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Understanding the Physical Health Care Needs of Scotland's Prison Population



HEALTH AND SOCIAL CARE



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List of Abbreviations

AAA	Abdominal aortic aneurysms
BBV	Blood borne viruses
CHD	Ischaemic (coronary) heart disease
CKD	Chronic kidney disease
CLD	Chronic liver disease
COPD	Chronic obstructive pulmonary disease
CVD	Cardiovascular disease
DMFT	Decayed, missing and filled teeth
DOSD	Disorders of the oesophagus, stomach and duodenum
GUM	Genito-urinary medicine
HBV	Hepatitis B virus
HCV	Hepatitis C virus
HHI	Hospitalised head injury
HIV	Human immunodeficiency virus
HMIPS	Her Majesty's Inspectorate of Prisons for Scotland*
HNA	Health needs assessment
IGRA	Interferon-Gamma Release Assay blood test for TB
ITU	Intensive Treatment Unit
MDT	Multi-disciplinary team
NICE	National Institute for Clinical Excellence
OHD	Other heart disease
PHE	Public Health England
PHS	Public Health Scotland
PHS-PCLS	Public Health Scotland Prisons Covid Linkage Study
RTI	Respiratory tract infection
SOHIPP	Scottish Oral Health Improvement Prison Programme
SPS	Scottish Prison Service
STI	Sexually transmitted infections
TBI	Traumatic brain injury
WHO	World Health Organisation
YOI	Young Offenders Institution

* Please note this research was completed before the death of Her Majesty the Queen.

Executive Summary

Introduction

Prison populations experience a wide range of physical health conditions at a far higher rate than non-prison/community populations. The last national physical health needs assessment of Scotland's prison population was conducted some 15 years ago (Graham, 2007). Since then, a number of significant changes to health care needs, delivery and policy have occurred that necessitate an updated needs assessment.

It is, therefore, a priority that stakeholders develop an up-to-date in-depth understanding of the physical health challenges facing Scotland's prison population, which can inform the development of effective policies and practices for managing the challenges posed by the unique prison environment.

Literature

This chapter presents a literature review of physical health needs of people in prison and the delivery of health care services in prison. Where it wasn't possible to present literature relating to Scotland or the rest of the UK, research from international literature was included.

Scotland's prisons and the physical health care needs of Scotland's prison population

This chapter serves two main functions: 1) it describes Scotland's prison population; and 2) it provides an insight into the physical health care needs of Scotland's prison population. The chapter focuses on 17 areas of physical health need¹, selected in consultation with the Scottish Government and relevant stakeholders, that present the greatest health burden to people in prison and to health care services. Data pertaining to Scotland's prison population were drawn from a range of sources to provide prevalence estimates for the chosen 17 areas of physical health need. These estimates were compared with prevalence estimates for Scotland's general population and other national and international prison populations (where relevant and available).

Identifying robust data to describe the physical health needs of Scotland's prison population was challenging due to a lack of available data, questionable reliability of existing data sources and challenges identifying directly comparable baselines for national/international prison populations and the general population. This

¹ The 17 areas of physical health need were: Ischaemic (Coronary) Heart Disease (CHD) and Other Heart Disease (OHD); Musculoskeletal Disorders; Diabetes; Epilepsy; Asthma; Chronic Obstructive Pulmonary Disease (COPD); Blood Borne Viruses (BBV); Sexually Transmitted Infections (STI); Oral Health; Cancer; Cerebrovascular Disease (Stroke); Digestive Conditions: Chronic Liver Disease (CLD), Chronic Kidney Disease (CKD) and Disorders of the Oesophagus, Stomach and Duodenum (DOSD); Respiratory Tract Infection (RTI); Covid-19; Dementia; Pregnancy, Maternal Health and Post-Natal Care; Acquired Brain Injury.

demonstrates a need for more coordinated, joined up data sources relating to the physical health of Scotland's prison population.

Where comparisons were possible, the data suggest that Scotland's prison population experience greater prevalence of some (but not all) physical health conditions examined in this study (particularly: epilepsy, asthma, COPD, hepatitis C, oral health and Covid-19). In general, worse physical health was observed amongst White residents, female residents and residents aged 50+.

Interviews with stakeholders, people with experience of prison, and family members

Qualitative interviews were conducted with a range of stakeholders, people with experience of prison and family members of people in prison. Thematic analysis identified themes related to the health care needs of the prison population and health care provision within prisons.

Interviewees reflected on how a prison sentence should be an opportunity to address the health inequalities of those residing within the prison estate. A number of barriers to this were identified, however. These included prison-based NHS workforce shortages and low retention rates, the reactive nature of health care within an environment which insufficiently engages those for whom health is not routinely prioritised, gaps and inconsistencies in health care provision at points of transition in the prison journey (e.g. reception, liberation and inter-prison transfer), issues with information sharing between community and prison-based services, and missed secondary care appointments due to the unavailability of transfers.

Conclusions

Empirical evidence suggests that people residing in prison suffer from health inequalities relative to the general population. It is therefore necessary to ensure a prison-based physical health care system which engages, supports and provides appropriate health care to people in prison. To ensure resources are appropriately targeted, the physical health care needs of the population need to be understood. Using current information management systems, this is not possible and hence this report calls for the development of a coordinated data management system which should permit the establishment of robust records of physical health, mental health and social care needs.

Further, insights into health care provision obtained from interviews with stakeholders, people with recent lived experience of prison, and family members of people in prison identified the prison sentence as an opportunity to intervene and the improve health outcomes of individuals residing in prison. Despite the benefit of a "captive audience", a number of barriers to appropriate health care provision were identified. On the basis of these findings, a number of recommendations are offered which outline actions to ensure service equity and improved health outcomes for people in prison in Scotland.

Introduction

Prison populations experience a wide range of physical health conditions at a far higher rate than non-prison/community populations (e.g. Binswanger et al., 2009; Gillies et al., 2012; Graham, 2007; Hockings et al., 2002; Mathew et al., 2005; Michie, 2017). Furthermore, the prison environment itself can heighten the impact and prevalence of certain illnesses, for example, by facilitating transmission of disease (via shared cells, overcrowding etc.), by encouraging lifestyle choices that impact on disease prevalence (e.g. poor diet and lack of exercise), and due to poor health care provision (e.g. Garcia-Guerrero & Marco, 2012; House of Commons, 2018). Moreover, with an ageing prison population (e.g. HMIPS, 2017, 2020), these health challenges are likely to continue (and even worsen) in future years.

It is, therefore, a priority that stakeholders develop an in-depth understanding of the physical health challenges facing people living in prison and that effective policies and practices are developed for managing these challenges within the unique environment posed by prisons. The last national physical health needs assessment within prisons in Scotland was conducted some 15 years ago (Graham, 2007). Since then, a number of significant changes to health care needs, delivery and policy have occurred that necessitate an updated needs assessment.

There is evidence to suggest that health care needs in Scotland may have changed over time. The [Scottish Health Survey](#) (Scottish Government, 2020) has indicated that health within the general Scottish population has declined since 2007. Given the lack of available data, it is unclear whether this trend is replicated in the Scottish prison population. It is reasonable to expect, however, that the physical health needs of people living in Scotland's prisons have shifted over recent years particularly considering the varied impacts of Covid-19 on physical health, including a reduction in food quality and nutrition available to people living in prison, reduced physical activity and access to gym facilities, reduced access to running water and toilets, and significantly depleted health care provision (e.g. HMIP, 2020; Suhomlinova et al., 2021).

In relation to changes in health care delivery, the responsibility for prison health care was transferred from the Scottish Prison Service (SPS) to NHS Scotland in November 2011. A critical review of the transfer in 2016 by the Royal College of Nursing (RCN, 2016) and the Health and Sports Committee's report on Healthcare in Prisons (HSC, 2017) both identified areas for improvement which included the need for more knowledge of the physical health needs of the prison population in Scotland.

A further, more recent development in health care delivery, the rollout of which was expedited due to Covid-19, is the introduction of the Near Me video consulting service within prisons which was completed in October 2020. Near Me allows for health care providers to offer video call access to their services to people in prison. The utility and impact of this facility on health provision within Scotland's prison is yet to be determined, however.

In addition to the changes in health care need, delivery and policy outlined above, there are further developments on the horizon likely to have a significant impact on health and social care provision in Scottish prisons. These developments also require updated evidence to ensure they are designed in an evidence-based and person-centred way. These future developments include:

- 1) the establishment of a new National Care Service (by 2026), which will be responsible for the planning and delivery of care in custodial settings, including prisons.
- 2) the development of a new Health and Wellbeing strategy by SPS.
- 3) the development of a new strategy for women in custody.

To meet the need for updated evidence, the Scottish Government has commissioned a comprehensive assessment of social care and health needs in prison. This assessment is comprised of 4 separate needs assessment sub-projects, including assessments of: physical and general health (the current project), mental health, substance use, and social care and support needs, which will feed into a synthesis report, in summer 2022.

The current project contributes by:

1. Highlighting the particular physical health challenges faced by the prison population;
2. Describing physical health care provision in Scottish prisons, identifying areas of good practice, and capturing the experiences of stakeholders, people with experience of prison and family members of people in prison; and
3. Comparing the health challenges identified in Scottish prisons with relevant benchmarks (e.g. in the wider Scottish population and in prison populations from other UK countries).

Literature

Overview

This chapter presents the findings from a literature search conducted to explore the physical health needs of people in prison and the use of health care services in prison. It focuses on the literature relating to 17 areas of physical health need, selected in consultation with the Scottish Government and relevant stakeholders, that present the greatest health burden to people in prison and to health care services.

Methods

A literature review was conducted to explore the physical health needs of people in prison and the use of health care services in prison. To do this, two separate search strategies were used: (1) physical health needs of people in prison and (2) the use of health care services in prison. The databases searched were APA PsychInfo, MedLine, Web of Science, JTSOR and Science Direct. Searches were limited to studies written in English, relating to the UK prison population between 2011 and January 2022. This time period was chosen to follow on from a previous literature review conducted as part of a prison health needs assessment in NHS Greater Glasgow and Clyde (Gillies et al., 2012), which reviewed literature up to 2011. The titles and abstracts of documents were screened, after which the full text of articles was read to identify the final sample of documents to include in the review. The search terms for both reviews can be found in Annex 1.

Physical health care needs of people in prison

In the 17th Scottish Prison Survey, conducted in 2019 (Scottish Prison Service, 2020), 41% of people in prison reported having a long term illness, a figure that has increased from 35% in the 2017 survey. Of these, 63% stated that staff were aware of it. Over one third reported having a disability (38%), an increase from 34% in the 2017 survey (Scottish Prison Service, 2018). When asked about use of health care services, almost 60% of respondents reported having seen a doctor (57%) or nurse (59%) in prison, figures which were lower than those in the 2017 survey (73% doctor and 77% nurse) (Prisoner Survey, 2017). Just over a quarter of people in prison (29%) had seen a dentist in prison, down from 41% in 2017. Around half of respondents reported having to wait over 10 days to see a member of health care staff (dentist 55%, doctor 41% and optician 41%).

Cardiovascular disease

Cardiovascular disease (CVD) includes a range of health conditions affecting the heart/blood vessels, including coronary heart disease, angina, heart attacks, hypertension, stroke and vascular dementia, as well as congenital heart disease. As such, it can sometimes be difficult to distinguish between these conditions in research, with many sources using the general terminology of 'cardiovascular

disease'. In England, Packham et al. (2020) conducted an observational survey looking at the uptake of the NHS Health Check programme to identify cardiovascular risk for 35-74 year olds in six male prisons. Of those who were eligible, 76.4% took up the opportunity and 12.1% had new significant CVD risk factors, such as Type 2 diabetes, hypertension, or chronic kidney disease. While CVD risk was similar overall to the general population, it was noticeable that the prison sample screened was 10 years younger, suggesting an age-accelerated risk. Gray et al. (2021) also reported from a study in one male prison that the majority of people residing there (81%) were either overweight or obese – a risk factor for CVD. This is considerably higher than in the general population, with figures from 2019 showing that 68% of adult men in England are either overweight or obese (NHS, 2020) with a similar figure in Scotland (69%) (Scottish Government, 2020). The Prison and Probations Ombudsmen (2012) examined the natural cause of 402 deaths in prison in England and Wales over the period of 2007-2010 and found that the leading cause of death were cardiovascular diseases (including coronary artery disease and strokes, which were the cause of death for 43% of the sample). In Scotland, Arora et al. (2020) found 15% of people in prison reported suffering from hypertension, and 2% each for myocardial infarction and angina. International research shows prevalence of stroke-related diseases as 1.8% in US state and federal prisons and 2.3% in US jails² (Maruschak et al., 2016) and 2.3% in people in Australian prisons (Field et al., 2020).

Musculoskeletal disorders

There is little research on musculoskeletal disorders among people in prison. However, prevalence figures for arthritis/rheumatism in people in prison in the US and Australia suggest a prevalence of around 15% (Field et al., 2020; Maruschak et al., 2016). Rocha et al. (2020) examined musculoskeletal trauma injuries in a US prison, finding that the most common fractures were metacarpal fracture (22%), interphalangeal dislocation (10%), and phalangeal shaft fracture (10%). The most injured region was the hand and wrist, with 65% of all injuries, followed by foot and ankle with 20%.

Diabetes

A health needs assessment conducted across prisons in the West Midlands reported prevalence rates for diabetes from 1.9% - 7.5% in adult male prisons, 0.5% for the two young adult male prisons, and 0.63% in the female prison (PHE, 2015), compared to a national UK prevalence of around 6%. A prevalence rate of 4.8% was reported by Mills (2015) in one English prison, of which 37% were type 1 diabetes and 63% were type 2 diabetes. Recent research by Gray et al. (2021) used data from diabetes risk assessments in one male prison, estimating that 6.4% of prison residents had risk scores indicating an increased likelihood of developing diabetes in the next 10 years, rising to 16.4% among those over 50 years. A systematic review on health needs with older people in prison (defined as those older than 50 years) reported a pooled prevalence of diabetes of 14% across all studies for this age group (Munday et al., 2019). It should also be noted that

² In the US, jails hold individuals convicted of minor offences or awaiting trial, and prisons hold individuals convicted of more serious offences.

characteristics of offender populations in general (as well as those in prison) will likely contribute to a higher prevalence, particularly for type 2 diabetes (e.g. higher levels of smoking, drug and alcohol use, and increased dietary risk factors for diabetes) as well as an increase in the number of older people in prison.

Epilepsy

A PHE (2015) health needs assessment of prisons in the West Midlands reported prevalence rates for epilepsy ranging from 1.55% to 3.8% for adult male prisons and 3.18% for the female prison, all of which are higher than the national average for the UK (0.9%). In contrast, rates were much lower at the two YOIs included (0.50% - 0.85%). In a study across 10 Scottish prisons (including male and female adult and young male offender institutions), Arora et al. (2020) reported a prevalence rate of 3%.

