducted a rapid review of the literature, focusing on the physical health care needs of prisoners in England and Wales and the quality of health care provision in prisons, drawing on evidence from 2006 onwards when the NHS took over the commissioning and delivery of health care in the secure estate from the Prison Medical Service.

The literature on prisoners' physical health care needs highlights issues that place significant pressure on health care services, in particular needs associated with drug and alcohol abuse. Prison health care has a role to play in addressing these issues but also those related to sexual health and the spread of communicable diseases such as blood-borne viruses. Tackling these problems can have a positive impact not only on the prisoner population but also on broader population health.

The needs of specific groups within the prison population, such as older prisoners, are an area of focus in the literature. There are key concerns around the ability of the prison environment to physically adapt to the needs of prisoners with limited mobility, as well as ensuring that guidelines on meeting the health care needs of older prisoners are in place. This is particularly important for prisoners with dementia or palliative care requirements.

Literature on the quality of prison health care documents the impact of the NHS taking on the commissioning and delivery of health care in prisons, which was seen at the time to present some risks to care quality as well as opportunities for improving the health of an underserved population. The nature of the prison environment means that having good-quality care can sometimes be challenging, with issues including security constraints, lack of staff availability and financial limitations. There are also quality concerns

around the continuity of care, either when prisoners leave the estate at the end of their sentence to return home or when they move between prisons, particularly in terms of ongoing access to medication.

The literature review evidence consisted primarily of commentary and discussion documents or small-scale research and so the ability to generalise the findings to make broader conclusions about the physical health of prisoners in England and Wales is limited.

It is noticeable that there are areas where publicly available evidence about prisoners' health care needs is lacking or minimal, such as the health care needs of prisoners with learning disabilities or pregnant women. There is also little or no quantitative descriptive data on prisoners' physical health care needs at a *national* level, highlighting a wider issue about the nature of available evidence and the extent of generalisability.

The next stage of our research used routine data (Hospital Episode Statistics) to look at prisoners' use of hospital services and drew on the findings of this literature review to determine gaps in knowledge about prisoners' physical health that can be further explored (see Appendix B).

Introduction

In November 2018, the prison population of England and Wales was more than 83,000 (GOV.UK, 2018b). Over the past five to 10 years, the average size of the prison population has remained fairly consistent (House of Commons Health and Social Care Committee, 2018), but despite this, 58% of prisons are classified as overcrowded (House of Commons Library, 2018). This pressure on the prison system needs to be considered in the context of the historical growth in the size of the prisoner population, which has increased to current levels from an average of 44,975 in 1990 (Allen and Dempsey, 2016).

Although imprisonment results in deprivation of freedom, prisoners have the same rights to health care as those not in custody in that health services should be accessible to them and of a comparable quality (GOV.UK, 2018a; Penal Reform International, 2016; UNODC and others, 2013). Today, the commissioning of health care services in prisons and other secure facilities

in England is the responsibility of NHS England Health and Justice (NHS England, no date). Public Health England's (2016b) rapid review of evidence concluded that while it was believed that care had improved since the NHS had taken over the commissioning and delivery of health care from the Prison Medical Service in 2006, there was minimal quantitative data to demonstrate how the quality of care had changed.

Aside from the statutory and humanitarian motivation to meet the health care needs of people in prison, there are potential wider benefits to society, if by addressing them prisoners are less likely to reoffend. When followed up over a 12-month period, those who were released from custody or received a non-custodial conviction/caution between October and December 2016 had a reoffending rate ranging from 28.6% to 64.5% depending on whether they were classified as adults or young people and their sentence length (Ministry of Justice, 2018c). MacAskill and others (2011) reported that 40% of new arrivals at a prison in Scotland who undertook screening for alcohol problems using the Alcohol Use Disorders Identification Test (AUDIT) said that alcohol was a factor in their initial offence. Although, currently, data are not collected to explore the relationship between specific health interventions and reoffending, if targeting health issues reduces reoffending, this would in turn mean fewer future victims of crime and a reduced cost to the general public of people being in prison. Addressing health-related behaviours seen to be linked to offending, such as alcohol and drug use, is one of the objectives of the *National Partnership Agreement for Prison Healthcare in England: 2018–2021* (HM Government, 2018).

The literature on prisoners' health care needs tends to be focused on mental health, substance abuse and communicable diseases, underpinned by discussion of the impact of social inequality on the unmet needs of people entering prison and how they can be addressed. Evidence about prisoners' physical health is primarily drawn from international studies (see Fazel and Baillargeon, 2011) or studies conducted quite a number of years ago, before the NHS took over health care commissioning and delivery in prisons, such as the 1994 'Survey of the Physical Health of Prisoners' carried out by the-then Office for Population Censuses and Surveys (as cited in Condon, 2007).

Watson and others (2004) conducted a broad literature review of prison health care, drawing on international material published between 1991 and 2002. The aim was to provide important contextual information about the health of prisoners to influence how NHS health care would be provided in prisons following the change in responsibility for the commissioning and delivery of care. The current review focuses on evidence from research and work specific to prisons and secure establishments in England and Wales *since* the NHS took over health care commissioning and delivery in 2006, to provide evidence about prisoners' physical health needs in a more up-to-date policy context.

Research questions

We had two research questions:

- Research question 1: What are the physical health care needs of prisoners in England and Wales?
- Research question 2: What do we know about the quality of health care in the secure estate in England and Wales?

Methodology

We chose a rapid review approach to identify materials relating to the physical health of prisoners and the quality of health care in prisons in England and Wales. We carried out the review using electronic databases accessible via the Health Services Management Centre at the University of Birmingham, which included CINAHL (Cumulative Index to Nursing and Allied Health Literature), Embase, HMIC (Health Management Information Consortium), MEDLINE, PubMed and the Social Sciences Citation Index. We also reviewed 'grey' literature, specifically focusing on content from organisations that had submitted evidence to the House of Commons Health and Social Care Committee's (2018) inquiry into prisoner health. In addition, we examined documents listed on the Offender Health Research Network's website (www.ohrn.nhs.uk). Finally, we hand searched reference lists of included studies to ensure we did not overlook relevant studies.

Inclusion criteria were, among others, that each publication must relate to a secure estate setting in England and Wales, and that the date of publication must be from 2006 onwards. We excluded material focusing exclusively on children in secure children’s homes and we also excluded articles that referred solely to prisoners’ mental health needs, given that the focus of our research was on physical health.

Search terms included references to:

- the establishment – prison/secure estate/immigration removal centre/young offender institution/secure training centre
- the individual – prisoner/people in prison/detainee
- health (both general and specific) – health/health care/palliative care/communicable diseases/non-communicable diseases/maternal health/women’s health.

It is important to clarify that immigration removal centres are not prisons, but a proportion of those in the centres who are awaiting deportation may be ex-prisoners – for instance, an inspection of Morton Hall Immigration Removal Centre in 2016 reported that 50% of detainees were previously in prison (HM Inspectorate of Prisons, 2016). Where possible, appropriate terminology is used throughout this literature review to refer to people in distinct settings, and while a broad description of the review refers to ‘prisoners’, it is acknowledged that the focus is broader in practice.

The initial search identified 356 articles. Authors MD, FF and LS reviewed the article titles and excluded those that referred solely to mental health, leaving 116 articles. After removing duplicates, they reviewed the abstracts to exclude articles not directly relevant to the physical health of prisoners in England and Wales or quality of care (for instance, articles addressing mental health, personality disorders or areas not directly related to health such as sentencing, probation or staffing), which left 50 articles. MD, FF and LS agreed as a group the articles that did not meet the defined inclusion criteria. The addition of articles derived from a review of the grey literature and hand searching of references to ensure relevant material was not missed resulted in a final total of 89 articles being reviewed. MD, FF and LS independently read the full text of a third each of the final articles. They recorded pertinent details about each article on an Excel spreadsheet to aid the write-up of the literature review.

They met as a group on a regular basis during the review period to discuss each article and agree on the emphasis in the literature on key aspects of prisoners' physical health care needs and quality of care. A log of discussions was maintained in a Word document and updated after each meeting, and this formed the basis of the literature review themes highlighted.

A draft of the literature review was sent to an expert panel of individuals representing organisations working in the field of prisons and prisoner health. Comments from the expert panel were used to provide additional context for the review themes.

Research question 1: What are the physical health care needs of prisoners in England and Wales?

Health inequalities and prisoners' immediate health care needs

There are wide-ranging social-contextual factors that can impact on prisoners' general state of health, such as experience of abuse, having been taken into care in childhood, unemployment and homelessness (see the Prison Reform Trust's *Bromley Briefings*: Prison Reform Trust, 2018). Against a backdrop of these experiences, a central aspect of prisoner health literature addresses the high-volume health issues that place pressure on health care services (as well as the operation of prisons more broadly) when prisoners arrive at prison but also throughout their stay – in particular, issues related to alcohol and drug use and abuse.

HM Inspectorate of Prisons (2010), in its thematic review of women's prisons, reported on the results of inspection surveys conducted across 12 prisons between 2006 and 2008 involving a representative sample of female prisoners – 1,099 respondents in total – of whom 30% self-reported that they had arrived at prison with a drug problem and 19% self-reported that they had arrived with an alcohol problem. The report acknowledges that due to the self-reported nature of the data collection, the proportion of female prisoners with a drug or alcohol problem is in reality likely to be even higher.

Kissell and others (2014) conducted a prospective longitudinal study as part of which 241 newly remanded male prisoners completed questionnaires to explore their alcohol-related needs and illicit drug use during their first month of imprisonment – specifically, the Alcohol Use Disorders Identification Test (AUDIT) and the Drug Abuse Screening Test (DAST). They found that 81% of prisoners in their sample were classified as hazardous alcohol users on the AUDIT, with around half of those meeting the threshold for alcohol dependency. DAST indicated that 65% were hazardous illicit drug users, with around a third meeting the threshold for drug dependency. Co-morbidity (having both alcohol and drug problems at the same time) was common, with a majority of prisoners with alcohol problems using illicit drugs; however, around three-quarters of co-morbid users had main needs relating to alcohol dependence only.

The extent to which prisoners have access to alcohol interventions in prison is not clear, nor how provision varies between establishments. HM Inspectorate of Prisons' (2010) thematic review highlighted that while all the women's prisons had some kind of substance misuse policy, there was no consistent management of alcohol issues and generally there was a need for more alcohol services, as well as for services tailored specifically to the needs of women. Kissell and others (2014) found, in their study of remand prisoners, that very few alcohol-dependent remand prisoners without co-morbid drug dependency received help beyond pharmacological support for withdrawal. They highlight the limitation of prison programmes targeting those who misuse drugs or both drugs and alcohol, while those who have alcohol problems only are given little attention, despite problem drinking being a particular issue among this group (MacAskill and others, 2011).

Drug use is a key health care issue in the prison estate, in terms of both its impact on the health of those arriving at prison and the day-to-day impact of drug-taking in prison. The National Drug Treatment Monitoring System (NDTMS) provides figures on the numbers of people receiving treatment for drugs and alcohol in the secure estate in England Wales. The most recent report, relating to the 2016–17 period, documents that more than 55,000 prisoners were in contact with services due to drug or alcohol use, 50% of whom had needs related to the use of opiates (Public Health England and Department of Health and Social Care, 2018).

Although drug-taking is banned in prison, prisoners are increasingly using novel psychoactive substances such as ‘spice’ in particular (Ministry of Justice, 2015), which is challenging for health care services due to its unpredictable effects as well as for prison staff trying to maintain good order. There is limited evidence on the dose effects of different types of drugs used in the prison setting.

In 2013, approximately 10,000 prisoners were formally punished for drug offences (Ministry of Justice, 2015). It is clear therefore that even while in prison, drug use remains an issue, and that limiting the availability of drugs is key as well as adapting to the changing nature of drugs that are used recreationally in the prison estate.

Prison health care services face a unique challenge in that they have to address high levels of health need associated with drug and alcohol use and are not set up primarily to deal with what can be complex health requirements in these areas.

Preventative health care needs

Prisoners have often had limited contact with health care services, such as the dentist (Heidari and others, 2014), before entering prison, resulting in unmet need, which has to be managed.

Oral health

A number of articles in our review focused on prisoners’ oral health needs (Buchanan and others, 2008; Heidari and others, 2007; 2014; Marshman and others, 2014; Rouxel and others, 2013; Russell and others, 2006), and it is an area of significant concern, most likely reflective of the high level of unmet dental health needs of those entering prison.

Rouxel and others (2013) carried out a study at HMP Holloway, a women’s prison that closed in 2016, interviewing 103 female prisoners about their oral health behaviours and carrying out dental examinations. The authors reported that 96% had gingival bleeding (bleeding gums), which compares to only 55% of women in the Adult Dental Health Survey (ADHS), reflecting the oral health of women in the general population. The study also highlighted concerns about the oral and general health behaviours of prisoners. Two-thirds of

prisoners had a high sugar intake and were smokers, substantial higher than comparative levels reported in the ADHS. Also of interest is that the key reason prisoners went to see a dentist was because they were experiencing pain, 41%, compared with only 22% of the ADHS female population. As well as suggesting different usage patterns, this is likely to result in pressure on prison health services in terms of how to meet demand for emergency appointments.

However, there are issues regarding prisoners' access to dental care for both regular check-ups and emergency treatment. Rouxel and others (2013) reported that 48% of the prisoners sampled had been on the waiting list to see a dentist for between one and three months. Pain management is therefore a key issue as prisoners can experience a prolonged period of physical discomfort. Similar issues around accessing dentists promptly were highlighted in a qualitative study in which 31 prisoners at a young offender institution in the north-east of England took part in focus groups to discuss their thoughts about dental health both while in the young offender institution and before (Russell and others, 2006). They did not tend to see the dentist unless they were in pain as they perceived that it took so long to get an appointment that it was not worth trying.

In addition to difficulties in obtaining an appointment for a routine check-up, prisoners face challenges in actively engaging in preventative oral health care. Russell and others (2006) highlighted comments from young people that the toothbrush and toothpaste they are given on arrival at prison are of very poor quality, and so they have to get their own from the 'canteen' (the prison shop), which has limited choice, and there is also an impact in terms of the cost of purchasing these items.

Sexual health

Despite the challenges to prison health care services that addressing prisoners' pre-existing health needs present, there is also an opportunity to improve health if screening and treatment are effective, such as in the area of sexual health. Sexual health screening is not consistently provided in prison and is reliant on prisoners agreeing to be screened, thereby requiring education for both staff and prisoners so that they understand the benefits of such screening. Mahto and Zia (2008) conducted a case notes review of 545 women who had used a newly introduced dedicated sexual health service at HMP Styal, of whom 87% agreed to sexually transmitted infection (STI)

screening. It was reported that 19.6% had an STI. As with rates of alcohol and drug usage, it is likely that rates are higher in practice as these are figures from just one prison and they only reflect those prisoners who agreed to be tested.

Women’s physical health needs in terms of sexual health are also considered in a wider sense in the literature. Douglas and Plugge (2008) highlight the importance of young women in particular being informed about their sexual health so they can make decisions about their relationships, given that many will have experience of sexual exploitation.

It also important to consider the safety of sexual activity that takes place within prisons, particularly in the male estate (Stewart, 2007). Despite the fact that prisoners are not supposed to have sex, if they do, it is questionable whether such sex can be safe because of lack of access to contraception (Stevens, 2015). The disparity between official prison rules (that sex is not allowed) and the reality that it may be happening anyway, means that prison health care staff are reluctant to provide prisoners with condoms and prisoners are reluctant to ask for them (Stewart, 2007).

The Howard League established the Commission on Sex in Prison to complete a review of issues relating to sex taking place in prison in England and Wales, and there are briefing papers addressing consensual sex (Howard League, 2013), coercive sex (Howard League, 2014) and healthy sexual development (Stevens, 2015). These provide important context about prisoners’ experiences of sex while in prison and associated health needs.

Smoking

Smoking has been banned across the secure estate in England since April 2018 (O’Moore, 2018), but it still has a significant impact on prisoners in terms of the need for nicotine replacement therapy on arrival at prison and the well-documented associated health risks of smoking impacting on people’s general state of health. Prisoners commonly have a history of smoking. Reports from the time period when smoking was still allowed in prisons suggest that as many as 85% of prisoners are smokers (Plugge and others, 2009). This can be compared to 14.9% of adults in the general population in 2017 (NHS Digital, 2018c). It is also important to be aware that even though smoking is ‘officially’ banned in prisons, the extent to which prisoners are still smoking is not clear, and also exactly what they are smoking instead of tobacco. The 2018 *Bromley Briefings*

(Prison Reform Trust, 2018) highlight some of the possible implications of the smoking ban, in particular reports from inspectors of cases of abuse of nicotine replacement products as well as the lack of tobacco changing how prisoners use psychoactive substances. Without tobacco to mix in with these substances, they are being taken in a less diluted form, meaning their use is associated with more severe reactions.

Obesity and weight management

Obesity and weight management have also been examined in the context of prisoner health to consider the opportunities that prisons may offer to address unhealthy weight. The literature presents a mixed picture about weight management, with both obesity and prisoners who are underweight being a concern. When reporting on the findings of a study looking at the impact of imprisonment on cardiovascular disease risk factors, Plugge and others (2009) identified that, on arrival at prison, 29.5% of the 430 women who were weighed were overweight or obese, and 26.5% were underweight.

Aspects of the prison environment can make addressing weight from the traditional exercise and healthy diet perspective more problematic. For example, security constraints can limit opportunities to exercise if staff are not available to oversee activities. There is limited data on the extent to which prisoners have the opportunity to exercise. Survey data from HM Inspectorate of Prisons (2010) show that only 44% of women were able to go outside to exercise at least three times a week, but this was self-reported survey data and only addressed women's experiences. In their study, Plugge and others (2009) reported that women tended to have low self-reported activity levels on entry to prison and levels remained low after a month in prison.

Food choices in prison can also be limited, depending on the options that are available, and can contribute to weight gain, for example if prisoners choose unhealthy snacks. Addressing food availability presents an opportunity to promote healthy eating behaviour.

Communicable diseases

Much of the literature on the delivery of health screening in prison relates to blood-borne viruses such as the hepatitis C virus (HCV). If prisoners are injecting drugs, this places them at significantly greater risk of blood-borne

viruses such as HCV and hepatitis B (Department of Health, 2012). It is estimated that approximately 50% of people who inject drugs have been infected with HCV (Public Health England, 2018a). In 2013/14, only 8.6% of prisoners in England and 13.7% of prisoners in Wales were tested for HCV (Public Health England, 2016b). More recent figures from April to June 2017, from Health and Justice Indicators of Performance (HJIPS) (Public Health England, 2017b), show that of 46,693 new receptions and transfers to 112 prisons in England, 77% were offered a test for HCV, and of those, 24% received a test and 18% had a positive result.

The screening and treatment of prisoners with blood-borne viruses can minimise the spread of communicable diseases in the population when people leave prison, achieving what Public Health England (2017a) refers to as a ‘community dividend’. Despite prisoners’ risk factors for blood-borne viruses and the benefits to the wider population of treating prisoners to prevent others being exposed, there are concerns about low testing rates for HCV and other blood-borne viruses in prisons and the missed opportunity this presents (Craine and others, 2014).

There are two examples of studies carried out in England and Wales that have looked at the use of dried blood spot testing as an alternative to venepuncture to improve testing rates: Craine and others (2014) and Hickman and others (2008). Craine and others (2014) carried out a randomised controlled trial introducing dried blood spot testing in five prisons using a phased approach. Although the pooled results showed a higher testing rate, the results were not statistically significant. However, the authors noted that in four of the five prisons, routine HCV services had yet to be established and therefore general awareness raising was necessary as well as considering new approaches to testing.