Asthma and Chronic obstructive pulmonary disease

Prevalence of asthma reported by PHE (2015) across West Midlands prisons was higher than the UK national average of 5.9%, with rates in the prisons ranging from 7.2% - 12.6%. These were comparable to the two YOIs, with rates of 8.04% - 10.9%, with a higher prevalence of 16.24% in the female prison. Across 10 prisons in Scotland, Arora et al. (2020) reported prevalence of respiratory diseases including asthma at 16%. Prevalence rates of 6% for COPD have been reported in US and Greek prison populations (Bania et al., 2016; Trotter et al., 2018).

Blood borne viruses and sexually transmitted infections

Blood borne viruses include HIV, hepatitis B virus (HBV) and hepatitis C virus (HCV). Given that not all people will be tested during their time in prison, overall prevalence rates can be difficult to determine. However, based on a systematic review of research on the global prevalence of HIV, HBV and HCV in prisons, it is clear that the prevalence of all of these is higher than the general population both internationally and within the UK (Dolan et al., 2016). The authors comment that this is likely to be linked to the criminalisation of drug use and high levels of drug use amongst people in prison, particularly for HBV and HCV.

Across all 14 closed prisons in Scotland, Taylor et al. (2013) reported an overall prevalence rate of 19% for hepatitis C. Among those who reported a history of injecting drugs, this rose to 53% (in contrast to 3% amongst those without a history of injecting drugs). This is similar to reports from the rest of the UK. As part of a study examining the impact of an opt-out testing policy for hepatitis C in Welsh prisons, Perrett et al. (2020) reported that between September 2015 and December 2017, 6,949 HCV tests were conducted, which was 29% of admissions to prisons, with a percentage positivity of 11%. Furthermore, short-stay residents had higher rates of HCV positivity than those residents serving longer sentences. In an audit of ~ 1260 receptions into HMP Northumberland in England during 2013-14, 102 were tested for hepatitis C, with a positivity rate of 29% (Darke et al., 2016). Furthermore, a systematic review by Falla et al. (2018) reported a pooled prevalence of 17.4% in prisons from four UK studies.

Analysis of data from the WHO's Health in Prisons European Database and the European Centre for Disease Prevention and Control's hepatitis C database by Nakitanda et al. (2020) found that the prevalence as measured by anti-HCV ranged from 2.3% in an English high secure forensic hospital to 82.6% in two prisons in Germany. Of the six studies from the UK, the prevalence across all prisons in Scotland (including young offenders institutions) in 2011 was 19.2%, as compared to 18% for all English prisons in 2016, 6% in all prison in Wales in 2015) and 12% in prisons in Northern Ireland in 2016. Nakitanda et al. (2021) repeated this analysis for hepatitis B reporting a seroprevalence³ ranging from 0% in a UK high secure forensic hospital to 25.2% in two Bulgarian juvenile detention facilities, with prevalence of 2.0% for a general prison in London. Prevalence rates for HIV and HCV appear to differ by age, with a systematic review by Kinner et al. (2018) finding lower prevalence rates among adolescent and young adult residents (under 25 years) compared to adult residents, although there was no difference for HBV.

A health needs assessment in two YOIs in West Midlands reported that the most common Sexually Transmitted Infection (STI) was chlamydia, with approximately 6.26% of all new referrals across both establishments testing positive on reception, and genital warts being the second most common (PHE, 2015). A US study reported an estimated prevalence of STIs among people in prisons as being 6% in state and federal prisons, and 6.1% in jails (Maruschak et al., 2016). However, beyond this, there appears to be little recent research on STIs in prison populations.

Oral health

Looking at older research, a systematic review of 21 papers on dental health in prisons found a range of prevalence for number of decayed, missing and filled teeth (DMFT), ranging from 9.8 – 16.8 teeth (Walsh et al., 2008). Flanigan (2020) compared this to prevalence rates in Scottish prisons in 2011 from the Scottish Oral Health Improvement Prison Programme (SOHIPP), which reported the average number of DMFT as 12.37 (CI 11.39 – 13.34) (Freeman et al., 2013 cited in Arora et al., 2020). More recently the 3rd Scottish Report on Oral Health in Prisons collected data (including an oral examination) from 353 people in prison (of which 348 had an oral examination), finding that the mean number of DMFT was 13.70 (95% CI 12.75-14.64) (Arora et al., 2020). There were also differences between prison population groups, with women having greater levels of dental decay compared to male adults and male young people in prison. People with more prison experience (based on remand, sentences and sentence length) had more dental decay, and those on prescribed medication and a history of using drugs had higher levels of dental decay. In an English female prison, Rouxel et al. (2013) reported a high prevalence of oral diseases, with three quarters of their sample having decayed teeth. They also had more decayed and missing teeth and fewer fillings (average DMFT = 12.3) than the general female population (average DFMT = 11.4), and 96% reported gingival bleeding (bleeding gums), with 73% reporting that their dental health had an impact on their daily life as result. Poor oral health

³ Seroprevalence is the percentage of people in a population who have antibodies showing that they have been infected by a virus.

amongst prison residents is likely to be caused, and exacerbated, by poor diet (specifically high sugar intake), smoking and drug use. However, while dental health is an important issue, Rouxel et al.'s study reported that nearly half of their sample had been on the dentist waiting list for between 1 and 3 months.

Cancer

In 2017/18, there were more than 1,000 hospital admissions from prisons in England for cancer, covering 567 people (Davies et al., 2020). The most common cancer diagnoses were benign neoplasm of colon, rectum, anus and anal canal; other and unspecified malignant neoplasm of skin; malignant neoplasm of bronchus and lung; and malignant neoplasm of bladder (Davies et al., 2020). In terms of prevalence, Maruschak et al. (2016) reported a prevalence of 3.5% for cancer in US state and federal prisons and 3.6% in US jails, with a corresponding figure of 6.6% in Australian prisons (Field et al., 2020). Puglisi et al. (2020), using data from the US, reported that people with criminal justice involvement had higher age-adjusted prevalence of lung cancer, cervical cancer, and alcohol-related cancer compared with those without criminal justice involvement, although these figures included anyone who had ever been arrested, rather than only people in prison.

Chronic liver disease

There appears to be little research on chronic liver disease among people in prison. However, figures from the US estimate a prevalence of 1.8% for cirrhosis of the liver in US state and federal prisons and 1.7% for cirrhosis of the liver in US jails (Maruschak et al., 2016). In Australia, Field et al., (2020) found a self-reported prevalence of 4.10% for liver disease among people in prison.

Lower respiratory tract infection

Little research is available on lower respiratory tract infections, although a study with a Ghanaian prison population estimated a prevalence of 4.43% for respiratory viruses (Sylverken et al., 2019).

Covid-19

Covid-19 led to massive changes in prison regimes across all of the UK, with lockdown restrictions introduced limiting time out of cells – and in many cases people were locked in their cells for up to 23 hours a day. Prisons also implemented mitigation strategies such as compartmentalisation (separating out vulnerable individuals), isolation for new arrivals and measures to reduce the prison population such as the early release scheme. Within a setting characterised by overcrowding and living in close proximity to others, and a population that tends to have elevated rates of a number of risk factors (e.g. CVD, diabetes, obesity) this was seen as vital to reduce the spread of Covid-19 and associated mortality. There is little published research on Covid-19 in prisons, with official reports and figures the main sources. These show that between May 2020 and September 2021, 1,520 people in Scottish prisons tested positive for Covid-19, with 56 needing to be admitted to hospital and 6 who died within 28 days of a positive test (WHO, 2022). In England and Wales,

18,576 people in prison tested positive for Covid-19 during the same time period, with 116 who have died from Covid-19 (WHO, 2022).

Pregnancy, maternal health and post-natal care

Many women in prison around the world, including Scotland, are of a child-bearing age and each year there are a small number of women who are in prison during pregnancy. In Scotland, between 2013 and 2017, there were 104 pregnant women in prison, with 31 babies born (Prison Reform Trust, 2019). However, there is a paucity of research looking at this group and their health. Bard et al. (2016) conducted a systematic review of 18 studies looking at the health of pregnant women in prison. Of these, fifteen were in the US, two in the UK and one in Germany. There was some evidence that women in prisons receiving enhanced health care were less likely to have inadequate prenatal care (15.4 % vs 30.7 %), preterm delivery (6.4 % vs 19.0 %) or caesarean delivery (12.9 % vs 26.5 %) compared to women in prisons receiving “usual care”. A qualitative study by Abbott et al. (2020) in a prison in England highlighted pregnant women’s negative experiences in prison and the stress and anxiety this produces, which in turn may impact on the baby.

Past brain injury

Traumatic brain injury (TBI) is more prevalent in prison populations than the general population and TBI and offending share many risk factors, such as alcohol and drug use, lower socioeconomic status, and being young and male. A recent systematic review of brain injury in prison populations reported a range of prevalence (25% - 86%), although the variety of assessments and different definitions used are likely to be a factor (Moynan & McMillan, 2018). Where a validated tool was used, the variation remained high (36% - 78%). Focusing on Scotland, McMillan et al. (2019) reported that 25% of people in prison in Scotland had experienced a head injury requiring hospitalisation, compared to 18% in a matched general population sample. Furthermore, there was a higher number of people in prison (compared to the general population) reporting three or more head injuries requiring hospitalisations, and almost twice as many with intracranial injuries. A similar picture exists amongst young people in prisons in Scotland, with over a third reporting at least one head injury and 20% two or more, with a quarter of young people in prison receiving the injury whilst fighting. Another study in Scotland sampled 390 adult males from HMP Inverness (Young et al. 2018). Self-reports of at least one head injury were made by 72% of respondents, with 70% of these occurring before that age of 16 years. Furthermore, 70% self-reported losing consciousness as a result of a head injury. In a study of women in four Scottish prisons McMillan et al. (2021) found that 78% had a self-reported significant head injury.

Older People in Prison

Although there is no set definition for older age among prison populations, research often uses a cut-off of 50 years and older, and there is an increasing number of ageing people in prison in Scotland, in common with the rest of the UK. A Her Majesty’s Inspectorate of Prisons for Scotland (HMIPS) report in 2017 reported that

the majority of older people in Scottish prisons were in their 60s, with almost half serving sentences of 4 years or longer and 18% serving life sentences. The vast majority (85%) reported taking medication. With research suggesting that the health of people in prison is similar to that of non-offenders up to 10 years older, there is likely to be an increasing health need and care burden in coming years. The prevalence of many physical health conditions increases with age, as does co-morbidity – and this can be exacerbated by the lifestyles of people in prison. In England, a study conducted in prisons in North West England by the Offender Health Research Network reported that older people in prison have high rates of chronic physical health problem, with 80% aged 60-64 years reporting at least one moderate or severe illness, increasing to 92% of those over 70 years (Hayes et al., 2012). Medication is taken by 70% of older people in prison, compared to 44% of the whole prison population (Omolade, 2014). A systematic review of health conditions in older people in prison by Munday et al. (2019) reported that the prevalence of non-communicable disease in those over 50 years old was higher than younger people in prison and higher than age-matched cohorts. They found that the most prevalent non-communicable diseases were hypertension 39% (95% CI 32–47%), cardiovascular disease 38% (95% CI 33–42%), diabetes 14% (95% CI 12–16%), cancer 8% (95% CI 6–10%), and chronic obstructive pulmonary disease (COPD) 4% to 18%.

Dementia

In many countries (including the UK), older people are the fastest growing group in the prison population, and with an accelerated ageing process they are at a high risk of developing dementia. A systematic review of ten studies by Brooke et al. (2020) reported the prevalence of dementia in prison populations ranged from 0.8 to 18.8%, with the two studies in prisons in England and Wales showing prevalence rates of around 2% (Fazel et al., 2001; Kingston et al., 2011). More recently, using a sample of 869 men from adult male prisons in England and Wales, Forsyth et al. (2020) reported that 8% screened positively for possible dementia or mild cognitive impairment. However, only 3% of these men had an official diagnosis of dementia in their prison health care records. It is also worth noting that the variation in how dementia has been assessed in different studies makes it difficult to know the full prevalence within prisons.

Physical health care services delivery: Literature review

Equivalence of health care services

National Institute for Clinical Excellence (NICE) guidelines for England, Wales and Northern Ireland state that people in prison are entitled to access all appropriate cancer and non-cancer screening programmes relevant to their age, gender and other risk factors (NICE, 2016). Although these guidelines have no formal status in Scotland, the same principle of equivalent access to screening is followed. In Scotland this includes the NHS Well man/Well woman check for people between 40 and 64 years living in high deprivation areas (known as the NHS Health Check in England) that assesses risk of developing heart disease, stroke, diabetes and kidney disease, along with the national screening programmes for abdominal aortic aneurysms (AAA) for men aged 65 and over, diabetic retinopathy, bowel cancer,

breast cancer and cervical cancer, as well as pregnancy screening and new born screening where relevant. In Scottish prisons, it is also expected that all people entering prison should see a health care professional within their first 24 hours in custody.

Uptake of screening programmes tends to be lower in prisons than in the community (Public Health England, 2021) and this is similarly seen in Scottish prisons. For example, between May 2015 and April 2017, the uptake of bowel screening among men in prison was 39%, compared to 53% nationally (National Prison Health Network, 2018). Similarly cervical cancer screening uptake was lower among people in prison (68%) compared to the national figure of 75%, and the AAA screen had a 73% uptake among men in prison vs. 84% in the community, although the report acknowledged that as there is only a small number of eligible men in prison, this percentage can vary by year.

NICE guidelines also recommend that prisons who receive people from high TB incidence areas should offer a Interferon-Gamma Release Assay (IGRA) blood test for TB to all new entrants who are younger than 65 and are in regular contact with substance misuse services (NICE, 2016). This screening should ideally be carried out within 48 hours of entering a prison. NICE further recommends that people in prisons are screened for hepatitis B and C and HIV.

Barriers to engaging with health care services

Research has found a number of barriers to engaging people in prison with health care services.

Staffing

Having sufficient health care staff in prisons is vital to ensure that screening programmes are implemented and that health care can be delivered to a good standard. However, recruiting to prison health care positions (and retaining staff) is challenging (HMIP, 2020). Shortages in prison staffing more generally can also impact on access to health care in terms of being able to take people to health care units or escort to services outside of the prison (e.g. to hospital appointments) (Jack et al., 2020; Williams et al., 2020). The impact of staff shortages is also perceived as reducing ability to manage complex/chronic health conditions and reducing opportunities to promote preventative health care (Woodall, 2013). While preventative care is likely to be cost-effective in the long term, lack of staff can mean that acute health needs are prioritised.

Lack of understanding and knowledge about physical health conditions and health care

A lack of understanding and knowledge by people living in prison and prison staff about physical health conditions, as well as about screening and treatment, can also impact on engagement with health care. This is illustrated by a study with prison officers in England that reported that some prison officers thought that hepatitis C was airborne, with 44% of prison officers surveyed believing that it could be transmitted by sneezing (Jack et al., 2020). In another study in an English

prison, Williams et al. (2020) reported that a lack of awareness and understanding about NHS Health Check⁴ among both people in prison and staff impacted on uptake. Related to this, other studies have found that fear, anxiety and stigma among people in prison can be a barrier to engaging with health care services (Blagden et al., 2020). Fear and stigma about receiving a positive hepatitis C diagnosis was seen as a key barrier to uptake of testing in a study in an English prison (Jack et al., 2020).