The prison environment, which is overcrowded and has a high population turnover, presents challenges in relation to preventing the spread of communicable diseases (Viswanathan and others, 2011). Behaviours such as injected drug use and needle-sharing activities such as body piercing and tattooing in prison (Condon and others, 2006; Heidari and others, 2014; Viswanathan and others, 2011) can result in HCV transmission, and it appears there are challenges regarding awareness raising for prisoners and staff as well as approaches to testing. The move to an opt-out model, whereby prisoners are tested as a matter of routine unless they specifically decline (Public Health

England, 2018a), may increase testing rates in the long term if accompanied by an education strategy to avoid people declining without full information.

In terms of diarrhoea and vomiting outbreaks in prisons, data are available approximately monthly from Public Health England. The latest data show that there were three outbreaks in September 2018 (between weeks 36 and 39) (Public Health England, 2018b).

Specific physical health conditions

Diabetes

There is no publicly available, national-level data on the number of prisoners with diabetes, but figures from individual prisons or very small-scale research studies give an indication of a prevalence of between 4.8% (Mills, 2015) and 6% (Heidari and others, 2014). A Royal College of Nursing audit of diabetic services in prisons, conducted in 2009 (Booles, 2011), reported that of the 19 prisons that completed the audit questionnaire, 12 had 10 or more prisoners with diabetes in the previous 12 months. Public Health England (2016a) estimated that in England in 2015, approximately 9% of the adult population had diabetes. On the basis that one in four people lives with diabetes without knowing it (Public Health England, 2016a), it is likely that the prevalence of diabetics in prison is higher than the small-scale studies estimate, particularly due to the broader health issues affecting prisoners related to weight management, exercise and diet, which can increase the risk of type 2 diabetes in particular (see www.diabetes.org.uk).

The literature on diabetes in prison tends to focus on variation in condition management across prisons and the day-to-day challenges for prisoners who are diabetic. For example, Condon (2007) found that diabetes management varies from prison to prison, which presents a challenge for condition management at an individual level, particularly if people move from prison to prison. Some prisons have in-house diabetes support, while others require prisoners to attend appointments in outside hospital facilities (Mills, 2014). External management is in itself challenging as if prisoners have to go offsite (and this can be a problem even onsite to a degree), there are frequent appointment cancellations due to the lack of prison staff to provide escorts. Prisoners with diabetes also have associated health care needs regarding eye screening (Mills, 2014; Robson, 2011), yet there are difficulties in providing the

same level of eye screening as primary care or community clinic settings due to limited resources and security restraints.

Having a chronic health condition such as diabetes in prison is a prime example of where health care needs require interdisciplinary working between health care and prison staff to ensure effective management. In the case of diabetes, prison staff are generally not trained or prepared to identify or manage a hypoglycaemic attack (Mills, 2014). This can mean multiple trips to hospital to receive emergency care, which may not have been necessary if appropriate care or oversight was provided onsite. In HMP Risley, a 12-month study looking at the impact of a clinic providing specialist nurse-led diabetes care found that, compared with the same period of the previous year, the number of hospital admissions decreased by more than 50% and the number of hypoglycaemic episodes reduced from 17 to one (Mills, 2014).

Robson (2011) describes the challenges of diabetes health care in a prison setting, and again highlights that the presence of specialist staff can be beneficial. Specialist nurses can train and supervise health care staff working within prisons and meet the goal of providing personalised care, as test results can be discussed and individual treatment regimens agreed.

Another issue is that prisoners with diabetes are not able to make choices about their health or engage as effectively in self-management as they might if not in prison, something that has been highlighted in relation to other aspects of health care in prison such as weight management. Mills (2014) comments on the difficulties of managing diabetes in prison when people cannot necessarily have access to their own medication or manage their diet. The nature of the prison environment, where resources and opportunities to self-manage are limited, may also have unintended consequences for how health care staff interact with and provide advice to prisoners with diabetes.

The literature demonstrates that care for prisoners with diabetes can be challenging. The impact of different and inconsistent management approaches on outcomes for diabetic prisoners is not clear, but the small number of studies looking at the impact of in-house facilities for diabetes suggest they have potential for how care for diabetic patients across the prison estate might be organised more widely. It has been recommended that there should also be a standardised approach to diabetes care and that diabetes treatment needs to be

flexible and tailored towards an individual's needs (Mills, 2014; Robson, 2011), but as yet there are significant challenges to achieving this.

Pain management

Managing pain in prison is a recurring issue for prisoners when discussing access to care or the quality of care they receive (Zimmerman and others, 2012). There are high levels of chronic physical co-morbidity among prisoners but particularly among older ones (Croft and Mayhew, 2015; Senior and others, 2013), who may experience pain for a number of reasons, from long-term conditions to mobility problems. As highlighted in the context of oral health needs, in one study, pain was the most common reason cited for prisoners who wanted to see the dentist, and long waiting lists meant prolonged periods of pain without access to pain medication (Rouxel and others, 2013). The way in which pain is managed can have an impact on treatment approaches – for instance, prisoners choosing to have teeth extracted rather than experiencing pain (Heidari and others, 2014).

In a study conducted in two English prisons where Care UK (a private company) provided health care, one in five of all prisoners had been in receipt of medication daily for chronic non-cancer pain in the previous three months (Croft and Mayhew, 2015). Pain management is a complex issue in prison as there are challenges around whether prisoners are allowed access to certain pain medication they may have received in the community, as well as whether they are believed when they tell health care staff they are in pain. A study of experiences in young offender institutions regarding dental emergencies found that young people felt that their pain was not taken seriously, and they were commonly just prescribed paracetamol (Russell and others, 2006). Croft and Mayhew (2015) commented that although staff in their study had concerns about the resale of medication by prisoners and prisoners' motivations, the correlations between age-related use of medication of all types suggested that the need for chronic non-cancer pain medication was genuine.

Meeting the health care needs of specific groups within the prisoner population

Pregnant women

A written question to Parliament in 2018 confirms that data on the number of women in prison who are pregnant are collected quarterly (Ministry of Justice,

2018b); 93 women were recorded as pregnant in the reporting period ending 31 December 2017. Each year, it is believed that around 100 babies are born to female prisoners in England and Wales and around 600 pregnant women receive antenatal care, but exact figures are unknown (Galloway and others, 2014). Women in prison are among the most disadvantaged groups in society, suffering from multiple complex physical and mental health needs, including alcohol and drug addiction and common experiences of childhood sexual abuse and domestic violence (Abbott, 2018). However, research into the needs and experiences of pregnant women in prisons is scarce (Abbott, 2018).

In her ethnographic study in three prisons in England during 2015–16, Abbott (2018) explored women's experience of pregnancy in prison. She found a prison system failing to meet their unique physical and health care needs, dismissing maternal physiological changes of pregnancy, and putting women and their unborn babies at risk. Women were deprived of basic rights and experienced inconsistencies in the provision of entitlements, such as access to equivalent health care (including specialist care and vital medication), adequate food and nutrition (which resulted in weight loss) and lack of fresh air and suitable bedding. All of these exacerbated their physical discomfort and pregnancy pain. Moreover, painful and potentially life-threatening situations arose when untrained prison health care staff inappropriately assessed or dismissed extreme conditions of pregnancy, such as constant vomiting and nausea, or labour pain, resulting in dangerous births in prison cells without qualified assistance.

In addition, pregnant women experienced high levels of stress and anxiety, fuelled by the experience of imprisonment, a lack of safety and basic information, the humiliation of attending hospital in handcuffs and the anticipation of separation from their baby immediately after birth (Abbott, 2018). All of these stressors can also have adverse impacts on the health and development of the baby (Galloway and others, 2014).

Albertson and others (2012) identified barriers to providing appropriate care for pregnant women in their consultation study with prison and health care staff in the Yorkshire and the Humber region. These included lack of awareness and knowledge among prison staff, inconsistencies in maternity care provision and a lack of information sharing and collaborative working.

However, pregnancy in prison can also be an opportunity for change and health promotion if the right conditions and appropriate care and support are put in place (Abbott, 2018; Galloway and others, 2014). For instance, Abbott (2018) found that some women in her study became concerned about their health, diet and drug-taking in terms of keeping their unborn baby safe. This presents an opportunity for the prison system to foster positive changes in health behaviours and reform that benefit women themselves and society as a whole.

Older people

There is debate in the prisoner health literature about what it means to be an older person in prison, but older age is discussed in the context of prisoners aged 50 and over (Hayes, 2012; Ware, 2009) – earlier than when adults in the general population are generally classified as ‘older’. Older prisoners represent a growing proportion of the prisoner population and there is a body of literature on the needs of older prisoners and the challenges of providing care for this group. It is predicted that by June 2022 there will be 14,100 people aged 50 or over in prison, and of these, 5,600 will be aged 60 or over (Ministry of Justice, 2018a). Older prisoners can have significant physical health needs. In a study to explore the health and social care needs of older male prisoners, 93% of the participants reported physical health problems (Hayes, 2012).

Prisons can be a challenging physical environment for older people with a disability and/or mobility issues. In a report by Senior and others (2013) on a programme of work exploring the health and social care needs of older male prisons across England and Wales, 64% of health care managers interviewed (n=14) said there was a lack of lifts or ramps, while almost a quarter of prisoners interviewed reported that they used either a walking aid (19%) or a wheelchair (3%), raising questions as to how they were able to move around. On average, older prisoners had 2.7 unmet health care needs on entry to prison and they had more unmet needs on entry than at any point during their sentence.

Hayes and Shaw (2011) reported that staff in prison are not always aware of relevant national policy, such as the *National Service Framework for Older People* (Department of Health, 2001) and that older prisoners should receive the same level of care as older people in the community. The Department of Health’s (2007) *Pathway to Care for Older Offenders* was written in response to the *National Service Framework*, documenting the need for regular assessments to identify the needs of older prisoners. In Senior and others’

(2013) study, less than half of prisons provided health care staff with the necessary training to assess and care for older prisoners.

Older prisoners can find it difficult to access medication. Due to the lack of access to illicit drugs and the prevalence of people with substance misuse disorders, there is an increased misuse of prescribed medication among prisoners and a lack of trust between prison staff and prisoners (Sullivan and others, 2016). Sullivan and others (2016) looked at the experiences of older prisoners in accessing medication in 12 prisons across the north of England and the Midlands and prisoners commonly reported delays in obtaining medication and prescriptions for medication they had already accessed in the community. For some prisoners this led to pain and flare-ups for previously controlled chronic conditions. Changes to prescriptions also caused issues as prisoners were not necessarily told the reason for the change and viewed them as poor alternatives.

Providing adequate end-of-life care for older prisoners is also of growing concern, with issues around balancing security constraints with the dignity of prisoners. Prison health care staff have minimal experience of providing palliative care. There needs to be close collaboration between prisons and hospices if prisoners are to receive high-quality end-of-life care (Turner and others, 2011).

Much of the research on older prisoners focuses on male prisoners, with female prisoners being excluded from studies due to the low numbers of older women in prison (Hayes, 2012; Senior and others, 2013). So less is known about the health care needs of older female prisoners. HM Inspectorate of Prisons' (2010) report is an exception in that it provides a small amount of detail on the needs of these prisoners, highlighting that those aged over 50 were more likely to be on medication on arrival at prison than those aged under 50 but were less likely to have drug- or alcohol-related problems. It is important to highlight, however, that women aged over 50 represented only a small number of those surveyed (9%, n=97).

Immigration removal centre detainees

There is limited information on the physical health care needs of people held in immigration removal centres and the majority of the information available focuses on the needs of detained children and the impact of the detention

on them. This review considers the evidence specific to adults. In a study at Yarl’s Wood Immigration Removal Centre in 2006 (Lorek and others, 2009), there were reported concerns around poor nutrition and the impact of this on detainees’ health. For two out of the nine mothers at the time of the survey, their breast milk dried up, while one was worried about the quality of the milk they produced.

A study of former immigration centre detainees (n=30) (Zimmerman and others, 2012) found that 67% (n=20) entered detention with pre-existing physical or mental health conditions that required ongoing or new treatments. Of the participants, 53% (n=16) reported that they had physical health problems that arose during their time at the immigration removal centre, with all reporting that they experienced conditions causing pain while in detention. Access to services was also an issue, with 73% (n=22) not able to visit a GP or hospital despite needing too. Interestingly, 13% (n=4) of participants who had also been in prison, stated that they received better medical treatment in prison than in the immigration removal centre.

Health care in immigration removal centres is under the same NHS commissioning and delivery arrangements as those in prisons and so it is important to understand whether, and how, care differs. People in immigration centres tend to be particularly vulnerable, with limited options, and are unlikely to demand better health care services when being faced with possible deportation. While the limited research evidence and small sample sizes of work conducted mean it is difficult to generalise about health care in immigration removal centres, it is clear that there are particular challenges that warrant further investigation to ensure care is provided in the same way as it is for people in the community.

Young people

There is evidence to suggest that young prisoners have high rates of neurodisability (conditions involving the nervous system), including attention deficit hyperactivity disorder (ADHD) and traumatic brain injury. Similar to adult male prisoners, young male offenders have a high prevalence of traumatic brain injury (Chitsabesan, 2014).

In a study of traumatic brain injury among young prisoners (Chitsabesan and others, 2015), 82% of the 93 people assessed reported that they had experienced at least one brain injury and 55% said that they had experienced multiple brain injuries – 2.4 on average.

People in the prison estate who have neurodevelopmental issues require targeted support but there is a key challenge in terms of the timely identification of the needs of young prisoners. To enhance existing reception-screening practices for young people, the Offender Health Research Network developed the Comprehensive Health Assessment Tool (CHAT) to provide standardised health assessment for young people in four areas: physical health, mental health, substance misuse and neurodisability (Chitsabesan, 2014). CHAT was highlighted in multiple recommendations of the Lammy Review (Lammy, 2017) for outcomes for black, Asian and minority ethnic (BAME) people in the criminal justice system, highlighting the opportunities it offers to ensure that people have equal access to services as well as the value of developing a similar evaluation tool within the adult secure estate.

Studies on the specific health needs of young female prisoners highlight sexual health issues and substance misuse as key physical health concerns. In their study, Douglas and Plugge (2008) conducted interviews (n=16) and focus groups (n=2, 11 participants) with young women from four young offender institutions as well as professionals at each location. Both the young people and the professionals agreed that sexual health, mental health, substance abuse and self-harm were key areas of concern, but interestingly they had different priorities in terms of areas of highest need. Due to the difficult nature of their lives, the young people commonly arrived at the young offender institution in poor physical health (for instance, their hygiene needs not having been met), with complex care needs relating to drug and alcohol misuse. The professional interviewees raised the concern that without wider thought about continuity of care on release, the young women would remain at risk of being exploited (Douglas and Plugge, 2008).

Similar to addressing the physical health care needs of all groups within the prison estate, young female prisoners would seemingly positively benefit from a ‘compensatory care’ approach (Douglas and Plugge, 2008) to address health care needs linked to their past experiences.

Research question 2: What do we know about the quality of health care in the secure estate in England and Wales?

Health care quality and the policy context

It is believed that the quality of prison health care has improved since the NHS took over responsibility for the commissioning and delivery of health care in the prison estate from the Prison Medical Service in 2006 (Ginn, 2012; Leaman and others, 2017; Public Health England, 2016b). But it is important to consider how quality is determined and the level of evidence for assessing improvement. A number of commentary pieces capture the impact of the change of health care provision to NHS control and the potential risks to the quality of care despite perceived improvement. Davies (2013) provides an overview of current health care commissioning arrangements in England (see Davies, 2013, Figure 1), but highlights the risks of the changing structure of commissioning if local circumstances are not considered. An example is provided of the challenges of ensuring effective continuity of health care for prisoners in the north-east of England on release, where a large proportion leave prison to return to areas away from the local region, such as London.

The importance of partnership working for effective health care delivery – particularly between health care and prison services – is also stressed (Davies, 2013; Senior and others, 2012; Watson and others, 2004). For instance, prison service staff need to facilitate the movement of prisoners to health care appointments both inside and outside the prison; if staff are not available, this means health care cannot be accessed. Ginn (2012) discusses the difficulties of providing health care within prisons and identifies a key challenge of partnership working: meeting prisoners' health care needs will always fall secondary to maintaining security. Any discussion of the quality of health care therefore needs to be considered in the context of such constraints.

The movement of prison health care to an NHS responsibility represented a significant change and in this context an initial starting point when considering the quality of health care in prisons is the guidance contained in policy documents. The need for partnership working is an ongoing theme in discussions of prison health care and policy documents, the most recent being

the *National Partnership Agreement for Prison Healthcare in England: 2018–2021* (HM Government, 2018) between the Ministry of Justice, the HM Prison and Probation Service, Public Health England, the Department of Health and Social Care and NHS England. The agreement includes three shared objectives for the organisations, with 10 priorities set in order to meet these objectives. Particularly of note is the stated priority of improving the timeliness and reliability of data collection relating to prisoners’ health care needs. It is clear from the literature review of what is known about such needs among prisoners in England and Wales that this is currently a gap in knowledge.

A number of reviews and strategy documents are of note in terms of the wider questions they raise about what is realistic to expect in terms of the quality of health care in prisons. Senior and Shaw (2011) discuss, first, the Bradley Review (Bradley, 2009), which focuses on the needs of people with mental health problems and learning disabilities in the criminal justice system, and second, the Department of Health’s (2009) Offender Health Strategy, which sets out how the Bradley Review’s recommendations can be achieved. Senior and Shaw (2011, p. 285) argue that financial constraints mean that offender health care services are not necessarily financed to meet such recommendations unless health and justice services can do ‘more with less’. It is important to note that front-line prison staff numbers were reduced by 26% between 2010 and 2017 (Prison Reform Trust, 2018). Even though staff numbers are now climbing (see Ministry of Justice, 2019b), the availability of prison staff is a key challenge for health care delivery as prison staff are vital for facilitating access.

Key recommendations of the Bradley Review (Bradley, 2009) – such as early identification of the health needs of people under community supervision orders – could reasonably be seen as a sign of good-quality health care, but it seems that services face the additional challenge of needing to be inventive in order to meet such goals. Setting aside the impact of austerity within the literature review time period (2006–18) on the financial constraints facing prison health services, there is also the broader point that politically it can be a ‘hard sell’ to justify the importance of spending money on prisoners’ health. It is therefore important that, in addition to making prisoners’ human right to equitable health care clear, the wider benefits of good-quality health care for prisoners are discussed in a public forum, with concrete examples being given, such as the potential to reduce rates of communicable disease

transmission where prisoners receive early screening and treatment (Public Health England, 2016b).

Leaman and others (2017) conducted a rapid review of the literature as well as semi-structured interviews exploring the impact of 10 years of the NHS's involvement in prison health care. As well as outlining themes from policy as to what constitutes good-quality health care, the authors discussed the extent to which current policy meets the quality health care objectives. Early intervention was seen as an indicator of effective health care but was noted as an area where improvement was needed.

The National Institute for Health and Care Excellence (NICE) provides guidelines on identifying and treating prisoners' physical health needs (National Guideline Centre (UK), 2016), which Bradshaw and others (2017) have summarised. There is significant coverage of the initial health care assessment that prisoners undergo on arrival at prison and its importance for the early identification of health needs. Bradshaw and others (2017) identify a number of challenges in providing health care in prison, staff training to identify health needs being one example, and how important this is. This is particularly crucial for prisoners with specific health needs, such as pregnant women. The Birth Companions' (2016) Birth Charter for women in prisons, which sets out a number of recommendations for the care of women and their babies in the perinatal period, recommends training for staff as key in ensuring that the health issues that women in pregnancy experience are understood by non-medical prison staff, who may be the initial point of contact with women in prisons.