Prison environment

A number of studies have noted the tension between the secure prison environment and health care culture. A systematic review of perceptions of nurses working in prisons found that the tensions between the ethos of prison and health care was something that many struggle with (Dhaliwal & Hirst, 2016). This is supported by Choudhry et al. (2017) who found that nurses felt security was often prioritised over health care, with a perception that this compromised their feelings of professional autonomy. Nurses also reported a tension between the role of custody and care, with some commenting that they could be manipulated by requests for medication and self-harm which was at odds with their professional obligations to provide care and address symptoms. A similar point was made by Felton et al. (2018), whereby perceptions of limited professional autonomy was felt to impact on their ability to build relationships with patients.

Williams et al. (2020) found that problems accessing health care due to restrictions posed by the prison environment were perceived to be the main barrier to uptake of the NHS Health Check in an English prison. Security constraints also impact on access to secondary health care, with Edge et al. (2020) reporting that the need for escorts, lack of confidentiality and stigma associated with being in handcuffs during outpatient consultations impacting negatively on people in prison. Linked to the issue of confidentiality, while there may be concerns about the confidentiality of health conditions among people in prison, for example, if prison staff are required to be present during health care appointments, this can work two ways. Jack et al. (2017) reported that prison officers raised concerns about how the need to maintain patient confidentiality with regards to blood borne viruses could put the safety of other people in prison and staff at risk.

Short sentences

The fact that many people in prison are serving short sentences⁵ along with waiting times to see health care and delays between diagnosis and referrals to specialist services, can make it difficult to get good engagement with health care services.

⁴ The NHS Health Check is a screening check that assesses risk of developing heart disease, stroke, diabetes and kidney disease among people aged 40 – 64 years used in England and Wales. In Scotland, it is known as the NHS Well man/Well woman check.

⁵ In 2018/19, 79% of people in prison received sentences of one year or less, rising to 91% receiving a sentence of two years or less (Scottish Government, 2021). However, the impact of the extension to the Presumption Against Short Sentences legislation to sentences of up to 12 months from July 2019 is not yet known.

This is exacerbated by the challenges relating to staff shortages and the logistics of moving people around the prison to see health care, which only serve to lengthen delays. Release from prison can also cut short the process of working with health care, for example Bhandari et al. (2020) found that the main reason that people in prison didn't start treatment for hepatitis C was due to being released from prison after receiving a positive diagnosis but before they had started treatment. Similar points apply to people on remand who may reside in prison for a relatively short period of time⁶.

Facilitators to engaging with health care services

Despite these barriers, there is now growing evidence of some ways in which engagement with health care services by people in prison can be improved.

Consistent staffing

The importance of consistent staffing of health care services can be seen from a service evaluation of a bowel screening programme in an English prison, in which having a dedicated staff lead for the programme was seen to facilitate uptake (Blagden et al., 2020). This study also found that clear communication of the benefits of the screening to people in prison enhanced uptake, with staff taking time to verbally discuss the service and its benefits before providing a written follow-up. This was seen a particularly beneficial given the low literacy rates among people in prison.

Location of health care services

Bringing health care services/screening onto prison wings can help to reduce the logistical issues of moving people in prison around the prison or out to secondary care. Williams et al. (2020) found that conducting the NHS Health Check on wings maximised uptake as it considerably reduced the challenges associated with delivering this service.

Education of people in prison and prison staff

Education for people residing in prison and staff to increase awareness of physical health problems and health care services (assessment/treatment) that are available is important. Education can also go some way to reducing the fear/anxiety and stigma that can prevent some people from engaging in testing and with health care services. In their systematic review of correctional nursing, Dhaliwal & Hirst (2016) recommend that joint training/education for prison and health care staff can bring about improvements in staff understanding. One example of prison staff having positive perceptions relating to screening and testing is shown by Jack et al. (2017) who reported that prison officers in England thought hepatitis C testing was a positive thing. Furthermore, many also expressed the opinion that it should be

⁶ In May 2021, 30% of people in Scottish prisons were on remand, either awaiting trial or convicted waiting to be sentenced (SPS, 2021).

mandatory to safeguard the wider prison population and staff (e.g. if staff were exposed to blood as a result of self-harming behaviour by people in prison).

Use of innovative methods to provide health care

Mohammed et al. (2020) found that implementing a 'fast track' service for hepatitis C in a prison in London, resulted in much higher rates of screening, assessment and treatment compared to the standard NHS recommended pathway of testing at the primary and secondary screen followed by discussion at a bi-monthly multi-disciplinary team (MDT) meeting. The fast track service entailed a rapid 'screen and treat' pathway in which a health care assistance conducted a 20 minute hepatitis C antibody test, with positive patients immediately offered treatment approved by a fast-track MDT. Similarly Connoley et al. (2020) found that developing a streamlined assessment process for hepatitis C reduced the delay between diagnosis and referral for treatment – again by bringing in a sexual health nurse at assessment to facilitate referrals.

Covid-19 has led to changes in the delivery of health care in the community with an increased use of remote consultations, e.g. by phone or video. While the digital infrastructure in prisons was poor before Covid-19 (Edge et al., 2020), prison services have now recognised the importance of this in a number of arenas (e.g. video visits) and there is a growing recognition that this could extend to health care. However, while this would reduce the constraints related to the logistics of moving people around the prison, there remain questions about privacy and confidentiality of patients.

Prison as an opportunity

It is also worth noting that people living in prison sometimes see it as a good opportunity for engaging with health care for the first time and to improve their physical health (Blagden et al., 2020; Williams et al., 2020). Quinn et al. (2018) also reported that people in prison viewed prison health care as easier to access than health care in the community. As a result, some people in prison may actually engage with health care services more than in the community. However, it has also been noted that this can be disrupted after release, for example, due to issues related to (re)registering with a GP.

Conclusions

Given the higher prevalence of many physical health conditions among prison populations and that people in prison often had poor access to and/or uptake of health care prior to this, it is clearly important that screening and treatment are offered, and that these are taken up. The question has also been posed as to whether the key issue is equivalence of access or equivalence of outcomes (Charles & Draper, 2012; Jotterand & Wangmo, 2014). With prison populations typically having higher levels of physical health problems than community populations, this would mean a higher level of health care services may be required in prisons to ensure or work towards equivalent outcomes.

Scotland's Prisons and the Physical Health Care Needs of Scotland's Prison Population

Overview

This chapter serves two main functions: 1) it describes Scotland's prison population; and 2) it provides an insight into the physical health care needs of Scotland's prison population. The chapter focuses on the 17 areas of physical health need, selected in consultation with the Scottish Government and relevant stakeholders, that present the greatest health burden to people in prison and to health care services. Data pertaining to Scotland's prison population were drawn from a range of sources to provide prevalence estimates. These were compared with prevalence estimates for Scotland's general population and other national and international prison populations (where relevant and available).

Methods

The findings reported in this Chapter draw on data relating to 3 populations: 1) Scotland's prison population; 2) national and international prison populations beyond Scotland; and 3) Scotland's general (non-prison) population. A variety of sources were utilised, as described below.

Scotland's prison population

Prevalence estimates for Scotland's prison population were drawn from 2 sources:

1) Public Health Scotland Prisons Covid Linkage Study

The Public Health Scotland Prisons Covid Linkage Study (PHS-PCLS) is an ongoing study examining vaccination rates and risk of Covid-19 disease amongst Scotland's prison population, which has linked data held on the Scottish Prison Service Prisoner Records (PR2) system with a range of public health datasets held by Public Health Scotland (PHS)⁷. This study has collected estimates of the prevalence of a range of conditions shown to confer heightened risk of severe or fatal Covid-19 infection, some of which correspond to the physical health conditions of interest in the current study. The project lead for PHS-PCLS obtained permission to share aggregate, anonymised prevalence estimates for their cohort as a whole, as well as figures disaggregated by gender (male/female), age (18-49/50+) and ethnicity (White/Non-White).

⁷ Information relating to all persons in Scotland's prisons was extracted from the PR2 system (including PR2 number, name and a range of demographic information). Where possible, the Community Health Index (CHI) number was linked to the PR2 data, allowing data from a range of health datasets held by PHS to be collated for each individual (e.g. from hospital admissions, prescribing data, Scottish Morbidity Record, Scottish Care Information- Diabetes Collaboration, Electronic Communication of Surveillance in Scotland).

2) Published/publically-available research and reports

Data from relevant published literature was utilised, as identified during the literature review (see Chapter 2 for further details).

Two further data sources were considered, but rejected due to concerns regarding the quality of data stored on these systems. The PR2 system was considered, as it records a range of risk markers, some of which relate to the 17 physical health conditions of interest in this study. Relevant markers were identified and a percentage prevalence for each PR2 marker calculated across the whole prison population in Scotland in 2019. Also, data from the Vision system were considered, which holds health care records for people living in prison in Scotland. On the advice of the Scottish Government, permission was obtained to access anonymised, aggregate data from one health board in Scotland that represented core groups within Scotland's prison population (males, females, adults and young persons). These figures were then extrapolated to the wider prison population in Scotland, accounting for the age and sex composition of the wider prison population in Scotland.

Very low prevalence figures were observed when utilising Vision and PR2 data, which raised doubts regarding the reliability of these data. For example, PR2 data indicated that 0.04% of people living in Scotland's prisons are receiving blood borne virus treatment and there were no records of any Genito-Urinary Medicine (GUM) notes, which may indicate sexually transmitted infection (STI). Furthermore, there were no records within the Vision data of people living in Scotland's prisons who had hepatitis B or C, Chlamydia, Syphilis or Gonococcal infections. Such low prevalence figures seem questionable in light of existing evidence demonstrating much higher rates of blood borne viruses (e.g. hepatitis C) and STI in UK prison populations (e.g. Falla et al., 2014; PHE, 2014; Taylor et al., 2013). The decision was, therefore, taken to exclude prevalence estimates derived from Vision and PR2 in this report. Given the comprehensive data linkage employed in the PHS-PCLS, these data were considered more reliable. This does, however, mean that prevalence estimates are not available for some conditions based on the data available for this project. The issue of data reliability is further discussed in Chapter 5, including recommendations for how health care datasets can be better utilised in the future.

National and international prison populations beyond Scotland

To facilitate comparison with other national/international prison populations, relevant published literature was searched (see Chapter 2 for further details). When selecting national and international prison comparisons, the aim was to select comparison sources that maximise methodological quality and the extent to which the prevalence estimates could be directly compared to those available for Scotland's prison population. Sources from UK prison populations were prioritised over international sources.

Scotland's general population

Comparative data relating to Scotland's general population was drawn from a range of published/publically-available research, reports and datasets (e.g. published by PHS and Scottish Government). Data were also drawn from the Scottish Household Survey 2019⁸.

Scotland's prison population

This section of the report provides a brief description of the prison estate as a whole, describes the different prison types and categories of person served across the estate, briefly describes relevant demographic characteristics of the current prison population in Scotland, and examines how Scotland's prison population has changed over time (since the most recent national health needs assessment of Scotland's prison population; Graham, 2007).

A brief description of Scotland's prison population

As at 06/01/2022, Scotland's prison population was comprised of 7548 individuals. The majority were male (96.48%), White (94.75%), aged 32-36 (19.32%) and sentenced compared to being on remand (70.14%). See Table 1 for further details.

⁸ Approval to access these data was given by Scottish Government. 2019 data were selected following advice from SHS colleagues within Scottish Government, who advised that Covid has necessitated a change in SHS survey methodology. The impact of these changes on SHS data is not yet known, so the project team were advised to utilise pre-Covid (2019) SHS data for the current study.

Table 1: Demographic Information on Scotland's Prison Population

Population subgroup		Number of People	Percentage of Total Prison Population
Gender	Male	7282	96.48%
	Female	266	3.52%
Age	16-21	293	3.88%
	22-26	905	11.99%
	27-31	1285	17.02%
	32-36	1458	19.32%
	37-41	1173	15.54%
	42-46	749	9.92%
	47-51	612	8.11%
	52-56	448	5.94%
	57-61	283	3.75%
	62-66	145	1.92%
	67-71	90	1.19%
	72-76	66	0.87%
	77+	41	0.54%
Ethnicity	White	7152	94.75%
	Asian, Asian Scottish or Asian British	136	1.80%
	African, Caribbean or Black	135	1.79%
	Mixed or Multiple	33	0.44%
	Other Ethnic Group	92	1.22%
Status	Sentenced	5294	70.14%
	Remand	2081	29.86%

Note: Data provided by SPS.

Trends in Scotland's prison population⁹

From 2006/07 to 2019/20, Scotland's prison population rose 14%. Although, it should be noted that much of this increase had disappeared by 06/01/2022, with only a 5% increase noted when comparing the average daily population in 2006/07 with the population at 06/01/2022.

From 2006/07 to 2019/20, the number of males and females living in Scotland's prisons increased by 14%. Although, when considering the population at 06/01/2022, the number of males living in Scotland's prisons has only increased by 7% and the number of females has actually decreased by 25%.

From 2006/07 to 2019/20, the number of people living in Scotland's prisons aged under 21 years decreased by 68%, whereas the number of people aged 21 years and over has increased by 27%. When considering the population at 06/01/2022, the number of people aged under 21 years has decreased by 71% and the number of people aged 21 and over has only increased 17%.

The ethnic composition of the prison population in Scotland has remained stable from 2010/11 to 2019/20, with the predominant self-reported ethnic category White (remaining stable at 96%), followed by Asian, Asian Scottish or Asian British (stable at 2%), then African, Caribbean or Black (stable at 1%), and Mixed or Multiple and Other Ethnic Group (both stable at < 0.5%)¹⁰.

The number of unique individuals arriving to and departing from prisons in Scotland has decreased from 2010/11 to 2019/20, with the number of arrivals decreasing by 26% and the number of departures decreasing by 24%.

Rate of incarceration and international comparisons¹¹

As at December 2021, the rate of incarceration in Scotland was 136 people in prison per 100,000 of the general population, which is 20th highest in Europe out of 57 countries. This compares to 132 per 100,000 in England and Wales and 81 per 100,000 in Northern Ireland.

The physical health care needs of Scotland's prison population

This section of the report provides prevalence estimates relating to 17 areas of physical health that present the greatest health burden to people in prison and to health care services. Where possible, prevalence estimates are provided for Scotland's prison population (including comparisons based on demographic characteristics- age, gender and ethnicity), with these estimates compared to relevant baseline data (e.g. prevalence estimates for Scotland's general population and other national and international prison populations). Table 2 provides a

⁹ The figures in this section are from [annual population figures published by SPS](#)

¹⁰ Ethnicity and arrival/departure figures are not available prior to 2010/11. The ethnicity and arrival/departure figures are from [Scottish Government prison population statistics](#)

¹¹ The figures in this section are from the [International Centre for Prison Studies, World Prison Brief](#)

summary of these prevalence estimates and key details regarding the sources from which the estimates were derived.

Table 2: A Summary of Prevalence for the 17 Areas of Physical Health and Key Demographic and Methodological Detail

Condition	Population	Study/Dataset	Prevalence	N	Gender	Mean Age	SD Age	Age Range	Ethnicity	Study Methodology
Ischaemic (Coronary) Heart Disease (CHD) and Other Heart Disease (OHD)	Scotland's Prison Population	PHS-PCLS ^a	CHD: 1.95% OHD: 3.91%	13585	94.1% Male 5.9% Female	35.7	11.3	18-87	94.8% White 5.2% Other	Data linkage study linking PR2 and various PHS datasets
	England's Prison Population	Packham et al. (2020)	Cardiovascular disease: 5.55%	1648	100% Male	43.8	7.6	35-74	White 79.6%, Black 5.4%, Asian (S & E) 5.4%, Mixed/other 9.6%	Observational cross-sectional survey based on questions from the NHS Health Check Programme in prison settings
	Scotland's General Population	PHS Scottish heart disease statistics and GP disease prevalence data	CHD: 3.45-3.93%	Scottish heart disease statistics are drawn from the Scottish Morbidity Record (SMR01). The age-sex standardized rate was calculated using the direct method, standardized to the 2013 European Standard Population (ESP2013) GP disease prevalence data are extracted from GP practices in Scotland through the Quality Outcomes Framework (QOF) Calculator						
Musculoskeletal Disorders		The only data relating to musculoskeletal disorders in Scotland's prison population that was available for this project comes from the Vision and PR2 systems. It is, therefore, not possible to give reliable prevalence estimates for this group of conditions.								
Diabetes	Scotland's Prison Population	Arora et al. (2020)	Type I and II: 3%	353	74.8% Male 25.2% Female	32.1	Unavailable	16-83	Caucasian 93.8%, Black 1.7%, Mixed race 1.4%, Asian 0.8%, Chinese	The 2019 Oral Health and Psychosocial Needs of the Scottish Prisoners and Young

								0.6%, Lithuanian 0.3%, Middle Eastern 0.3%, Romanian 0.3%, Vietnamese 0.3%	Offenders self- report survey and oral health examination
Scotland's Prison Population	PHS-PCLS	Type I: 0.66% Type II: 1.21%	13585	94.1% Male 5.9% Female	35.7	11.3	18-87	94.8% White 5.2% Other	Data linkage study linking PR2 and various PHS datasets
England's Prison Population	Public Health England (2015)	Type I and II: 4.41%	9442	96.7% Male 3.3% Female	Most common age group (34.7%) 21- 29 years	Unavailable	Unavailable	White 71%, 11% Black or Black British, 10% Asian or Asian British	A collation of findings from 9 HNAs conducted in prisons in the West Midlands, which drew on a range of data (focus groups, questionnaires and data from health records)
Scotland's General Population	NHS Scotland (2019)	Type I and II: 5.74% Type I: 0.62% Type II: 5.05%	Data extracted from the Scottish Care Information-Diabetes (SCI-Diabetes) database, which records individuals who are alive and registered with a Scottish General Practitioner across all 14 of Scotland's NHS Health Boards						

Epilepsy	Scotland's Prison Population	Arora et al. (2020)	3%	353	74.8% Male 25.2% Female	32.1	Unavailable	16-83	Caucasian 93.8%, Black 1.7%, Mixed race 1.4%, Asian 0.8%, Chinese 0.6%, Lithuanian 0.3%, Middle Eastern 0.3%, Romanian 0.3%, Vietnamese 0.3%	The 2019 Oral Health and Psychosocial Needs of the Scottish Prisoners and Young Offenders self-report survey and oral health examination
	England's Prison Population	Public Health England (2015)	2.79%	9442	96.7% Male 3.3% Female	Most common age group (34.7%) 21-29 years	Unavailable	Unavailable	White 71%, 11% Black or Black British, 10% Asian or Asian British	A collation of findings from 9 HNAs conducted in prisons in the West Midlands, which drew on a range of data (focus groups, questionnaires and data from health records)
	Scotland's General Population	Scottish Health Survey 2019	1%	6451 addresses	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Self-report survey
	Scotland's General Population	Scottish Household Survey 2019	1%	18836	47.7% Male	50.3	19.0	16-98	White 93.4%, Mixed 0.1%,	Self-report survey

					52.2% Female					Asian 2.3%, African 0.6%, Caribbean or Black 0.06%, Other 0.3%, Don't Know/Refus ed 0.07%
					0.05% Other					
Asthma and Chronic Obstructive Pulmonary Disease (COPD)	Scotland's Prison Population	Arora et al. (2020)	Asthma/COPD: 16%	353	74.8% Male 25.2% Female	32.1	Unavailable	16-83	Caucasian 93.8%, Black 1.7%, Mixed race 1.4%, Asian 0.8%, Chinese 0.6%, Lithuanian 0.3%, Middle Eastern 0.3%, Romanian 0.3%, Vietnamese 0.3%	The 2019 Oral Health and Psychosocial Needs of the Scottish Prisoners and Young Offenders self- report survey and oral health examination
	Scotland's Prison Population	PHS-PCLS	Asthma or Chronic Airway Disease: 7.97%	13585	94.1% Male 5.9% Female	35.7	11.3	18-87	94.8% White 5.2% Other	Data linkage study linking PR2 and various PHS datasets
	England's Prison Population	Public Health England (2015)	Asthma: 10.16%	9442	96.7% Male	Most common age group	Unavailable	Unavailable	White 71%, 11% Black or Black British, 10%	A collation of findings from 9 HNAs conducted in

				3.3% Female	(34.7%) 21- 29 years			Asian or Asian British	prisons in the West Midlands, which drew on a range of data (focus groups, questionnaires and data from health records)
Greece's Prison Population	Bania et al. (2016)	COPD: 6%	552	91.3% Male 8.7% Female	43 (median)	Unavailable	35-53	Greek 79.2%, others 20.8%	Cross sectional epidemiologica l study drawing on from a range of sources, including health care records, physical examination, participant interviews and questionnaires
US' Prison Population	Trotter et al. (2018)	COPD: 6%	199	78.9% Male 21.1% Female	Unavailable	Unavailable	Unavailable	American Indian/Alask a Native 58.8%, White 27.6%, Other 15.6%	Cross sectional self- report survey
Scotland's General Population	GP disease prevalence data	Asthma: 6.39% COPD: 2.46%	GP disease prevalence data are extracted from GP practices in Scotland through the Quality Outcomes Framework (QOF) Calculator						

Blood Borne Viruses (BBV) and Sexually Transmitted Infections (STI)	Scotland's Prison Population	PHS-PCLS	Conditions causing immune deficiency or suppression: 0.26%	13585	94.1% Male 5.9% Female	35.7	11.3	18-87	94.8% White 5.2% Other	Data linkage study linking PR2 and various PHS datasets
	Scotland's Prison Population	Taylor et al. (2013)	Hepatitis C: 19%	5076	95% Male 5% Female	32.4	10.9	Unavailable	Unavailable	Cross sectional sero-behavioural survey and dried blood spot testing
	UK's Prison Population	Falla et al. (2018)	Hepatitis C: 8.0-17.39%	5450	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Systematic literature review. The figures reported relate to the pooled estimates from studies published in the UK from 2010-2013
	England's Prison Population	Public Health England (2014)	HIV: 0.6%	2834	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Data drawn from PHE Sentinel Surveillance of blood-borne virus testing in England
	Scotland's General Population	Health Protection Scotland (2017)	Hepatitis C: 0.64% HIV: 0.11%	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable

Oral Health	Scotland's Prison Population	Arora et al. (2020)	Mean number of decayed, missing and filled teeth: 13.70	353	74.8% Male 25.2% Female	32.1	Unavailable	16-83	Caucasian 93.8%, Black 1.7%, Mixed race 1.4%, Asian 0.8%, Chinese 0.6%, Lithuanian 0.3%, Middle Eastern 0.3%, Romanian 0.3%, Vietnamese 0.3%	The 2019 Oral Health and Psychosocial Needs of the Scottish Prisoners and Young Offenders self- report survey and oral health examination
			Mean number of decayed teeth into dentine: 2.93							
			Mean number of filled teeth: 4.09							
			Mean number of missing teeth: 6.68							
	England's Prison Population	Heidari et al. (2007)	Mean number of decayed, missing and filled teeth: 14.2	78	100% Male	37.7	9.6	Unavailable	Black 38.4%, White 34.6%, South Asian 6.5%, Chinese 5.2%, Other 10.2%, Declined to say 5.2%	Structured interview and oral examination
			Mean number of decayed teeth into dentine: 3.5							
			Mean number of filled teeth: 4.5							
			Mean number of missing teeth: 6.2							

	Scotland's General Population	NHS National Services Scotland (2019)	Mean number of decayed teeth: 0.5 Mean number of filled teeth: 10.6	3114	44.8% Male 55.2% Female	Most common age group (32.0%) 45-54 years	Unavailable	Unavailable	White Scottish 73%, Other 22%, Not answered 4%	Scottish Adult Oral Health Survey 2016-2018. Oral examination.
Cancer	Scotland's Prison Population	PHS-PCLS	1.51%	13585	94.1% Male 5.9% Female	35.7	11.3	18-87	White 94.8% Other 5.2%	Data linkage study linking PR2 and various PHS datasets
	US' Jail and Prison Populations	Maruschak et al. (2016)	3.5-3.6%	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Data drawn from the 2011-12 National Inmate Survey (NIS-3), which is a self-report survey
	Australia's Prison Population	Field et al. (2020)	6.60%	566	65.4% Male 34.6% Female	Unavailable	Unavailable	Unavailable	Australian 69.4%, Other 30.6%	Cross sectional self-report survey
	Scotland's General Population	PHS (2019)	2.67-6.25%	Scottish heart disease statistics are drawn from the Scottish Cancer Registry (SMR06).						
Cerebrovascular Disease (Stroke)	Scotland's Prison Population	PHS-PCLS	Other circulatory disease: 5.36%	13585	94.1% Male 5.9% Female	35.7	11.3	18-87	White 94.8% Other 5.2%	Data linkage study linking PR2 and various PHS datasets

	US' Jail and Prison Populations	Maruschak et al. (2016)	Stroke-related problems: 1.8-2.3%	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Data drawn from the 2011-12 National Inmate Survey (NIS-3), which is a self-report survey
	Australia's Prison Population	Field et al. (2020)	2.30%	566	65.4% Male 34.6% Female	Unavailable	Unavailable	Unavailable	Australian 69.4%, Other 30.6%	Cross sectional self-report survey
	Scotland's General Population	PHS Scottish stroke statistics and GP disease prevalence data	2.28-2.49%	<p>Scottish stroke statistics are drawn from the Scottish Morbidity Record (SMR01). The age-sex standardized rate was calculated using the direct method, standardized to the 2013 European Standard Population (ESP2013)</p> <p>GP disease prevalence data are extracted from GP practices in Scotland through the Quality Outcomes Framework (QOF) Calculator</p>						
Digestive Conditions: Chronic Liver Disease (CLD), Chronic Kidney Disease (CKD) and Disorders of the Oesophagus, Stomach and Duodenum (DOSD)	Scotland's Prison Population	PHS-PCLS	CLD: 0.80% CKD: 0.04% DOSD: 4.24%	13585	94.1% Male 5.9% Female	35.7	11.3	18-87	White 94.8% Other 5.2%	Data linkage study linking PR2 and various PHS datasets
	US' Jail and Prison Populations	Maruschak et al. (2016)	Kidney-related problems: 6.1-6.7% Cirrhosis of the liver: 1.7-1.8%	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Unavailable	Data drawn from the 2011-12 National Inmate Survey (NIS-3), which is a self-report survey
	Australia's Prison Population	Field et al. (2020)	CKD: 3.30% Liver disease: 4.10%	566	65.4% Male	Unavailable	Unavailable	Unavailable	Australian 69.4%, Other 30.6%	Cross sectional self-report survey

					34.6% Female					
	Scotland's General Population	Scottish Household Survey 2019	Severe stomach, kidney, liver or digestive problems: 1.90%	18836	47.7% Male 52.2% Female 0.05% Other	50.3	19.0	16-98	White 93.4%, Mixed 0.1%, Asian 2.3%, African 0.6%, Caribbean or Black 0.06%, Other 0.3%, Don't Know/Refus ed 0.07%	Self-report survey
Respiratory Tract Infection (RTI)		The only data relating to RTI in Scotland's prison population that was available for this project comes from the Vision system. It is, therefore, not possible to give reliable prevalence estimates for RTI.								
Covid-19	Scotland's Prison Population	WHO (2022)	May 2020-September 2021: 1520 confirmed cases of Covid-19 (20.77% of the population), 56 (0.77%) of which resulted in transfer to hospital and 6 (0.08%) resulted in death), 13068 instances of people living in prison being isolated or quarantined, including the confirmed cases of Covid-19, and 8754 instances of people isolated as a precautionary measure ^b							
	England's and Wales' Prison Populations	Ministry of Justice and HMPPS Covid- 19 Statistics	May 2020-September 2021, 18576 prison residents have tested positive for Covid-19 (23.11% of the population) and 116 residents (0.14%) are suspected to have died from Covid-19							
	Scotland's General Population	PHS Covid-19 Statistics	May 2020-September 2021, 559063 individuals have tested positive for Covid-19 (10.23% of the total population)							
Dementia	Scotland's Prison Population	PHS-PCLS	Dementia and Neurological Conditions	1667	95.9% Male	57.6	7.2	50-87	White 96.9%, Other 3.1%	Data linkage study linking PR2 and

			(excl. epilepsy) in residents aged 50+: 2.28%		4.1% Female					various PHS datasets
	England's and Wales' Prison Populations	Forsyth et al. (2020)	Dementia: 6.8%	869	68.5% Male 31.5% Female	Unavailable	Unavailable	Unavailable	Unavailable	Data drawn from prison health care records and from various psychometric tests assessing cognitive function
	Scotland's General Population	Dementia Benchmarking Toolkit	Dementia: 4.24%	Data in the Dementia Benchmarking Toolkit are drawn from the Scottish Morbidity Record (SMR01 and SMR04)						
Pregnancy, Maternal Health and Post-Natal Care	No reliable data were available for this project									
Acquired Brain Injury	Scotland's Prison Population	McMillan et al. (2019)	Hospitalised head injury: 24.69%	4374	94.3% Male 5.7% Female	Most common age group (64.9%%) 26-35 years	Unavailable	16-35	Unavailable	Case-control design, data linkage study linking prison- based health records and the Scottish Morbidity Record (SMR01)

Scotland's Prison Population	Young et al. (2018)	Traumatic brain injury: 43.3%	390	100% Male	30.3	8.3	Unavailable	Caucasian British 99%, Other 1%	Self-report questionnaires and various psychometric tests
England's and Wales' Prison Populations	Williams et al. (2010)	Moderate-Severe traumatic brain injury: 15.82%	196	100% Male	Unavailable	Unavailable	18-54	Unavailable	Self-report survey
Scotland's General Population	McMillan et al. (2019)	Hospitalised head injury: 18.2%	13122	94.3% Male 5.7% Female	Most common age group (64.9%%) 26-35 years	Unavailable	16-35	Unavailable	Case-control design, data linkage study linking prison-based health records and the Scottish Morbidity Record (SMR01)

^a PHS-PCLS = Public Health Scotland Prisons Covid Linkage Study

^b These figures may contain individuals who were infected, isolated or transferred to hospital multiple times

Ischaemic (Coronary) Heart Disease (CHD) and Other Heart Disease (OHD)

The prevalence of CHD amongst Scotland's prison population is estimated to be 1.95% and OHD 3.91% (PHS-PCLS). This compares to an estimated prevalence of 5.55% for cardiovascular disease in English prison populations (Packham et al., 2020) and 3.45-3.93% for CHD in the general Scottish population¹².