Reference in the prisoner health literature to policy guidance also identifies that in some areas there is a dearth of formal guidance to follow, particularly in relation to certain groups such as older prisoners, and this may have implications for care quality. On multiple occasions it has been commented on that there is a need for a national strategy for older prisoners (Hayes and Shaw, 2011; Senior and others, 2013; Ware, 2009). Meeting the health needs of older prisoners while in prison and on release will be a growing issue with changes in the demographic structure of the prison population. Despite the challenges of delivering health care in prisons, the quality of health care for older prisoners should not be viewed as entirely separate from the quality of health care for older people not in prison.

Recommendations have also been made to improve support for prisoners with dementia. The Mental Health Foundation report *Losing Track of Time* (Moll, 2013) produced five recommendations following a survey of 14 prisons in seven justice jurisdictions across four countries (eight of which were UK prisons). It highlighted reoccurring themes in common with policy documents concerning targeted training for staff, screening for older prisoners and drawing on experts who can provide specialist support. There were concerns that deteriorating memory could go unnoticed until an older prisoner is assessed for a physical injury or psychological condition. This report also drew on examples of prisons making targeted efforts to improve services for older prisoners.

Other areas of concern where it is felt more guidance or formal policy is needed include women in prison who are pregnant or in the postnatal period (HM Inspectorate of Prisons, 2010). *Birth Companions'* (2016) Birth Charter, which we have already referred to, provides a series of recommendations on meeting the care needs of pregnant women and their babies in prison, and suggests that pregnant women should be covered by a specific Prison Service Order (now called Prison Service Instructions; see Justice, 2018) in order to provide formal operating guidance for prison staff.

There are formal health performance indicators recorded in prison: Health and Justice Indicators of Performance (HJIPS), which from 2014 replaced the Prison Health Performance and Quality Indicators (see Department of Health and Social Care, 2012). HJIPS are not currently reported publicly, but NHS England's HJIPS user guide provides details of what the indicators are (NHS England, 2017). In the early period of HJIPS operational use, there were concerns about the quality of data collection (Webster, 2014) and this may explain why it is still challenging to find publicly available information. Our literature review identified one report that provided figures from HJIPS in relation to hepatitis C testing rates in quarter 1 of 2017 (Public Health England, 2017b).

Safety in Custody statistics also provide important context for considering the quality of health care in prison as well as prisoners' key health care needs. The Ministry of Justice (2018d) reports that there were 310 deaths in prison in England and Wales between May 2017 and June 2018, 173 of which were recorded as being from natural causes. Also of particular concern is the increasing number of incidents of self-harm, of which there were 46,859

between February 2017 and March 2018, representing a 16% increase on the previous year (Ministry of Justice, 2018d).

To sum up, when trying to define and measure the quality of health care delivery in a prison setting, awareness of current policy and guidance is a key starting point to establish what care should look like and consequently whether it is being delivered. It is clear that whatever the ambitions for health care delivery in secure environments, there are significant practical challenges in delivering health care in such settings that have an impact on quality. In addition, there are some areas – such as health care for older prisoners – where more guidance would be advantageous, as already noted. A greater understanding of the physical health care needs of the prisoner population in England and Wales would be a useful starting point in determining the focus of future guidelines.

Equivalence of care as a marker of health care quality

Prisoners have the same rights to health care as people not in prison (UNODC and others, 2013), but there has been significant debate about what equivalence of care (prisoners receiving health care that meets their needs as they would in the community) means in a prison context and whether it is carried out in practice. Ismail and De Viggiani (2018) conducted interviews with policy-makers to explore their understanding of equivalence and whether they felt it was being delivered effectively. The authors reported that while those working at a strategic level felt that equivalence of care was in place, those involved in the operational delivery of care were more questioning – raising concerns around issues such as prison security demands having an impact on access to services and the pressures on the system limiting what was achievable due to the volume of people with health care needs and the high level of their needs.

The prison environment can make access to care that might be considered standard in the community more problematic. Monitoring care provision in prison can also be challenging, and without good-quality data collection it is hard to assess whether the ideals of equity of care are being reached. When reviewing the provision of a sexual health clinic in a female prison, Mahto and Zia (2008) reported that it was hard to determine the proportion of women who had received all three doses of treatment for hepatitis B due to the recording system adopted.

The Royal College of General Practitioners (2018) has released a position statement on equivalence of care to meet the identified need for national guidance in this area to inform the delivery of care (Ismail and De Viggiani, 2018). The position statement addresses the difficulties of providing health care within a prison environment and also notes that there is health care variation within the community and health care in prison needs to be ‘at least’ comparable. Charles and Draper (2012) suggest that rather than emphasising the *process* of delivering equivalence of care, it is important to think about health outcomes – what ‘works’ in prison may be different from what works in the community because to achieve the same *health outcomes* for prisoners, a higher level of resources may be needed than for those not in prison. Equivalence – and subsequently quality – of care may therefore need to be assessed via the selection of prudent comparable health outcomes that demonstrate this marker.

Health care screening and treatment

Early identification of prisoners’ health care needs and ensuring that appropriate treatment is administered are an important part of health care delivery in prisons. As outlined in *Prison Service Order Number 3050: Continuity of healthcare for prisoners* (HM Prison Service, 2006), within the first 24 hours of arriving at a prison, prisoners should receive an initial health care assessment to identify their immediate health care needs, such as ongoing medication requirements for physical or mental health problems or treatment linked to drug or alcohol withdrawal. There should then be a follow-up health care assessment within a week to address any issues raised at reception screening that require ongoing input, as well as meeting more general health care needs, such as health promotion advice. Despite the standards as to when prisoners should receive health care assessments and what these should involve, Senior and others (2013) report that, in an audit of the health records of 85 older prisoners (in this instance those aged 60 or over), the second stage of health screening was documented in only 51% of cases.

Screening tools are used to determine prisoners’ health care needs on reception to prison, but there are concerns about the accuracy of standardised tools to capture the needs of such a diverse population, such as different age ranges of prisoners with distinct health needs (Senior and others, 2013). Bespoke health screening tools have been piloted in a prison setting for different groups. Chitsabesan (2014) conducted an evaluation of the Comprehensive Health

Assessment Tool (CHAT), which we mentioned earlier, which is a health screening tool for use with young prisoners that addresses four areas: physical health, mental health, substance misuse and neurodisability. Senior and others (2013) have piloted the Older prisoner Health and Social Care Assessment Plan (OHSCAP), which is aimed specifically at older prisoners to identify their needs and provide a mechanism for documenting how these are being addressed while in prison.

There are also wider aspects of screening to consider, such as identifying prisoners who are deaf or hard of hearing who may need specific adaptations to their environment in order to function in prison. It is not clear how many prisoners in England and Wales are d/Deaf or hard of hearing (Kelly, 2017; see also Kelly, 2017, for a distinction between deaf and Deaf). Kelly (2017) interviewed prison staff (n=10) who had experience of d/Deaf prisoners, as well as prisoners themselves who were culturally Deaf (n=7), severely deaf (n=5) or hard of hearing (n=5). In interviews, prisoners talked about the challenges of functioning in prison without aids to help them meet practical challenges, such as being unable to hear a tannoy informing people of meals, and that an alternative system was not always in place.

The challenge of screening for and meeting prisoners' identified needs is also reflected in pressure on targeted health care services in prisons. For instance, the report of the Independent Monitoring Board at HMP Swansea for June 2016 to May 2017 refers to pressure on opticians' services to meet the needs of prisoners with eye care requirements (Independent Monitoring Boards, 2017).

Good-quality health care in prison requires identifying people's needs and ensuring they receive appropriate treatment or support. Significant attention is placed on communicable diseases and the role of prison health care in treating such conditions, but health care screening faces a range of challenges, not least meeting the varied health needs of a diverse population. It is also important to note that although the majority of the literature on screening relates to prisons and blood-borne viruses, Lorek and others (2009) carried out a piece of work looking at the mental and physical health of children in immigration removal centres. A paediatrician reviewed 20 children and found that only four had received the correct childhood immunisations. There are therefore clear opportunities for health care screening both to improve as well as work on a number of fronts.

Continuity of care

There are a number of issues regarding the quality of health care that are linked to continuity. Continuity is required at three different phases: when people arrive at prison from the community, when they are transferred between prisons and when they leave prison to return to the community.

A significant area of worry for prisoners relates to restrictions placed on their access to medication they were taking for pre-existing conditions when they enter prison (Offender Health Research Network, 2010; Plugge and others, 2008). Although there are security considerations regarding medications that prisoners are allowed to take, as well as whether they can hold them ‘in possession’ (meaning in their own cells), prisoners are not always clear as to why they are no longer allowed access to a certain medication (Plugge and others, 2008). An audit of prescribing practices in one month across five prisons recorded that 39% of new prisoners (n=394) arrived with prescribed medication (Offender Health Research Network, 2010). The audit identified no guidelines specific to people entering prison and therefore looked at standards applied in the community, such as making contact with the community prescriber within a certain timeframe. This standard was met for only a third of prisoners where medication related to substance dependency.

There are currently significant information or data challenges in terms of providing continuity of care – the movement of health information from prisons to GPs in the community post-release presenting a particular difficulty. Some GP practices are piloting the pre-registration of prisoners one month before they leave prison, to address the challenge of providing care for people who have recently left prison (*PULSE*, 2018), but this is not yet widely applied. Continuity of health care is also dependent on a range of other factors that present post-release challenges for prisoners, most noticeably secure accommodation and employment.

Review limitations

Our decision in this review to focus specifically on physical health was not always clear-cut in that sometimes we had to make subjective judgements about what constitutes a physical health issue. For instance, mental health

problems can manifest as self-harm but this has clear physical health consequences. In our review, we included work that touched on both mental and physical health, but we acknowledge that other researchers may have made different decisions about what should be classified as a physical health issue. Mental and physical health are also inextricably linked and there is a vital need to consider the physical health needs of those with mental health problems (NHS England, 2016b).

The literature review evidence consisted primarily of commentary and discussion documents or small-scale research and so the ability to generalise the findings to make broader conclusions about the physical health of prisoners in England and Wales is limited. There is also a lack of knowledge in some areas, particularly those where numbers are smaller such as older female prisoners, as well as conditions in immigration removal centres.