It is important to note that Packham et al. (2020) sampled prison residents aged 35-74, which represents an older sample than the Scottish sample studied by the PHS-PCLS. Moreover, Packham et al. only report figures for cardiovascular disease in general, rather than separate figures for CHD, OHD and other heart-related conditions. Together, these methodological differences might explain the higher prevalence rates in prison samples from England compared to Scotland.

Within Scotland's prison population, CHD is more prevalent amongst males than females (2.03% vs. 0.62%); it is more prevalent amongst those aged 50+ than under 50 (10.68% vs. 0.73%); and is more prevalent amongst White people in prisons in Scotland than those from other ethnic groups (2.02% vs. 0.70%). OHD is more prevalent amongst females than males (4.97% vs. 3.84%); it is more prevalent amongst those aged 50+ than under 50 (12.84% vs. 2.66%); and is more prevalent amongst White people in prisons in Scotland than those from other ethnic groups (4.04% vs. 1.55%).

Musculoskeletal disorders

The only data relating to musculoskeletal disorders in Scotland's prison population that was available for this project comes from the Vision and PR2 systems. It is, therefore, not possible to give reliable prevalence estimates for this group of conditions.

Diabetes

Arora et al. (2020) estimate a 3% prevalence for diabetes (type 1 and 2 combined) and PHS-PCLS estimate a 0.66% prevalence of type 1 diabetes and 1.21% of type 2 diabetes. This compares to an estimated prevalence of 4.41% for diabetes in English prison populations (Public Health England, 2015)¹³ and 5.74% for diabetes in the general Scottish population (Type 1 = 0.62%, Type 2 = 5.05%) (NHS Scotland, 2019).

Within Scotland's prison population (PHS-PCLS), type 1 diabetes is prevalent at a similar rate amongst males (0.66%) and females (0.62%) and it is more prevalent amongst those aged 50+ than under 50 (1.08% vs. 0.60%)¹⁴. Type 2 diabetes is prevalent at a similar rate amongst males (1.21%) and females (1.24%); it is more

¹² [Public Health Scotland: Scottish heart disease statistics](#) and [General practice – disease prevalence data visualisation](#)

¹³ There are important considerations regarding these comparisons. PHE (2015) only report figures for Type I and Type II Diabetes combined, which may partly explain the higher prevalence rates in prison samples from England compared to Scotland.

¹⁴ Ethnicity figures for Type I Diabetes were not available from PHS-PCLS due to low numbers of non-White prison residents with this diagnosis.

prevalent amongst those aged 50+ than under 50 (5.70% vs. 0.59%); and is more prevalent amongst White people living in Scotland's prisons than those from other ethnic groups (1.24% vs. 0.84%).

Epilepsy

The prevalence of Epilepsy amongst Scotland's prison population is estimated to be 3% (Arora et al., 2020). This compares to an estimated prevalence of 2.79% for Epilepsy in English prison populations (Public Health England, 2015) and 1% for Epilepsy in the general Scottish population¹⁵.

Asthma and Chronic Obstructive Pulmonary Disease (COPD)

Estimates of the prevalence of asthma and COPD amongst Scotland's prison population vary: PHS-PCLS estimate the prevalence of asthma or Chronic Airway Disease to be 7.97% and Arora et al. (2020) estimate the prevalence of asthma/COPD to be 16%. This compares to an estimated prevalence of 10.16% for asthma in English prison populations (Public Health England, 2015) and 6.39% for asthma in the general Scottish population¹⁶, and 6% for COPD in US and Greek prison populations (Bania et al., 2016; Trotter et al., 2018) and 2.46% for COPD in the general Scottish population¹⁷.

Within Scotland's prison population (PHS-PCLS), asthma or Chronic Airway Disease is more prevalent amongst females than males (14.91% vs. 7.54%); it is more prevalent amongst those aged 50+ than under 50 (14.52% vs. 7.06%); and is more prevalent amongst White people living in Scotland's prisons than those from other ethnic groups (8.30% vs. 2.11%).

Blood Borne Viruses (BBV) and Sexually Transmitted Infections (STI)

PHS-PCLS estimate the prevalence of people living in Scotland's prisons with conditions causing immune deficiency or suppression to be 0.26% (male = 0.23%; female = 0.87%; 18-49 = 0.23%; 50+ = 0.48%)¹⁸. Taylor et al. (2013) report a 19% prevalence of hepatitis C amongst Scotland's prison population, with the prevalence unsurprisingly much higher amongst individuals with an injecting history than those without (53% vs. 3%). Estimates in UK prison populations indicate the prevalence of hepatitis C to be 8.0-17.39% and HIV 0.6% (Falla et al., 2018; PHE, 2014). In the general Scottish population, the estimated prevalence of hepatitis C is 0.64% and HIV is 0.11%¹⁹.

¹⁵ SHeS 2019 and SHS 2019 (for SHS, household grossing weight was used to calculate prevalence rates).

¹⁶ [Public Health Scotland: General practice – disease prevalence data visualisation](#)

¹⁷ [Public Health Scotland: General practice – disease prevalence data visualisation](#)

¹⁸ These figures are not specific to HIV, but include other conditions such as hypogammaglobulinemia and deficiency of immunoglobulin. Figures disaggregated by ethnicity were not available due to low numbers.

¹⁹ [Public Health Scotland: Blood borne viruses and sexually transmitted infections](#)

Oral health

Arora et al. (2020) report a range of findings relating to the oral health of prison residents in Scotland. In their sample of 353 residents from 10 of Scotland's prisons, the mean number of decayed, missing and filled teeth (DMFT) was 13.70, the mean number of decayed teeth into dentine was 2.93, the mean number of filled teeth was 4.09 and the mean number of missing teeth was 6.68. In Scotland's general population, the mean number of decayed teeth is 0.5 and filled teeth is 10.6²⁰. In English prison residents, the mean number of DMFT was 14.2, the mean number of decayed teeth into dentine was 3.5, the mean number of filled teeth was 4.5 and the mean number of missing teeth was 6.2 (Heidari et al., 2007).

When Arora et al. (2020) compared different groups of prison residents it was found that residents in YOIs had significantly fewer missing and filled teeth than residents in adult prisons ($p < .001$); female residents had significantly more missing and filled teeth than male residents ($p < .001$); residents with greater experience of remands (≥ 3 remands) and shorter length of current imprisonment had a significantly higher number of decayed teeth ($p < .05$); and residents with longer prison sentences had significantly more filled teeth ($p < .05$).

Cancer

The prevalence of Cancer (malignant neoplasms) amongst Scotland's prison population is estimated to be 1.51% (PHS-PCLS). This compares to an estimated prevalence of 3.5% for Cancer in persons living in US state and federal prisons and 3.6% in persons living in US jails (Maruschak et al., 2016) and 6.60% in Australian prisons (Field et al., 2020). The prevalence of Cancer is 2.67-6.25% in the general Scottish population²¹.

Within Scotland's prison population, Cancer is more prevalent amongst females than males (1.99% vs. 1.48%) and is more prevalent amongst those aged 50+ than under 50 (6.18% vs. 0.86%), but is prevalent at a similar rate amongst White people living in Scotland's prisons (1.51%) and persons from other ethnic groups (1.41%).

Cerebrovascular disease (stroke)

PHS-PCLS provide data regarding the prevalence of 'other circulatory disease' in Scotland's prison population (5.36%), which may include stroke, but it is important to note that these figures may also include other conditions. This compares to an estimated prevalence of 1.8% for stroke-related problems in persons living in US state and federal prisons and 2.3% in US jails (Maruschak et al., 2016) and 2.30% in Australian prisons (Field et al., 2020). The prevalence of stroke is 2.28-2.49% in the general Scottish population²².

²⁰ [Public Health Scotland: Scottish Adult Oral Health Survey](#)

²¹ [Public Health Scotland: Cancer incidence in Scotland](#)

²² [Public Health Scotland: Scottish stroke statistics](#) and [General practice – disease prevalence data visualisation](#)

Within Scotland's prison population, other circulatory disease is more prevalent amongst females than males (12.42% vs. 4.91%); is more prevalent amongst those aged 50+ than under 50 (10.32% vs. 4.67%); and is more prevalent amongst White persons than persons from other ethnic groups (5.58% vs. 1.41%).

Digestive conditions: Chronic Liver Disease (CLD), Chronic Kidney Disease (CKD) and Disorders of the Oesophagus, Stomach and Duodenum (DOSD)

The prevalence of CLD amongst Scotland's prison population is estimated to be 0.80%, CKD 0.04%, and DOSD 4.24% (PHS-PCLS). This compares to an estimated prevalence of 6.1% for kidney-related problems and 1.8% for cirrhosis of the liver in US state and federal prisons and 6.7% for kidney-related problems and 1.7% for cirrhosis of the liver in US jails (Maruschak et al., 2016). It also compares to a self-reported prevalence of 3.30% for CKD and 4.10% for liver disease in Australian prisons (Field et al., 2020). In the general Scottish population, severe stomach, kidney, liver or digestive problems are prevalent at a rate of 1.90%²³.

Within Scotland's prison population, CLD is prevalent at a similar rate amongst males (0.81%) and females (0.62%), but is more prevalent amongst those aged 50+ than under 50 (1.92% vs. 0.65%). DOSD is more prevalent amongst females than males (5.09% vs. 4.19%); it is more prevalent amongst those aged 50+ than under 50 (7.86% vs. 3.73%); and is more prevalent amongst White persons than those from other ethnic groups (4.40% vs. 1.41%)²⁴.

Respiratory Tract Infection (RTI)

The only data relating to RTI in Scotland's prison population that was available for this project comes from the Vision system. It is, therefore, not possible to give reliable prevalence estimates for RTI.

Covid-19

The date of the first suspected case of Covid-19 within a Scottish prison occurred on 13 March 2020. As described by WHO (2022), from May 2020 to September 2021 there were 1520 confirmed cases of Covid-19 in people living in prison in Scotland (20.77% of the population), 56 (0.77%) of which resulted in transfer to hospital and 6 (0.08%) resulted in death (note: these figures may contain individuals who were infected or transferred to hospital multiple times). There were 13068 instances of people living in prison being isolated or quarantined, including the confirmed cases of Covid-19, and 8754 instances of people isolated as a precautionary measure (note: some people may have been isolated on multiple occasions). In prisons in England and Wales from May 2020 – September 2021, 18576 prison residents have tested positive for Covid-19 (23.11% of the population) and 116 residents (0.14%) are suspected to have died from Covid-19 (note: these figures may contain individuals who tested positive for Covid-19 multiple times).

²³ SHS 2019 - 20.77%

²⁴ Ethnicity figures for digestive problems were not available from PHS-PCLS due to low numbers of non-White prison residents with these diagnoses. For similar reasons, disaggregated figures for CKD are not available.

Amongst the general Scottish public from May 2020 – September 2021, 559063 individuals have tested positive for Covid-19 (10.23% of the total population).

Dementia

The prevalence of dementia and neurological conditions (excluding epilepsy) amongst Scotland's prison population is estimated to be 1.13% (PHS-PCLS). However, given that dementia is a condition that affects older populations, it is arguably better to focus on the prevalence of dementia in prison residents aged 50+ years, which is 2.28% amongst Scotland's prison population (PHS-PCLS). This compares to an estimated prevalence of 6.8% for dementia in English and Welsh prison residents aged 50+ (Forsyth et al., 2020)²⁵ and 4.24% for dementia in members of the general Scottish population aged 65+²⁶.

Within Scotland's prison population, dementia and neurological conditions (excluding epilepsy) are more prevalent amongst females than males (2.36% vs. 1.06%) and more prevalent amongst those aged 50+ than under 50 (2.28% vs. 0.97%)²⁷.

Pregnancy, maternal health and post-natal care

Very little data were available regarding pregnancy, maternal health and post-natal care amongst prison residents in Scotland, as such data are not held on Vision and no relevant published research could be found in Scotland. PR2 contains a risk marker indicating prison residents who are pregnant, but these data are not reported here due to the aforementioned concerns regarding data reliability. No data were available relating to other indicators of maternal health and post-natal care, such as low birth weight, stillbirth, pre-term delivery etc. (see Bard et al., 2016, for a systematic review of such factors in international prison populations).

Acquired brain injury

McMillan et al.'s (2019) study found a 24.69% prevalence of hospitalised head injury (HHI) in their sample of 4374 persons living in prison in Scotland aged 35 years or younger, which was significantly higher than the 18.2% prevalence in the matched general population comparison group. Persons living in prison were found to be admitted to hospital for a head injury more frequently, for longer durations and experienced more severe head injury than the general population. HHI was found to be more common amongst male than female persons living in prison (25.1% vs. 18.5%) and was more common amongst those aged 26-35 than 16-25 (27.4% vs. 19.8%), but there was no difference in the prevalence of HHI as a function of

²⁵ Note: Forsyth et al. (2020) derived their prevalence estimates by administering psychometric tools rather than examining the health care notes of participants. Indeed, Forsyth and colleagues note that only 2 out of 59 persons living in prison who were identified as having dementia had a formal diagnosis on their records. This might explain the lower prevalence rate for persons living in prison in Scotland, which was derived from health care records rather than from psychometric tests.

²⁶ [Public Health Scotland: Dementia benchmarking toolkit](#)

²⁷ Ethnicity figures for Dementia and neurological conditions (excluding epilepsy) were not available from PHS-PCLS due to low numbers of non-White persons living in prison in Scotland with these diagnoses.

deprivation (as measured by the Structured Index of Multiple Deprivation, SIMD). In Young et al.'s (2018) sample of 390 adult males living in HMP Inverness, 43.3% were considered to have experienced Traumatic Brain Injury (TBI, defined by Young and colleagues as loss of consciousness or hospital treatment). According to Williams et al. (2010), 15.82% of persons living in prison in England and Wales are estimated to have experienced moderate-severe traumatic brain injury (defined as loss of consciousness for 10+ minutes) and 49.49% experienced mild traumatic brain injury (loss of consciousness for less than 10 minutes).