It is important to note that a larger-than-anticipated number of articles emerged from hand searching and therefore some relevant content may have been missed. A replication of this review may benefit from considering alternative sources of 'grey' literature, such as documents produced by charities working in the secure sector.

We chose the literature review exclusion criteria to collate evidence from the period since the NHS has taken over the commissioning and delivery of prison health care (2006). Some pieces of work were published on the cusp of this time period and referred to work conducted in the years before 2006 and were therefore excluded. This includes reviews exploring the needs of prisoners with learning disabilities (Loucks, 2007) as well as perinatal health care in prison (Edge, 2006), both of which are important topics and would benefit from revisiting with more up-to-date evidence. The literature review elimination process also identified that, in many instances, there is a large time span between reporting and research publication, which further restricted the number of review articles despite falling within the publication timeframe of interest.

The limitations of the research evidence summarised in this review and the predominance of discussion and commentary pieces highlight the wider issue that there are challenges in carrying out research in a prison setting. A number of the researchers who have carried out data collection in prisons have raised this point (Buchanan and others, 2008; Rouxel and others, 2013).

Lastly, it is important to acknowledge the gaps in knowledge about the health of particular groups of prisoners, such as those with a black, Asian and minority ethnic (BAME) background, who are over-represented in the prison estate compared with the overall population (Lammy, 2017). This may be purely a result of the challenges of conducting research in the secure estate, which can be seen to a degree in all areas, but points to the fact that the wider context, such as over-representation, should be a driver for research to identify whether there are unique or additional health care issues that need to be addressed.

Conclusions

Our rapid review of the literature on the physical health of prisoners and the quality of health care in prisons has identified a number of gaps in knowledge, the most basic being up-to-date descriptive quantitative data on the physical health care needs of prisoners in England and Wales.

Existing literature is predominantly focused on health care processes and organisation, more so than specific physical health issues and what constitutes good-quality care provision. Emphasis within the literature on the changes that prison health care has undergone, and how policy and guidance can be implemented with limited resources under the constraints of the prison regime, suggests that, when thinking about how care should be provided and therefore what constitutes good-quality care, the most up-to-date policy context needs to be considered. When evaluated critically, it is not always apparent whether policy reflects how care is delivered in practice or the practicalities of delivering health care in a prison setting. The consistent calls for a national strategy for older prisoners and for pregnant women in particular, suggest that in some sense it is not even clear what care should look like, let alone if it is 'good'.

The findings of this literature review in terms of the gaps in knowledge about prisoners' physical health care needs are explored in Appendix B, where we analyse routine data (Hospital Episode Statistics) to look at prisoners' use of inpatient, outpatient and Accident & Emergency (A&E) hospital services.

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Appendix B: Can existing coding in hospital data reliably identify prisoners' use of hospital services?

Considering different approaches that can be used to identify prisoners in Hospital Episode Statistics data

The first stage of our analysis involved exploring two different ways of identifying prisoners in Hospital Episode Statistics (HES) data: using specific data fields in HES and using the patient's postcode as a proxy for prison location and therefore associated hospital activity linked to prisoners.

Using source of admission and destination of discharge coding to identify prisoners

Two fields in HES inpatient data – ADMISORC¹ and DISDEST² – theoretically enable the identification of whether patients enter from or leave hospital to a prison estate establishment. We analysed usage of the two fields in inpatient data covering the period 2005/06 to 2017/18.

- 1 ADMISORC – where the patient was before they were admitted to hospital, with options ranging from usual place of residence (home) to other options such as penal establishment.
- 2 DISDEST – where the patient was due to go when they left hospital, with options ranging from usual place of residence (home) to other options such as penal establishment.

We undertook descriptive analysis to see how frequently these fields are used in practice and to pick up any specific anomalies that may impact on how the fields are interpreted – that is, can they be used to identify prisoners? Analysis included identifying how many people are recorded as either being admitted to hospital from a prison estate establishment, or returning to a prison estate establishment from hospital, based on these two specific fields. As a form of information triangulation, we also examined the use of ADMISORC and DISDEST in the 2017/18 inpatient activity data selected based on prison postcode.

Validating the postcode approach as a method to identify prisoners’ use of hospitals services

We did not expect the postcode approach to identify all prisoner contacts with hospital services, as not all prisoners will have the prison registered as their address. The purpose of the validation was not only to approximate the extent of coverage achieved, but also more importantly to determine, given the coverage achieved, whether the postcode-derived data were able to provide a valid assessment of prisoners’ use of hospital services.

Escort and bedwatch data

Escort and bedwatch data record prisoners who have moved to or from hospitals, whether for urgent or unplanned care, and the associated prison service cost. This information is collected for accounting purposes and is not publicly available. To cross-check the number of inpatient, outpatient and Accident & Emergency (A&E) episodes in the 2017/18 datasets selected on the basis of prison postcode, the total tally for individual prisons was compared to figures from escort and bedwatch data. If the volume of activity in the dataset selected on the basis of prison postcode was similar to the volume of activity shown in the escort and bedwatch data, this would suggest that postcode-derived data provide good coverage of prisoners’ use of hospital services.

We also looked at a regional escort and bedwatch report to compare patterns identified in the report to postcode data for prisons in the same region. If postcode data matched the escort and bedwatch data in terms of identifying which prisons showed the highest and lowest use of hospital services as well as key reasons for escorts, this would suggest that the postcode-derived data are able to provide a valid account of prisoners’ use of hospital services.

Datafile characteristics

We compared the demographic characteristics (gender/age profile) of the data identified based on postcode to what is known about the characteristics of the prison population as a whole. We expected that the data selected based on postcode would have similar demographic characteristics to the prison population as whole. While we might expect certain age groups to have a higher level of activity than others, if activity for a certain age band was much higher or lower than the proportional representation in the prison population, this would raise questions as to whether the HES data were accurately identifying activity linked to prisoners.

Using source of admission and destination of discharge coding to identify prisoners

Table B1 shows the frequency of inpatient admissions, covering the period 2005/06 to 2017/18, which were recorded with a source of admission or discharge destination of a penal establishment – this being a prison, a young offender institution or a secure training centre. As well as penal establishments, the coding also includes people admitted to or discharged from courts, police stations or custody suites. The specific locations included vary slightly between source of admission and discharge, as shown in Table B1.

The number of admissions from these locations remained fairly consistent over the time period, while the number of people reportedly discharged from hospital to a penal destination or police station increased in most years.

Table B1: Frequency of admissions and discharges where a penal establishment was identified, 2005/06 to 2017/18

Source of admission		Discharge destination	
Year	Penal establishment, court or police station/police custody suite	Penal establishment or police station	
2005/06	8,768	3,153	
2006/07	8,923	3,361	
2007/08	8,763	4,084	
2008/09	8,879	4,229	
2009/10	8,673	4,107	
2010/11	9,240	4,429	
2011/12	8,672	4,994	
2012/13	8,645	4,941	
2013/14	8,399	5,103	
2014/15	8,885	5,420	
2015/16	9,259	5,932	
2016/17	8,474	5,868	
2017/18	8,939	5,878	

When interpreting the number of admissions and discharges, an initial challenge was that it was difficult to predict the levels of activity we would expect to be linked to the secure estate and therefore whether the activity identified based on coding alone seemed reasonable. The wider inclusion categories of the coding also mean that it is challenging to draw firm conclusions. The size of the prison population fluctuates based on new receptions (people arriving in prison) and releases, and as an additional complication, access to hospital from prison is restricted by the number of health escorts available per day.

Destination of discharge to penal estate locations was also lower than expected. In most instances, it would be expected that the source of admission to hospital and the discharge destination would be the same. Source of admission coding for penal establishments (in itself believed to be too low) was consistently more than 8,000 episodes, but the number of discharges coded in this way did not exceed 6,000 in any year. This is lower than would be expected based on comparison with source of admission and the overall size of the prisoner population.

Validation of prisoner hospital activity identified using the postcode approach

We examined the use of source of admission and destination of discharge coding in the data file selected on the basis of a prison postcode to see if this could provide further clarification as to how these variables are commonly coded. Despite uncertainty about the degree of coverage the postcode approach provides in terms of prisoners' use of hospital services, we know that patients in the postcode-derived files came from a prison and therefore in theory the source of admission should consistently be recorded as 'penal establishment, court or police station/police custody suite' within the postcode-derived file.

Despite the theory regarding how the coding variables should be used, conversations with information management staff working in hospital settings confirmed that, in practice, 'usual place of residence' is the default option selected. It was theorised that administrative staff could feasibly determine prison as the 'usual place of residence' regardless of the availability of a penal establishment coding option.

The sources of admission and discharge destinations in the prison postcode data file are shown in Table B2. The most common coding for both is 'usual place of residence', which supports the conclusion that these variables are not coded with sufficient accuracy as most people are coded 'usual place of residence' regardless of how they enter or leave hospital.

Table B2: Most common sources of admission and discharge destinations in the 2017/18 postcode-derived prisoner inpatient activity data

Source of admission and destination on discharge	No. (% of all admissions)	No. (% of all discharges)
Usual place of residence	9,710 (82%)	9,561 (78%)
Penal establishment, court or police station/ police custody suite (admission)	1,753 (15%)	2,213 (18%)
Penal establishment or police station (discharge)		

Validation versus escort and bedwatch data

In consultation with a head of prison health care, anonymised escort and bedwatch data were made available from one prison purely for the purpose of comparing the volume of cases emerging from the postcode-derived data with activity levels identified in the escort and bedwatch data.

We compared the volume of escort and bedwatch data over a six-month period (June to November 2017 inclusive) to the volume of activity over a corresponding time period from hospital data identified based on postcode. We found lower volumes for postcode data for the one prison than for escort and bedwatch data. We found that, on average over the six months, the volume of cases in the HES file was 69% of the total number of cases reported in escort and bedwatch data (variation in volume between months was between 62% and 79%).

It is important to acknowledge that there are some uncertainties over the recording and accuracy of escort and bedwatch data both within and between prisons and so firm conclusions about the coverage that postcode data provide of prisoners' hospital activity cannot be drawn. It is also likely that the approach achieves a higher degree of coverage of certain areas of contact that prisoners have with hospital services. For instance, outpatient appointments require some form of communication with the prison to confirm the appointment date and time and therefore address, and hence the postcode is likely to be confirmed as part of that process.

Bearing in mind the uncertainties highlighted, the match between postcode activity data and escort and bedwatch data is reasonably good and is indicative that the postcode approach does effectively identify a sufficient proportion of prisoner health care activity to draw conclusions about key areas of this activity and associated health care needs.

As a further sense-check, we reviewed a regional escort and bedwatch data report comparing multiple prisons, to see whether the key observations made in relation to those prisons matched what could be seen in the postcode-selected HES file. There was a match between the order of prisons with the highest level of reported activity and the prisons with the lowest level of reported activity, as well as key reasons for admission to hospital. This suggests that, in spite of uncertainty surrounding the extent of coverage of prisoners' hospital activity that postcode data provide, the data are able to provide a good basis to explore prisoners' activity.

Validation based on sample characteristics

Tables B3 and B4 provide details of the sex and age characteristics of the prisoner activity data selected on the basis of postcode. We expected that if the datasets were reflective of the prisoner population, the percentage of male and female prisoners as well as the proportion of people at different ages would be broadly in line with the proportions reported in the overall prison population. The age and sex profile of the inpatient, outpatient and A&E data was broadly similar to the profile seen in the prison population as a whole. The sample was predominantly male (93%), with the largest age group being 30- to 39-year-olds.

Table B3: Number and percentage of male and female prisoners in the 2017/18 inpatient, outpatient and A&E data

	Inpatient data		Outpatient data		A&E data		Overall prisoner population (2018)*
Sex	No.	%	No.	%	No.	%	%
Male	11,089	93	46,223	93	12,818	93	95
Female	817	7	3,912	7	964	7	5

* Ministry of Justice (2018)

Table B4: Age profile of the 2017/18 inpatient, outpatient and A&E data

		Inpatient data		Outpatient data		A&E data		Overall prisoner population (2018)*
Age band	No.	%	No.	%	No.	%	%	
15–17	50	0.4	393	1	256	2	1	
18–20	363	3	1,285	3	766	6	5	
21–24	916	8	3,254	6	1,701	12	12	
25–29	1,448	12	6,177	12	2,685	19	18	
30–39	2,635	22	12,950	26	4,138	30	31	
40–49	2,119	18	10,158	20	2,215	16	18	
50–59	1,859	16	7,895	16	1,195	9	10	
60+	2,515	21	8,077	16	840	6	6	
Total	11,905		50,189		13,796			

* Ministry of Justice (2018)

Summary

At present, the coding of source of admission and destination of discharge in hospital data is not sufficiently reliable to identify prisoners’ use of hospital services. The use of coding relating to penal establishments is lower than would be expected based on the size of the prison population. Based on the wider inclusion of other locations such as courts in source of admission coding, this also adds weight to the assessment that figures are lower than would be expected. The nature of the wider-ranging categories included alongside penal estate locations also means that prison-related activity cannot be individually identified.

Identification of prisoners in HES using a postcode approach appears to offer promise as a way of measuring prisoners' hospital activity. Comparing volume of activity data to escort and bedwatch data suggests that the approach identifies around 70% of prisoners' hospital use. The accuracy and consistency of escort and bedwatch data collection are themselves unclear, however. Adding more weight to the argument that the postcode approach can be used to identify prisoners' hospital use is the fact that the trends identified in the data (such as the prisons with the highest level of activity) matched the trends shown in a regional escort and bedwatch report.

Discussion

To establish whether prisoners can be accurately identified in hospital data, we explored various possible approaches to determine whether hospital activity was linked to a prison estate location. This included exploring the use of specific data fields as well as the use of postcode to identify prisoners.

We began by looking at the source of admission and the destination of discharge to identify prisoners in hospital data, comparing use of coding between 2005/06 and 2017/18. We found that hospital admissions coded as coming from a penal establishment remained fairly consistent over time, while the number of discharges from hospital to the penal estate reportedly increased most years.

When interpreting the number of admissions from and discharges to the prison estate, an initial challenge was that it was difficult to predict the levels of activity we would expect to be linked to the secure estate and therefore whether the activity we identified based on coding alone seemed reasonable. The size of the prison population fluctuates based on new receptions and releases, and as an additional complication, the number of health escorts available per day restricts access to hospital from prison.

There are no publicly available figures on the number of escorts available per prison (or how many are achieved), but anecdotally the figure of four a day is commonly mentioned. However, some prisons have fewer than four days based on historical precedence and there is no clear relationship between scheduled escort availability and demand. Also, designated escorts are not always available, for example if there are staff shortages or staff are deployed

elsewhere, so this can place an additional pressure on access as well as leading to challenging decisions having to be made as to who should attend their hospital visit and who can feasibly wait.

We used the average annual prison population size as a point of comparison and, based on this, the number of admissions and discharges identified based on coding alone appeared low. `), but yearly prison admissions identified purely on the basis of coding did not exceed 9,300. Given that the source of admission coding also incorporates courts and police stations as well as prison establishments, we would expect admissions to be higher than this.

Figures for discharge to a penal estate location were also lower than expected. In most instances it would be expected that the source of admission to hospital and the discharge destination would be the same. The number of admission sources coded as penal establishments (which in itself was believed to be too low) was consistently more than 8,000 episodes, but the number of discharges coded in this way did not exceed 6,000 in any year, which again seems lower than would be expected based on comparison with source of admission and the overall population size.

NHS Digital clarified that source of admission for prisoners should consistently be recorded as ‘penal establishment, court or police station/police custody suite’, but conversations with information management staff working in hospital settings confirmed that, in practice, ‘usual place of residence’ is the default option selected and it was theorised that administrative staff could feasibly determine prison as the ‘usual place of residence’ regardless of the availability of a penal establishment coding option.

To explore whether the figures identified based on source of admission and destination of discharge coding were too low, we looked at how these coding values were used in the data file selected on the basis of prison postcode. ‘Usual source of residence’ was selected in around 80% of instances for both source of admission and destination of discharge. This suggests that the use of admission/discharge coding alone is not a reliable method to identify prisoners’ use of hospital services.

Exploration of how the coding is used raises questions as to why the number of admissions recorded as being from a penal establishment was higher in

the yearly HES inpatient data than the file linked to specific secure estate postcodes. This could reflect the wider coverage of the coding in that it incorporates courts, police stations and police custody suites. It may also reflect cases that the data file selected on the basis of postcode was not able to capture or it could again be a sign of inconsistent coding practices. This issue would be worth exploring in future research to determine the level of health care use linked to courts, police stations and police custody suites and how people's needs are best met in these locations.

Future developments

There are specific source of admission and destination of discharge fields in the HES admitted patient care data, but in April 2019, A&E data were superseded by the Emergency Care Data Set (ECDS) in HES (NHS England, 2019a). The data specification for ECDS suggests there will be additional information relating to prisoners' hospital service use, including arrival mode, attendance source and discharge setting. It will be interesting to explore how these coding values are used in practice and if they will lead to an increasing level of accuracy in the identification of prisoners.

Identifying prisoners based on postcode

Escort and bedwatch data

We used escort and bedwatch data as a check to assess the extent to which the total volume of activity identified in hospital data based on prison postcode was reflective of prisoners' use of hospital services. We looked at escort and bedwatch data for one prison as well as comparing the hospital use trends identified in a regional escort and bedwatch report with the trends shown in the same prisons in the hospital data.

At an individual prison level, the volume of cases in the HES data was 69% of the total number of cases reported in the escort and bedwatch data. This is broadly favourable given that the accuracy and completeness of escort and bedwatch data within and between locations are unknown. In addition, escort and bedwatch data include mental health transfers, which are not part of the hospital data and this therefore inflates the escort and bedwatch figures slightly.

The match between the findings of the regional escort and bedwatch report and the findings in the hospital data for the same region provides the strongest indication that the postcode approach does provide a valid measure of prisoners' use of hospital services. The aim of the validation was to approximate the coverage that postcode-derived data provides of prisoners' use of hospital services, and whether, given the coverage achieved, the postcode-derived data were providing a realistic assessment of the health care needs of prisoners.

Population characteristics

We also looked at whether the sample characteristics of the prisoners identified on the basis of prison postcode were reflective of the prisoner population as a whole. While we might expect certain age groups to have a higher level of activity than others, if activity for a certain age band was much higher or lower than their proportional representation in the prison population as a whole, this would raise questions as to whether the data were accurately identifying activity linked to prisoners. Both the age profile and the sex profile of the inpatient, outpatient and A&E data were found to be broadly similar to the respective profiles seen in the prison population as a whole.

Conclusions

It is important to validate the use of HES data as a means of identifying prisoners' use of hospital services to establish the potential that such data offer to monitor prisoner health. At present, source of admission and destination of discharge coding does not offer sufficient reliability to identify prisoners' use of hospital services in isolation. The use of coding relating to penal establishments is lower than would be expected based on both what is known about the size of the prison estate population and escort availability. The wider inclusion categories in the penal establishment coding beyond prison establishments present an additional complicating factor, making it hard to establish in sufficient detail that activity relates specifically to people in prison.

The limitations of existing HES coding in terms of identifying prisoners, and in particular the difference between how the coding was designed to be used versus how information is coded in practice, highlight that it is important to monitor the quality and practical applications of new data sources such as the Emergency Care Data Set.