Conclusion

There was difficulty developing prevalence estimates to describe the physical health care needs of Scotland's prison population due to a lack of available data, questionable reliability of existing data sources and challenges identifying directly comparable baselines for national/international prison populations and the general Scottish population. Where comparisons were possible, the data suggest that persons living in prison in Scotland experience greater prevalence of some (but not all) physical health conditions examined in this study (particularly: epilepsy, asthma, COPD, hepatitis C, oral health and Covid-19). In general, worse physical health was observed amongst White persons living in prison in Scotland, females and individuals aged 50+.

Interviews with stakeholders, people with experience of prison, and family members

Overview

This chapter presents the findings of a thematic analysis of interviews conducted with stakeholders, people with recent experience of prison, and family members of people in prison on their views and insights into the physical health care needs of people in prison and physical health care services in prison.

Methods

The views and insights of stakeholders, people with experience of prison, and family members of people in prison were obtained through 22 one-to-one interviews. Seventeen of these interviews were conducted with a range of stakeholders from the Scottish Prison Service, NHS (prison- and community-based), Public Health Scotland, HM Inspectorate of Prison for Scotland, and third-sector organisations working with people in prison and/or on release from prison. Further, two people with experience of prison and three family members of people in prison were also interviewed. These individuals were recruited with the help of community-based organisations which provide support to people on release from prison and/or family members of people in prison.

The aims of the interviews were to engage with stakeholders and people with experience of prison (and their family members) to assess how health care in prisons meets people's physical health needs. The interviews were conducted with the support of topic guides which were tailored to the participant group. These topics guides covered the following: population needs and the extent to which they were being met; opportunities to maintain/improve physical health; impediments to maintain/improve physical health; the reception process; access to health care services/support, including secondary, end of life care, and other forms of extended health care; access to medication; resourcing of health care services; the impact of, and lessons learned from, COVID-19; transfer and liberation.

Interviews were conducted virtually via MS Teams or telephone and were audio-recorded and transcribed, before being coded and analysed thematically (as described by Braun & Clarke, 2006). The following provides a summary of the themes identified through this analysis.

Perspective of people with experience of prison and family members of people in prison

Opportunity for physical health improvement in prison?

Most participants felt that it was possible for people in prison to improve their physical health while in prison. Participants mentioned that people in prison have

access to the gym for exercise; however, there were mixed opinions as to how appropriate the gym was for all individuals. One participant stated that he would be embarrassed to attend the gym due to the impact of his physical health condition on his ability to use the equipment, while a second participant outlined that some prisons hold separate gym sessions for individuals with particular health concerns, such as obesity. It would seem, however, that people in prison would welcome a range of exercise options for those who might not wish to, or are not able to, engage with the gym.

Participants commented on the food provided to residents in Scottish prisons. There were mixed opinions as to the nutritional value of the provided menus. Some participants commented that it was possible to eat a healthy diet while in prison, whilst others pointed to a lack of options to suit different needs and preferences. Another participant commented on the difficulty of storing fresh fruit and vegetables in cells; it was reported that some Scottish prisons, but not all, provide access to small refrigerators for this purpose. It was felt that appropriate storage options throughout the prison estate would encourage and enable healthy food choices.

One participant commented on how access to health provision in prison which they would not otherwise access in the community, meant that their family member had received screening and treatment to a blood borne virus which had contributed to an improvement in their health. Further, more than one participant disclosed that they were deterred from taking illicit substances when in prison. This was reported to be due to the availability of opiate substitution therapy, which they were able to manage more effectively in prison. As a consequence, they reported feeling healthier than when they first entered prison.

One participant did report, however, that their family member had not been able to work while living in one Scottish prison and had been told that this was because of prison rules relating to their physical health condition. It was reported that this individual felt that being prevented from working, and hence keeping active, had negatively impacted his physical (and mental) health.

Workforce and staffing

There was agreement between participants that prison-based physical health care was understaffed and that this situation had been exacerbated by the Covid-19 pandemic. It was reported by one participant that prison health care teams were diverted from providing primary care services to support testing and vaccination clinics:

“There was a massive impact. They just weren’t being seen because the staff team were so busy dealing with COVID that there was no opportunity for the lads with other health conditions to see health care”. [Lived Experience Participant]

Access to physical health care provision

There was a lack of consensus around the ease of access to primary care services for physical health. One participant stated that it was possible to gain access to a health care practitioner within two or three days; after making a self-referral on the

halls, a nurse would visit the individual on the halls to assess their needs. Others, however, spoke of how health care provision was accessed through SPS staff on the halls and that their lack of compassion and understanding of physical health needs meant that such access was often blocked. One participant spoke of how their relative, who was not able to read or write and hence had difficulties with actioning a self-referral, reported being intimidated by SPS staff and hence reluctant to ask for their help, despite desperately wanting to seek health care support:

“he doesn’t know how to, because he feels a bit anxious about asking anybody anything because they’re not very pleasant people.” [Family Member]

It was not clear whether these observations reflect differences between institutions in the pathways to access health care services (i.e. with some institutions requiring access to health care through direct self-referral and others through SPS staff) or a lack of understanding among people in prison of the designated pathway within their institution. What was clear, however, was that participants did not favour the notion of SPS staff acting as gatekeepers to health care services.

A family member described how their relative had experienced difficulty accessing the prison GP despite having complex health conditions and wishing to urgently discuss their prescriptions related to these. It was reported that the majority of this individual’s prescriptions had been stopped without consultation or communication as to the reasoning for this decision. After lodging a complaint with the help of SPS staff, and making more than one self-referral to the GP, they reported that they had still not been seen by the GP. The family member reported that their relative was in ill-health but was concerned that making another complaint might exacerbate the situation further. Such accounts indicate how some people in prison feel a lack of agency over the management of their health and a lack of recourse to alternative provision.

“He’s got to that stage where he’s not even going to ask for help now because they’re not helping. He’s sitting there all day with pains in chest. I was like ‘go and tell the nurse’. He said ‘I did but she told me just to go into a cell to sit.’” [Family Member]

Access to medication for physical health conditions

Linked to the above, people with experience of prison and family members of people in prison described problems in accessing prescription medication in prison. Most participants reported delays in accessing medication on reception into prison due to inadequate information sharing systems between community-based GPs and prison-based health care teams. It was reported that prison-based health care teams would contact community-based GPs to determine the current prescriptions of those entering prison prior to issuing medication, but it could take up to three weeks to confirm and issue the prescription.

“Obviously there is an issue with medical records when they first go in. The doctors will say ‘look we don’t have your medical records, we don’t know

anything about you and we are not just taking your word for it'. So [NAME]²⁸ said 'I have asthma, I need inhalers' 'well we'll have to wait until we get your medical record, we cannot prescribe inhalers until we see that in black and white that you have asthma'. So that's a huge issue." [Family Member]

One participant stated that his community-based surgery was only open one evening per week, and that this impacted the time it took for him to access medication on reception. Under the system described above, the prison health care team were required to wait until the community-based surgery was next open to receive confirmation of current prescriptions. Depending on when an individual entered prison, it could be up to a week before the surgery was open again and able to provide this information to the prison health care team.

Participants also spoke of how changes had been made to their prescribed medication that they felt were not appropriate. These accounts usually highlighted how these participants felt they had little agency in these decisions and that they happened *to* the participant rather than *in consultation* with the participant. For example, one participant spoke of how prescription medication for treating diabetes and angina had been stopped on entry to the prison without explanation. It is possible that there were sound medical reasons for these decisions, but these had not been explained to the participant who was reportedly suffering from increased ill health due to the withdrawal of these prescriptions. Despite placing further referrals to discuss the situation with the GP and also making a formal complaint, the prescriptions had not been reinstated.

One participant also reported that prescription medication, despite being given out in the early morning on weekdays, was not dispensed until much later in the day on the weekend due to health care staffing arrangements. The participant explained that this could lead to reduced effectiveness of the medication or withdrawal symptoms for the patient, depending on the prescribed medication.

Communication

As already outlined above, some participants felt that there was a lack of communication and consultation with people in prison around decisions related to changes in their prescription medication, around treatment decisions, and in the provision of the results of medical assessments and tests. Examples were given of changes to, or removal of prescriptions, with no discussion as to the reasoning for these decisions. One participant reported that their family member was particularly anxious about unexplained changes to their prescription regime, despite having complex medical needs. This decision may have been made for legitimate clinical reasons, but the lack of explanation had resulted in clear anxiety for this individual. Another family member reported having legal guardianship over their imprisoned relative, which meant they should be consulted on all health care decisions. Despite this, their relative had received medical treatment within prison and in hospital

²⁸ Name removed to preserve anonymity.

during their time in prison, but the details had not been communicated to their guardian.

Physical health care management during transitions in the prison journey

Finally, people who had experience of prison spoke of their experiences of liberation and expressed the view that practical support at this time is critical to the outcomes of people being liberated from prison. Support in gaining access to a community-based GP was said to be especially critical for those with health conditions as they are likely to have increased vulnerabilities, as well as additional needs. Participants reported that navigating the systems required to register with a GP were particularly difficult, and stated that, if support for third sector organisations, such as the Simon Community Scotland²⁹ and the Wise Group³⁰, had not been available, they would have struggled to adapt to life outside of prison.

Perspectives of Stakeholders

Health Needs of the Scottish Prison Population

Participants identified the following as prominent physical health needs of people in prison: respiratory conditions, cardiovascular conditions, head injury, chronic pain, diabetes, blood borne viruses, oral health, and emergency health needs (discussed as a result of violence in prison). The increase in number and range (for example, non-communicable diseases, musculoskeletal and mobility issues) of physical health concerns due to the ageing prison population were also highlighted and the links here with increased need for social care support within the prison estate were discussed.

Most participants mentioned the mental health, trauma-, and substance use-related health needs of people in prison. The comorbidity of these needs with physical health needs was also recognised. Direct associations (for example, nerve damage due to intravenous drug use or respiratory conditions as a result of long term smoking behaviours) and indirect associations (for example, long term physical health conditions such as asthma or diabetes not being appropriately managed due “to the chaos, the addiction”) with physical health care needs were outlined.

In addition to outlining these needs in general, participants were asked about the physical health care needs of different groups in the Scottish prison estate. Younger males were thought to require more trauma-related and mental health provision as opposed to physical health provision, and underlying health conditions due to substance misuse were also mentioned in respect of this group. Participants spoke of adult males requiring more acute care than younger males due to involvement in violent altercations within prison, and higher levels of respiratory

²⁹ Simon Community Scotland works alongside Local Authorities to provide support for individuals who are homeless with the provision of emergency shelter and to address the underlying reasons for their homelessness.

³⁰ The Wise Group provides the New Routes Throughcare Mentoring service which is delivered as a Public Social Partnership between public, social, and voluntary sector organisations (including Sacro, Apex Scotland, SAMH and Families Outside) and is funded by the Scottish Government.

problems, such as COPD and asthma, due to more smoking behaviours amongst this group.

Participants spoke of how poor physical health amongst women in prison was thought to be associated with involvement in prior abusive or controlling relationships, sexual victimisation, and/or through prioritising caring responsibilities over their own health needs, all of which were thought to decrease engagement with physical health care services in the community.

Opportunity for physical health improvement in prison?

The majority of participants spoke of how prison should be a place where pre-existing health issues were resolved. There were references to people in prison being a “captive audience” for health services and that with “everything in one place” health care services in prison should be “the opportunity to detect, to intervene and ... to signpost on to treatment. It's just such a huge opportunity” [High Level Stakeholder].

More broadly, participants spoke of how, for some individuals, prison provides greater stability than life outside of prison - accommodation, food, warmth and a structure to the day, which includes access to outside spaces and the gym. From this more stable position, it was felt that those living in prison should be able to utilise the health services available to them to improve their physical health. Some participants did indeed speak of how individuals tend to engage more with health care services in prison than in the community. Examples given were increased engagement with diabetes clinics, sexual health screening and testing, and blood borne virus testing and treatment.

Conversely, however, participants spoke of the barriers to improving health in prison. Concerns were raised about the impact of the harms of prison on mental health and substance use in prison and the direct and indirect relationships between these and the occurrence of, and lack of management of, physical health issues. Further, the nutritional status of food in prison, the lack of access to daylight and to alternatives to the gym for exercise purposes were mentioned by participants as barriers to improving physical health in prison. Some participants also spoke of how the ‘churn’ of the prison population meant that individuals might engage with health services in prison, but would not complete treatment prior to liberation and hence progress may be lost on their return to the community.

Individuals held within prison on remand were reported to have their access to some primary care and oral health services restricted:

“it's just limited to a list of things that we can do in terms of urgent or sorting problems, it's not getting a check-up, a scale and polish and a whole course of treatment”. [Health Care Professional]

This practice was thought by participants to be related to there being insufficient time to complete standard treatments prior to potential liberation: “they said there wasn't enough time”.

Workforce and staffing

The majority of participants mentioned concerns around the resourcing and staffing of physical health care in Scottish prisons. The high number of vacant primary care nursing positions within the prison estate was mentioned by most participants as a limiting factor to service provision. It is important to consider these comments in the context of a national shortage of qualified nurses and to recognise that interviews took place during the Covid-19 pandemic which inevitably exacerbated staffing pressures. Despite this context, however, respondents reported that prison-based primary care nursing positions were particularly difficult to recruit to and subject to high rates of staff turnover. One participant commented:

“Honestly within nursing, prison nursing is seen as one of the lowest of the lows. You’ve got your ITU³¹ nurses here, your children’s nurse there, and then ... all the way at the bottom is prison nursing.” [Health Care Professional]

Prison-based nursing was perceived by participants to be “high tariff work” - nurses often work independently without the level of supervision as similar positions within community-based NHS services. While some participants clearly relished this work, the prison environment and the nature of the population were said to add to the complexity of the role:

“I always felt we were at the heart of what it is to be a nurse...you leave all your fancy titles, your fancy equipment, you are very much on your own ... And it's very basic nursing, isn't it? Like if you have your emergencies you have to use your skills, you have to use what you've got in the bag and you're relying on your colleagues” [Health Care Professional]

“There's security issues, there's access issues, they're a hard population, there's a lot of special needs.” [High Level Stakeholder]

A good proportion of participants commented on how the remuneration of prison-based primary care nurses was not in step with the nature of the role and likely contributed to the high levels of turnover:

“I can understand why staff get weary and tired ... they maybe need to look at it as some kind of speciality and increase the banding and increase the pay”. [High Level Stakeholder]

It was also mentioned that prison-based physical health nurses were also banded lower (band 5) than nurses working in prison-based mental health and addictions (band 6), which was said to further demoralise those in physical health care roles. Further to this, some health care staff reported a perceived lack of understanding amongst non-prison NHS staff and SPS staff of the role and responsibilities of the prison-based nurse. This lack of awareness contributed to health care staff feeling undervalued and forgotten.