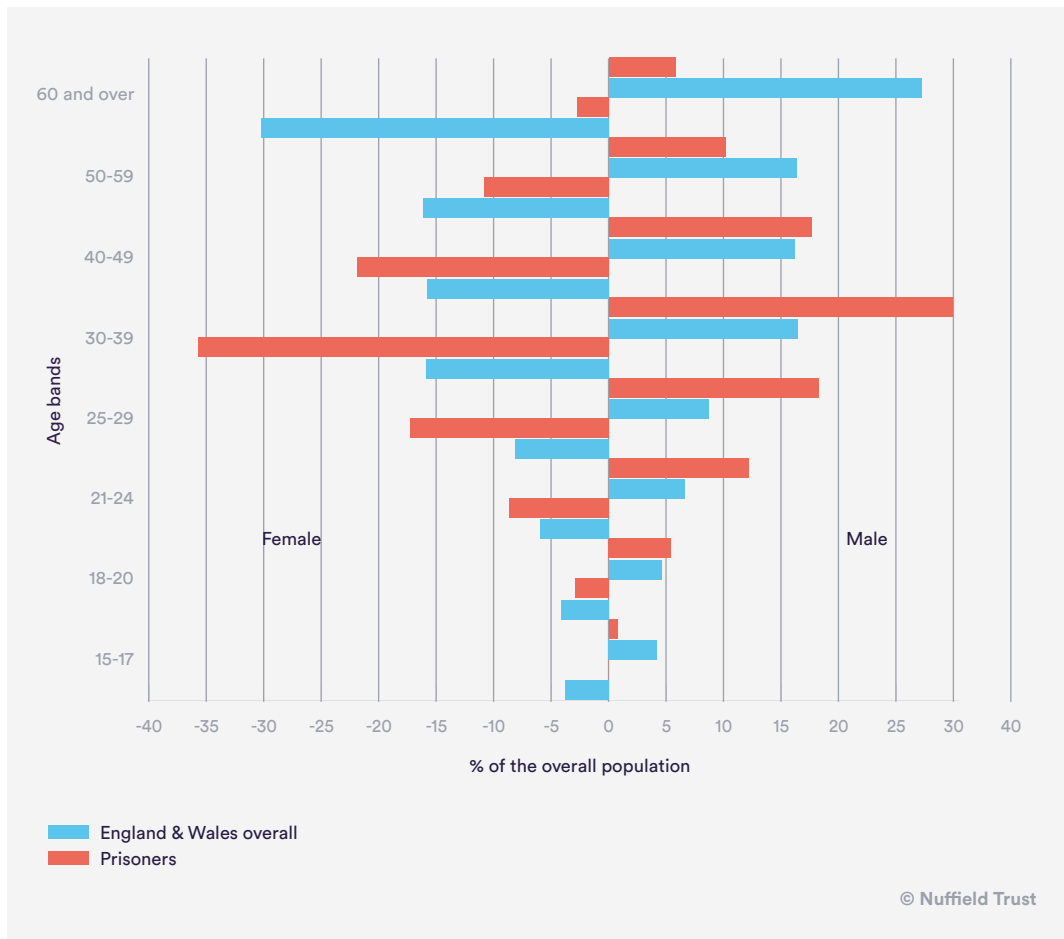
The identification of prisoners in hospital data using a postcode approach is a novel method that appears to offer promise in terms of monitoring key prisoner health issues and considering the impact of specific interventions. Existing data fields in hospital data do not provide sufficient detail nor are they completed accurately enough to identify prisoners. We did not expect that the postcode approach would identify all prisoner hospital activity given that the patient's postcode is not recorded in every instance, but patterns of activity are in line with regional reports and demographic characteristics are in line with what would be expected. Further research is needed to determine the margin of error using this approach.

Appendix C: Age- and sex-standardised activity rate calculations

To draw wider conclusions about prisoners' health care needs based on their use of hospital services, we needed some point of comparison as to how often we might expect prisoners to go to hospital. One way to do this is to compare service use among prisoners with what we see in the non-prisoner population, but there are broad differences between the two groups. For instance, the prisoner population is predominantly male (95%) (House of Commons Library, 2018), whereas the general population is evenly split between men (49%) and women (51%) (Office for National Statistics, 2018).

The age profile of the prison population versus the general population is also very different, as can be seen in Figure C1, which compares the age profile of the prison population and the general population by sex. The prison population has lower numbers in the youngest and oldest age bands and a higher proportion aged 30–39 (36% female, 30% male). In comparison, the general population of England and Wales has a skewed age distribution, with lower numbers in the younger age bands and a higher proportion aged 60 and over (30% female, 27% male).

Figure C1: Prisoner population age bands compared with England and Wales overall, by sex



Source: Prisoner population figures: quarterly offender management statistics, September 2017 (Ministry of Justice, 2018). General population figures: mid-year 2017 (Office for National Statistics, 2018).

We adjusted for the differences between the profile of the prison population and the profile of the general population by comparing the service use of people in different age bands by sex, to determine what we would expect levels of activity to look like in prison if rates were the same as those found for people of the same age and sex in the general population.

Using inpatient activity calculations as an example, the process was as follows.

Step 1: Calculate age/sex-standardised admission rates

As a first step, we calculated the crude admission rate for each age/sex band, which provides a measure of the number of admissions per 1,000 of the population of a particular age and sex. This allows the rates for specific age groups in the prison population to be directly compared to the same age groups in the general population:

$$\text{Age/sex-standardised admission rate} = \frac{\text{number of hospital admissions}}{\text{mid-year population size} * 1,000}$$

We drew population size estimates for the prison population from quarterly offender management statistics and these reflect the size of the prisoner population in September 2017 (Ministry of Justice, 2018). We drew population estimates for the general population from Office for National Statistics analysis and these reflect figures for mid-year 2017 (June) (Office for National Statistics, 2018).

Step 2: Calculate expected admission rates in the prisoner population

The second step was to use the admission rates per 1,000 people in each age/sex band of the general population to determine what we would expect admission rates to be in the prison population for people of the same age and sex. The total number of expected admissions could then be compared to the total number of actual admissions as an overall measure of the difference between admission rates between prisoners and the general population.

$$\text{Expected admissions} = (\text{general population admission rate} * \text{size of the prison population})$$

Step 3: Calculate crude admission rates and standardised adjusted admission rates

As an overall measure of the difference between admission rates for prisoners and those for the general population, we calculated the crude admission rate for the general population:

$$\text{Crude admission rate} = (\text{admission total} / \text{population total}) * 1,000$$

We then applied the crude admission rate to the prison population to determine the adjusted admission rate for prisoners:

$$\begin{aligned} \text{Standardised adjusted admission rate} = & (\text{observed admissions} / \\ & \text{expected admissions}) \\ & * \text{crude admission rate} \end{aligned}$$

Appendix D: Age- and sex-specific hospital admission rates

Table D1: Age- and sex-specific hospital admission rates for male prisoners versus those for men in the general population, 2017/18

Men				
	Prison population		General population	
Age band	Population (%)	Rate per 1,000	Population (%)	Rate per 1,000
15–17	1%	83.6	4%	86.9
18–20	5%	77.4	5%	90.8
21–24	12%	85.2	7%	96.9
25–29	18%	87.7	9%	110.0
30–39	30%	97.1	16%	131.5
40–49	18%	133.0	16%	180.9
50–59	10%	211.0	16%	296.2
60+	6%	520.7	27%	646.5

Table D2: Age- and sex-specific hospital admission rates for female prisoners versus those for women in the general population, 2017/18

Women					
	Prison population		General population		
Age band	Population (%)	Rate per 1,000	Population (%)	Rate per 1,000	
15–17	0%	0	4%	123.6	
18–20	3%	173.9	4%	196.2	
21–24	9%	192.4	6%	263.5	
25–29	17%	198.8	8%	331.8	
30–39	36%	177.8	16%	319.9	
40–49	22%	222.6	16%	239.6	
50–59	11%	240.7	16%	315.5	
60+	3%	416.7	30%	554.3	

Appendix E:

Age- and sex-specific A&E attendance rates

Table E1: Age- and sex-specific A&E attendance rates for male prisoners versus those for men in the general population, 2017/18

Men				
	Prison population		General population	
Age band	Population (%)	Rate per 1,000	Population (%)	Rate per 1,000
15–17	1%	428	4%	289
18–20	5%	164	5%	347
21–24	12%	161	7%	345
25–29	18%	169	9%	333
30–39	30%	155	16%	293
40–49	18%	139	16%	251
50–59	10%	131	16%	223
60+	6%	168	27%	235

Table E2: Age- and sex-specific A&E attendance rates for female prisoners versus those for women in the general population, 2017/18

Women				
	Prison population		General population	
Age band	Population (%)	Rate per 1,000	Population (%)	Rate per 1,000
15–17	1%	0	4%	307
18–20	3%	322	4%	446
21–24	9%	303	6%	421
25–29	17%	227	8%	371
30–39	36%	237	16%	299
40–49	22%	219	16%	242
50–59	11%	245	16%	228
60+	3%	352	30%	242

Appendix F: Age- and sex-specific outpatient appointment rates

Table F1: Age- and sex-specific outpatient appointment rates for male prisoners versus those for men in the general population, 2017/18

Men					
Age band	Prison population		General population		
	Population (%)	Rate per 1,000	Population (%)	Rate per 1,000	
15–17	1%	955	4%	1054	
18–20	5%	462	5%	777	
21–24	12%	533	7%	743	
25–29	18%	644	9%	827	
30–39	30%	812	16%	997	
40–49	18%	1,075	16%	1,312	
50–59	10%	1,424	16%	1,870	
60+	6%	2,479	27%	3,693	

Table F2: Age- and sex-specific outpatient appointment rates for female prisoners versus those for women in the general population, 2017/18

Women				
	Prison population		General population	
Age band	Population (%)	Rate per 1,000	Population (%)	Rate per 1,000
15–17	0%		4%	1,326
18–20	3%	835	4%	1,349
21–24	9%	1,102	6%	1,751
25–29	17%	1,462	8%	2,420
30–39	36%	1,578	16%	2,630
40–49	22%	1,740	16%	2,025
50–59	11%	2,007	16%	2,400
60+	3%	3,343	30%	3,504

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**59 New Cavendish Street
London W1G 7LP
Telephone: 020 7631 8450
www.nuffieldtrust.org.uk
Email: info@nuffieldtrust.org.uk**

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