³¹ Intensive Treatment Unit

Participants reported that shortages of prison nurses impacts on the provision of staff training and development, and on the delivery of clinics for long term conditions, such as asthma and diabetes.

“...you need to see the admissions and make sure they're safe and you need to medicate. And that's the two things that'll happen. Everything else will go.”
[Health Care Professional]

“so much of their day is spent on giving out medication ... it's really difficult for the health care team to function as a health care team”. [Third Sector Stakeholder]

The views on whether the resourcing of GP positions in Scottish prisons is adequate were mixed. Some participants cited long waiting lists as evidence of under-resourcing, while others compared the number of people in prison per GP to patient-to-GP ratios in community practices and concluded that the “odds of accessing health care are much greater in a prison environment than they would be in the community”. Such comparisons, however, perhaps fail to account for the more complex needs of the prison population which will undoubtedly require greater resource to achieve equivalence of outcomes with community populations.

A significant minority of participants reported how challenges around SPS staffing impacted on physical health care provision. It was reported that the primary care and, in particular, oral health clinics rely on SPS staff to escort patients from the halls to the clinic for their appointment and back again afterwards. Staff shortages or other priorities within the prison do, however, result in SPS staff being diverted elsewhere meaning patients were not attending clinics for their appointments. Within oral health clinics, it was estimated that 30-50% of the time that clinicians could spend assessing and treating patients was lost to the lack of escorts. One participant suggested the provision of dedicated NHS staff to perform this function could alleviate the problem.

Access to physical health care provision

Health care provision on reception:

Participants outlined that all new arrivals to prison, whether remand or sentenced, were given a health assessment within 72 hours of reception. It was reported that an initial assessment is completed by mental health or primary care nurses, depending on the prison, the aim being to determine any immediate health care needs or suicidal intent. Participants spoke of how this initial assessment is usually followed up by checks by either a nurse practitioner or GP (dependent on the establishment) to determine any prescription needs or ongoing treatment. One participant outlined that while information is collected by the prison health care team “it doesn't mean to say they'll get that treatment or access to that support. It just means they're aware of it”. Others spoke of how the assessment of health care needs at the point of reception only was insufficient and that further assessment should follow once individuals are more settled. Reception is reportedly a highly

stressful time for new arrivals to prison, and they may not fully disclose health care needs for a number of reasons:

“it's important to recognise that people might not immediately declare that they've got a problem [during reception] and that there should be opportunity to, as they settle down ... to ... know where to go for help”. [High Level Stakeholder]

Participants lacked consensus in their views, however, regarding the ease of access to primary health care services in prison after reception. Some participants spoke of their confidence that individuals with legitimate and specific health care needs would be able to access the support they required, and others cited low numbers of complaints regarding NHS services within their prison establishments. Many outlined that access to physical health care services was available through the completion of an easily accessible referral form located on the halls. It was identified by some participants, however, that low levels of literacy may act as a barrier to this seemingly straightforward process for some people in prison. In recognition of this, some establishments had amended their referral forms to include pictures and single words in an attempt to improve access to health care for these individuals.

Participants commented on how oral health care is not discussed within the health assessment on reception to the prison. As such, all access relies on self-referral.

A reactive service:

A proportion of participants were critical of the reactive nature of prison health care services which requires individuals, many of whom do not prioritise their own health, to self-advocate for the health care provision they require:

“One thing that's true of the health care system generally is that it absolutely relies on the ... patient to actually be in control and manage their own health. And many of the patients that end up in the prison estate haven't had the support or the skills development to be able to do that. And then when you add in to that, lots of challenges and complexity, you know it's way down their list of hierarchy of what they want to address.” [Health Care Professional]

Participants spoke of how it should be the responsibility of prison health care teams to encourage the prioritisation of health amongst people in prison through the provision of health education, health promotion, regular check-ups and screening. It was clear from participant responses, however, that a wider approach is necessary to provide the space for individuals to prioritise their health. Experience of homelessness, physical and sexual abuse, caring responsibilities, mental ill-health, substance use issues, and learned helplessness around ill-health were all cited as reasons which may have contributed to why physical health concerns were not prioritised by some people in prison. Participants spoke of women avoiding cervical screening and other sexual health assessments and interventions due to trauma around previous sexual abuse and/or stigma around their past. One participant remarked:

“I did his cholesterol it was 9.7 ... I said ‘we need to look at that’ and he said ‘I’ll be released in 2 weeks to live in cardboard box ... my cholesterol is the least of my problems’.” [Health Care Professional]

Given these complexities, some participants advocated a public health approach, focussed on the social determinants of physical health and built on multi-agency working, towards improving the physical health of people in prison.

Health literacy and education:

Improvements in education around health were identified by a number of participants as required for both people in prison and SPS staff. Participants felt it should be responsibility of prison health care teams to raise the health literacy of people residing in prison:

“There needs to be some literacy built in, to encourage people ... to use this opportunity in a prison setting to get a health check”. [Health Care Professional]

Oral health care services were reported to provide an oral health education programme for people in prison. ‘Mouth Matters’ provides information to individuals on reception to the prison around access to dental services, how to brush teeth effectively, and provides free toothpaste contingent on ongoing engagement with the programme.

Given their potential role in facilitating access to health care for, and supporting the needs of, people residing in prison, SPS staff were also identified as requiring further health education:

“it’s also for the prison officers ... to understand that you might need to speak a bit more slowly, not have too much noise going on”. [High Level Stakeholder]

One area where participants identified the need for education of prison staff was in relation to palliative and end of life care:

“Having the education to support people and, if possible, to have more people dying in prison if that is their choice, would be better. But I think there’s certainly ... from the prison service staff and governors, ‘we don’t want them dying here, that’s not dignified, they’d be far better dying elsewhere’. And in some situations that maybe appropriate, but I think if we could support people to die in the prison, if that’s what they wish, then I think we should be able to do that.” [Third Sector Stakeholder]

Participants outlined that there are some misconceptions amongst people in prison and SPS staff around the service that the oral health care teams are able to provide. Amongst people in prison it was reported that expectations around the extent of oral health provision can be too high, whilst SPS staff misconceptions centred around the extent of provision available for people on remand. Participants reported that there is a common misunderstanding amongst SPS staff that people on remand do not have any access to oral health services and hence residents are

discouraged from putting in referrals. In reality, whilst routine check-ups and subsequent courses of treatment are not available to those held on remand, emergency dental care is available and people should be encouraged by SPS staff to make a self-referral to the oral health team.

Waiting times:

There was plenty of discussion amongst participants about waiting times for primary health care appointments within prison but no clear consensus emerged as to whether these were excessive, especially when considered in the context of waiting times for community primary care appointments. Some participants thought that waiting times to see a GP were too long, whereas others thought that people in prison were seen more quickly than in the community.

Some participants outlined a process that had been implemented to mitigate waits for appointments whereby nurses visit people who have made referrals on the halls to determine the nature of their health concern and to triage them appropriately. It seems, however, that these are locally instituted processes and are not utilised within all establishments. One member of prison-based health care staff commented that without such triage services...

“you don’t always know if you’re going to get somebody in who actually needs ‘oh Jesus you are an emergency and actually we won’t let you out of here’ or the person whose been high for two years but decided that today is the day he wants to deal with it.” [Health Care Professional]

Within prison-based oral health services, waiting lists were seen to be excessively long, especially given the changes to practice required since the onset of the Covid-19 pandemic. Within one establishment, it was reported that around 300 individuals were waiting on appointments for check-ups. In another establishment, the dental surgery on site was not operational and individuals were being transported by bus to another establishment once a week. Oral health care had been disrupted particularly badly by the Covid-19 pandemic. Due to enforced gaps between appointments due to poor ventilation and requirements around social distancing, throughput at each clinic had been substantially limited. This was compounded by the issue mentioned previously around the availability of SPS to escort patients to their appointments:

“Getting access to them is incredibly difficult ... as a dental team we need a dental chair, we need our drills ... We can’t just go up to the hall and write a prescription and take blood pressure like the other teams can. So we need a bum on this seat.” [Health Care Professional]

Access to secondary care:

Relationships between prison-based and hospital/community-based health care teams were stated to be good and hence arranging secondary care referrals and appointments was reportedly unproblematic. The majority of participants, however, did speak of their perceptions of the private service contracted to transport people

in prison to their hospital or community-based secondary care appointments. Workforce issues, perhaps exacerbated by Covid-19, had meant that the company had struggled to fulfil their security transport role on a significant number of occasions, which meant that patients missed their appointments and rescheduling was necessary. Apart from the threat to the health of the patient that this might pose, given the security concerns in escorting people in prison to external appointments, it is generally not communicated to patients when their secondary care appointments are scheduled to be. Participants reported, hence, that individuals would miss appointments but would not be informed that they had missed their appointment. Some participants reflected on how this might impact on the individual's future treatment by, and access to, health care services.

Virtual hospital appointments utilising Near Me were reported to alleviate the issue of missed appointments due to transport failures. Participants also reported that utilising technology for such appointments has other benefits, such as avoiding the need for patients to be handcuffed within health care settings, but participants explained that not all establishments had access to this system and virtual appointments are not possible for all clinics or conditions.

Access to medication for physical health conditions

There was a general consensus amongst participants that if an individual living in prison required medication for a health care condition, they would be able to access it (or an equivalent) through contact with the prison health care teams (but note the discussions above around self-referral, self-advocacy and lack of prioritisation of health care needs by people living in prison).

Concerns were raised by a number of participants, however, about the availability of some medications for people in some establishments, particularly pain management medication (e.g. pregabalin and gabapentin). Security concerns related to the trading of prescription medications in prison has resulted in the restriction of these medications in some prisons:

“the biggest issue for us, is the people who come in from the community on long term prescriptions where they then meet up with a system ... that potentially enforces the rules slightly more stringently than they might in the community.”
[Health Care Professional]

Participants outlined a number of concerns with this practice including inconsistencies between prisons in the prescribing pain management medication, the lack of effective alternatives for some restricted medications (e.g. medications prescribed for the management of pain, such as pregabalin and gabapentin) and the subsequent impact on the wellbeing of individuals, and the lack of consultation with individuals around changing their medication:

“Just because they're in prison doesn't mean they're not genuine, they're not in pain. And we get a lot of prisoners that come in on a lot of painkillers, and the GP will stop them”. [Health Care Professional]

A number of participants, however, did offer the alternate view that the prison environment results in more appropriate prescribing, as GPs feel more supported in the prison should an individual disagree with their refusal to prescribe the medications requested:

“When you're in here it's quite easy to say no because you know you've got a couple of guys behind the door to back you up ... Whereas I think in GP clinics they don't have that, so sometimes they give them things that might not be the best course of treatment but it's the patients preferred.” [Health Care Professional]

It was also mentioned that prison allows for the supervision of medicating practices, which encourages a level of compliance with medication regimes which may not be seen in the community:

“Because we do supervised medication for a lot of patients they're actually taking it at the right time whereas when they're taking it at home will they remember to take it? Definitely no, because of the drink and the drugs, you know.” [Health Care Professional]

In relation to over-the-counter medication such as paracetamol and ibuprofen, participants reported that prison officers are able to provide access should any of the residents require it. One participant stated that they felt that such medication should be available for people in prison to buy as part of their canteen, but that this policy was not supported by SPS.

Physical health care management during transitions in the prison journey

Participants reported a lack of joined up working and continuity of care in relation to physical health care during transfers between prisons and liberation.

Participants indicated that individuals transferring between prisons were assessed by a health care professional on arrival at the new location, although it was unclear whether this was the practice at all establishments. Some participants reported that a record of an individual's medication would be sent to the new establishment, especially if they were on any uncommon or expensive medication, to alert the new establishment to these needs. It was reported, however, that differences in prescribing practices between establishments (and between health boards) meant that some people in prison had their medications changed on reception at their new establishment without consultation.

There were several issues identified in relation to the management of physical health care on liberation. The first of these relates to the practice of de-registering of individuals from their community GP practice once they enter prison. Participants appreciated the reasoning for this policy, but reported resulting delays in the provision of support to individuals on liberation, due to the need to re-register with a community GP practice. This could lead to an interruption in treatment or in the availability of prescription medication. It was also noted that the practice of de-registering people once they enter prison means that community-based GPs cannot

access the individual's health record and hence are prevented from supporting the coordination of care in prison. Second, the support for individuals on liberation was reported to be insufficient. Participants stated that when liberation dates were known/planned, it was possible for SPS and prison-based NHS services to provide support to individuals in the lead up to liberation by pre-registering them with a GP and providing them with one week's supply of medication to cover their needs until they could see a community-based GP. It was reported, however, that the practice of pre-registration was not sufficiently widespread, and had indeed been negatively impacted by staff shortages during the Covid-19 pandemic, leaving many liberated individuals without support on release: "there's a lot of people who just literally fall off the wayside and don't contact anybody".

Further, unplanned liberations most often resulted in the liberated individual having to navigate the complex systems relating to social work, welfare, housing and access to a GP, without support and with no prescription medication supply:

"If it's not a planned liberation they wouldn't get any medication, so they would have to go to their GP and get an emergency prescription. So if they get out last minute ... it is a bit of a nightmare ... they wouldn't get a supply." [Health Care Professional]

Accessing GP services and ongoing treatment was further complicated by geographical issues. For example, access to ongoing treatment was reported to be disrupted when the prison and the new residence of the liberated individual fell under the responsibility of different health boards. One participant stated that

"it's not an automatic smooth transition for people ... and that obviously then brings about delays". [Health Care Professional]

Some participants pointed to the work that third sector organisation undertake to support individuals on liberation and suggested that SPS and prison-based NHS services should work more closely with such organisations. Collaborative work with the aim of ensuring sufficient support in relation to housing, welfare, social work and health care needs not only in the days after liberation but throughout the whole of an individual's sentence, was suggested.

Finally, community GPs reported that they are provided with little information on how a liberated individual's physical health had been managed while they were in prison. Whilst details of prescribed medications are communicated by prison health care teams to the community GP, it was reported that details of any treatments individuals may have received in prison was lacking:

"We don't have a health summary, we don't know who they've seen or what they've seen. So that's really challenging." [Health Care Professional]

It was reported that, in the absence of any formal health record, GPs were required to rely on the liberated individual's reporting of any screening or treatment they received in prison. It was also reported that the lack of information sharing meant that the reasoning around prescribing or treatment was not clear:

“We don’t always get good information about the decision making behind the routes to psychotropic meds in particular. We don’t really ever get information about why someone’s been started on an anti-psychotic medication or gone onto really complicated epilepsy meds. So I would say that’s one of the other issues that we have.” [Health Care Professional]

Potential unmet physical health care needs

Participants were asked whether there were any unmet physical health care needs in Scottish prisons. A number of needs were cited by more than one participant. Some of the older buildings which comprise the prison estate were thought not able to provide appropriate accommodation for those with physical disabilities or those that require palliative or end of life care. Accessible cells are not available in all locations, although some were reported to be in the process of being converted. Given the ageing prison population, there were concerns raised about how the prison estate will cope with increased demand for such facilities with more than one participant suggesting that SPS would benefit from dedicated care facilities for individuals with reduced mobility, physical disability, or palliative care needs. Further to this, one participant reported that some prisons do not have the resources - physical or staffing - to support people on return from hospital care:

“It’s a very old building and very small cells, and quite challenging sometimes to get the hospital bed in there or if you’re thinking about a hoist and a commode and all these sort of things. It can increasingly, to find the space and ability to do that, can be very difficult.” [High Level Stakeholder]

Further to this, nursing shortages and the associated lack of opportunity for training in specific fields were reported to impact on the provision of clinics for cervical screening and the management of long term conditions, such as asthma, respiratory diseases and cardiovascular disease. Palliative and end of life care is another area where staffing shortages result in potentially unmet needs. Twenty-four hour care and medication is often required for these individuals but is not available within prisons without round the clock health care staffing. In such cases, it is reported that these individuals tend to get transferred out to hospital even when this would not be their choice. The lack of understanding of the needs of end of life patients within the prison service, it was stated, has resulted in the provision of reactive care for these individuals.

More broadly, more than one participant reported that there was an insufficient understanding of the physical health care needs of Scotland’s prison population upon which to build a comprehensive service. One participant argued that in establishments that house individuals who do not prioritise, or advocate for, their own physical health, without knowledge of the population needs:

“you land up with an absolutely basic service ... until we start anticipating the care [needed] and doing something to educate people and get them to take responsibility for their health, that’s how we’ll continue to be”. [High Level Stakeholder]

Covid-19

The Covid-19 pandemic, it was reported, has exacerbated the prison health care workforce issues outlined above. Apart from Covid-19 related absences putting pressure on an already stretched service, prison-based NHS staff have also been required to undertake the testing and vaccination of people residing in prison:

“it's a lot of work ... we have vaccinated this full prison three times over now with the boosters. Plus flu vaccines ... it's really been a challenge”. [Health Care Professional]

Participants reported that the consequential lack of screenings and routine care has most likely resulted in missing a substantial amount of ill-health amongst residents. Furthermore, some participants stated that restrictions on prison regimes due to the pandemic had resulted in weight gain and reduced opportunities for exercise amongst people residing in prison, and they had concerns for the implications of this for physical health. Further to this, and as in the community, the length of time people in prison are required to wait for referrals to secondary care, was reported to have been negatively impacted by the Covid-19 pandemic.

Several participants discussed the impact of the pandemic on the experience of liberation. One outlined how information sharing around physical health between prison- and community-based health care services on liberation had been effected:

“Now it doesn't happen because of COVID ... we're trying to get back to it, but for the last 2 years it's not happened. I've noticed a huge difference in the pooling together all of the information and having somebody walk out with a proper release plan and health care concerns noted, because that's just not happening now. So the quicker we can go back to that the better.” [Third Sector Stakeholder]

Others spoke how the use of virtual courts, brought in to limit the spread of Covid-19, had resulted in people being less likely to be liberated with a supply of medication. Prior to the use of virtual courts, health care teams would utilise official transport lists to identify individuals travelling to court each day and would ensure a supply of medication would travel with them in case of liberation. Without the need for transport to court, however, transport lists were not available to health care teams for this purpose and hence medication was not prepared for those attending virtual courts. Participants explained that, should an individual be liberated, health care teams do not have sufficient time to provide a supply of medication prior to their liberation meaning that they would be liberated without it.

Participants spoke of how Covid-19 restrictions had impacted through-the-gate support provided to liberated individuals by third sector organisations. Face-to-face support was withdrawn during the height of the pandemic which meant that

individuals were no longer met at the gate on liberation³². There was concern about the impact of this on the outcomes of liberated individuals:

“when Shine are supporting a woman we would have done a gate pick-up in the past - take the woman straight to present as homeless, go to the GP, get a prescription sorted, get their methadone, whatever it is, get all that done. But now that [Shine] can't provide gate pick-ups, with the restrictions, you're kind of relying on the women ... and if she encounters one person on the way home who tries to encourage her to come and do whatever they want, that can all go to pot.” [Third Sector Stakeholder]

When asked about the response of SPS to the Covid-19 pandemic, two participants outlined how the measures implemented had ensured a comparatively low number of cases and deaths. One participant also reflected on how the prison service had not witnessed high numbers of incidents of unrest among the prison population during the pandemic, despite the implementation of restrictions to the regime. Indeed, it was felt that the prison population supported the strategies implemented by the prison service to limit the spread of the virus within the estate:

“For the first time ever I saw, as a collective, they took responsibility for their health and the health of others”. [High Level Stakeholder]

One participant commented that benefits of this collective responsibility included a reduction in the number of inappropriate self-referrals to primary care and more realistic expectations around time frames for appointments.

³² With the easing of the pandemic, services have been re-established and support workers are again able to meet liberated individuals at the gate should this support be required.

Report Limitations

There are a number of limitations inherent within this work that should be outlined and acknowledged. The majority of these limitations are due to methodological adaptations required due to the Covid-19 pandemic which was ongoing at the time of data collection (October 2021 – March 2022). At this time, stakeholders, and in particular prison-based NHS staff, were coping with particularly high workloads which impacted on their ability to fully engage with the project. As such, the interviewed sample contained fewer prison-based primary health care staff than we would have wished.

Further, face-to-face interviews with people residing in prison were not possible on account of Scottish Government guidelines that were in place during the timeframe of the project. Virtual interviews with people in prison were considered, but were not possible, given the tight timeframe of the project and the aforementioned workloads of those that would be required to support facilitating interviews.

To ensure a voice to those with lived experience of prison, people with recent experience of prison and family members of people in prison were instead invited to contribute to the project. Despite the team's best efforts, and the support of several relevant organisations, the numbers of people with experience of prison and family members of people in prison were lower than originally planned. It is recognised that such limitations will have inevitably impacted on the breadth of data collected in respect of health care provision within Scotland's prisons.

All interviews were conducted utilising remote technology. Whilst this method might, it could be argued, have increased the likelihood of some participants engaging with the project, it might also have created a barrier to some potential participants, for example those with limited access to the required technology and/or wifi connectivity or mobile data. It is likely that these barriers will have disproportionately impacted individuals with lived experience. In recognition of this, potential participants were given the choice of a telephone or virtual (e.g. MS Teams) meeting and had the option to turn the camera off should they opt for the latter.

Finally, and in respect of the quantitative assessment of health care needs, the limited data available meant that it has not been possible to adjust the prevalence estimates to account for differences in sex, age or other relevant characteristics to allow for more direct comparisons with the general (non-prison) Scottish population. As such, any differences in prevalence rates between Scotland's prison population and the general Scottish public must be interpreted cautiously.

Conclusions

Empirical evidence reviewed within this report suggests that people residing in prison suffer from health inequalities relative to the general population. The prevalence of many physical health conditions and the co-morbidity of physical health conditions, mental health conditions, and substance use is also high. It is therefore necessary to ensure a prison-based physical health care system which engages, supports and provides appropriate health care to people in prison. To ensure resources are appropriately targeted, it is necessary to understand the physical health care needs of the population.

Developing robust estimates of the physical health needs in Scotland's prison population was problematic, however, due to a lack of robust data and the complicated health data landscape in Scotland. Relevant data are stored on multiple, unconnected systems that are managed by different authorities with no established data sharing protocols. If the physical health needs of Scotland's prison population are to be identified, understood and addressed, it is imperative that more coordinated, joined up data sources/systems are created (the PHS-PCLS study utilised in the current study is an example of how such data linkage can be achieved). Establishing such datasets would enable research to address important questions regarding the correlates of physical and mental health in prison populations, which (amongst many other things) would help to identify particularly at-risk sections of the prison population. Such information can guide the prioritisation of limited resources and early intervention with those groups most at risk from poor mental and physical health outcomes in prison. Moreover, such datasets would provide important insight into the equivalence of outcomes for prison populations (i.e. do people in prison with chronic diseases experience better or worse outcomes than comparable populations living outside prison?).

Despite the limitations of the available data, it is possible to draw some tentative conclusions regarding the physical health needs of the Scottish prison population (notwithstanding the limitations discussed previously). Specifically, worse physical health was observed amongst White persons living in prison in Scotland, females and individuals aged 50+. Furthermore, the data suggest that persons living in prison in Scotland experience greater prevalence of some (but not all) physical health conditions examined in this study when compared to the general, non-prison population (particularly: epilepsy, asthma, COPD, hepatitis C, oral health and Covid-19).

Professional stakeholders, individuals with lived experience of prison, and family members of people in prison reflected on how a prison sentence should be an opportunity to address the health inequalities of those residing within the prison estate. Several barriers to physical health service provision were identified, however. These included prison-based NHS workforce shortages and low retention rates, the reactive nature of health care within an environment which insufficiently engages those for whom health is not routinely prioritised, gaps and inconsistencies in health care provision at points of transition in the prison journey (e.g. reception,

liberation and inter-prison transfer), issues with information sharing between community and prison-based services, and missed secondary care appointments due to the unavailability of transfers.

A number of recommendations concerning physical health care governance, monitoring, and provision have been produced based on the findings of this assessment of physical health needs and health care provision (these are outlined on the next page). Some of these recommendations have been offered in previous reports around health care provision in prisons (e.g. RCN, 2016; HSC, 2017). This physical health needs assessment would suggest that insufficient progress has been made towards addressing the previous recommendations and that action is now required to ensure service equity and improved health outcomes for people in prison in Scotland.

Recommendations

High-level and strategic recommendations:

- 1) Prison should be viewed as a unique opportunity to address the physical health inequalities commonly experienced by those living in prison. To achieve this, prison health care services and SPS, should view the prison sentence, or remand period, as a time to provide appropriate physical health care assessment, treatment, care and education to those who require it.
- 2) SPS and prison-based health care should adopt a holistic and proactive model of care which recognises the social and economic determinants of health, encourages those within prison to prioritise their health, and supports them to increase their personal agency in health care related decisions.
- 3) Physical health care in prison should be patient-centred and incorporate regular check-ups, screening, health education and health promotion activities. Care should be determined in consultation with patients and health care decisions clearly communicated.
- 4) There is a clear need to address the issues of health care staff shortage and retention within Scotland's prisons. The establishment of a career route for prison health care staff is recommended which incorporates appropriate remuneration to reflect the nature of the work undertaken by prison health care staff, emotional and practical support, and opportunities for training and career advancement.
- 5) Steps should be taken within the NHS and SPS to ensure greater levels of organisational recognition and value for the work undertaken by prison-based NHS staff.
- 6) There is a need for coordinated, joined up data sources relating to the physical health of Scotland's prison population. Ideally, such a system would allow the establishment of a robust record of physical health, mental health and social care needs, including data on both prevalence of disease/illness and health care outcomes (e.g. treatment and disease progression over time). The PHS-PCLS dataset is an example of how such data linkage can be achieved, and, if expanded to include a wider range of health data, could yield further insight into the health care needs of Scotland's prison population.
- 7) SPS (and private contractors), health and social care, and third sector organisations should jointly determine a model of health care provision to prevent gaps in the provision of prescription medication and/or ongoing primary and secondary care treatment. This model might seek to incorporate increased in-reach of third sector organisations who provide support on release, GP pre-registration prior to liberation as standard, and the provision of specialist community-based holistic support for unplanned releases.

Operational recommendations:

- 8) A common pathway to access primary health care services across the prison estate should be established. This pathway should permit confidential self-referral and incorporate support for those with additional needs (e.g. literacy) to ensure equitable access to all. The pathway should allow for the prioritisation of those with immediate needs and should incorporate a clear mechanism for requests for second opinions and complaints from people in prison (or their carers where appropriate).
- 9) A method of establishing a comprehensive health record to follow the individual into prison, through the prison journey, and back into the community on liberation should be determined. This health record should be accessible to people in prison and those with formal care or guardianship arrangements relating to people in prison.
- 10) A common prescribing formulary should be introduced across Scotland's prison estate to ensure consistency and to reduce the need for prescription variation following inter-prison transfers that may cross health board boundaries.
- 11) The initial primary care assessment for new receptions into prison should be followed up with a second more thorough physical health assessment in the following days. This is in recognition that physical health care conditions may not be prioritised at the point of reception and to ensure the enhanced capture of health care needs.
- 12) SPS and health care providers should jointly establish a system to escort people in prison to clinical and dental facilities that maximises the time available each day for health care staff to see their patients. Consideration could be given, where appropriate space exists or can be re-purposed, to locating health care facilities and the dispensary on the halls to reduce the demands on SPS staff.
- 13) The current arrangements for the transportation of patients to secondary care appointments should be reviewed to develop a model of transportation that ensures the minimisation of missed appointments.
- 14) To alleviate the burden presented by transportation of patients to secondary care appointments, the expansion of Near Me technology to support secondary care appointments within the prison environment, where appropriate, should be supported.
- 15) To combat low awareness and knowledge of health-related issues amongst those living in prison, training in health literacy should be mandatory for all staff working within prisons. All new staff (SPS, NHS and third sector) should be provided with education on the health inequalities of those residing in prison, the health services available to those in prison, and the pathways to access these.
- 16) The quantity and quality of accommodation available within Scotland's prison estate should be reviewed to ensure accessible and adaptable facilities for those with physical disabilities, those recovering from a hospital

stay or other illness, and those with palliative or end of life care needs. This review should give consideration to Scotland's aging prison population and ensure that the prison estate is fit to support the physical health care needs of those residing there.

- 17) A range of exercise options should be made available for people residing in prison for whom the gym is not preferred or appropriate.
- 18) Access to healthy food options for people living in prisons should be reviewed, giving consideration to the provision of food storage facilities within cells or close by on the halls.

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Appendices

Appendix A. Literature search strategies

Physical health care needs: search strategy:

Parameter	Search Terms
Setting	Prison/jail/secure estate/secure training centre/young offender institution/criminal justice system/incarceration/penal system/correctional facility/Penitentiary
Population	Prisoners/inmates/convicts/offenders/people in prison/detainee
Health	Health/physical health/health needs/ health needs assessment/health services needs assessment/healthcare need/ health care need/communicable diseases/non-communicable diseases/maternal health/women's health/health services needs and demand/Needs assessment

Inclusion/exclusion criteria:

- 1) In English
- 2) Published from 2011 onwards
- 3) Not mental health or substance use

Physical health care support: search strategy:

Parameter	Search Terms
Setting	Prison/jail/secure estate/secure training centre/young offender institution/criminal justice system/incarcerat*/penal system/correctional/Penitentiary
Population	Prisoner/inmates/convicts/offenders/people in prison/detainee
Health	Health care/healthcare/health services/health support/delivery health care/delivery health services/provision health care/provision health services/accessibility health care/accessibility health services/attitude health care/attitude health services/knowledge health care/knowledge health services/perceptions health care/perceptions health services/acceptance health care/acceptance health services/patient acceptance of health care

Inclusion/exclusion criteria:

- 1) In English
- 2) Published from 2011 onwards
- 3) Not mental health or substance use



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