



Research report October 2021

# Injustice?

Towards a better understanding  
of health care access challenges  
for prisoners

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nuffield trust

# Key messages

**Prisoners in England are still facing severe challenges accessing hospital services, increasing the risk they will be more seriously ill by the time they are seen.**

In 2019/20, prisoners missed 42% of outpatient appointments, and the percentage of missed appointments where no advanced warning was given (18%) was three times higher than in the general population (6%). This remains a longstanding issue, with no sign of improvement.

**Early data suggests that Covid-19 has worsened prisoners' ability to access hospital services. Given that their access to services was already poor, this raises concern about unmet health care needs even further.**

Many prisoners have been locked in their cells for at least 23 hours a day for long periods of the pandemic, and access to prison health care has been restricted.

At the start of the pandemic in March 2020, there were 1,019 admissions to hospital by prisoners in England, which was the lowest number of admissions among prisoners seen in any month in 2019/20. Even accounting for the fact that people in the general population used hospital services less during the pandemic, this finding remains stark.

The proportion of hospital admissions related to cancer and genitourinary health care needs such as dialysis increased, suggesting that from the earliest stage of the pandemic, only the most urgent cases were seen.

**Injury or poisoning remains the most common reason for prisoners being admitted to hospital, highlighting the longstanding impact of the poor living environment in prisons on prisoners' health and demand for services.**

Over the four-year period up to 2019/20, injury or poisoning was consistently the most common reason for prisoners being admitted to hospital, accounting for nearly 20% of admissions in 2019/20. In 2019/20, prisoners were admitted for injury or poisoning at more than twice the rate as people of the same age and sex in the general population (43.3 per 1,000 compared with 20.3 per 1,000).

**Hospital data needs to be used more effectively to plan services to meet the high level of health care need upon entry to prison. This information can inform our understanding of the level of health care needs relating to drug use, mental health and alcohol-related disorders.**

From a sample of 582 prisoners, 38% had been admitted to hospital before prison with a diagnosis related to drugs, and 29% had been admitted with mental health needs (specifically mood disorders such as bipolar disorder). Meanwhile, 24% had been admitted with alcohol-related disorders.

**The data for understanding how a prisoner's ethnicity might affect their access to health services is poor and needs to be improved.**

One-third of admitted patient care activity by prisoners has missing ethnicity data – compared with only 13% in the general population. Improving the quality of ethnicity recording is important as a means to establish whether access to hospital services for prisoners, regardless of their ethnicity, is equitable.

**In the light of this new analysis, it is clear that many of the challenges identified in our 2020 report, such as prisoners' poor access to services, are long-term problems that still need addressing. Further decline seems to have occurred over the last 18 months due to the pandemic, although the full impact of Covid-19 on prisoners' health care needs is yet to be understood.**

## About this report

In February 2020, the Nuffield Trust published *Locked Out: Prisoners' use of hospital care* (Davies and others, 2020) – the first time that routinely collected hospital data have been used to describe how often prisoners in England use hospital services and for what reasons. We found that prisoners were struggling to access hospital services despite their significant health care needs and that, for certain groups of prisoners, there were potential lapses in the health care they received within prisons. This report draws on admitted patient care and outpatient data from 2016/17 to 2019/20 and a review of recent policy literature, and provides an opportunity to review the recommendations made in the first report in light of new data. We also consider important new evidence in relation to areas of increasing policy significance: remote consultations, different ethnic groups' use of health services, the early impact of the Covid-19 pandemic and improving understanding of people's health care needs on entry to prison.

## How we carried out the analysis

For this report we used Hospital Episode Statistics (HES) data from 2016/17 to 2019/20 to identify prisoners' use of hospital services. HES data provide a record of admitted patient care and outpatient appointments. We used postcode as a proxy for prison location and therefore associated hospital activity linked to prisoners. This is a methodology that the Nuffield Trust has successfully applied in the context of prisoners in past research (Davies and others, 2020). The prison estate refers to both England and Wales.

This work focuses purely on health care service use by prisoners in England, due to the division of health care organisation between England and Wales. However, the impact of the wider prison system on health care will involve challenges likely to be applicable in Wales too. For the present research, this approach involved providing NHS Digital with a list of postcodes of 112 prisons and young offender institutions in England,<sup>1</sup> with an associated study identifier for each establishment. NHS Digital in turn provided inpatient and outpatient record identifiers (EPIKEY and ATTENDKEY). For a full description of the methodology, please refer to Davies and others (2020).

<sup>1</sup> We excluded the small number of establishments that opened or closed during the data period. For instance, The Verne was previously an immigration removal centre and reopened as a prison during the data period. It was only fully occupied in June 2019.

# Acknowledgements

We thank the members of the expert panel who have provided invaluable advice and guidance since the start of the Nuffield Trust's prisoner health work. The panel included representatives from Birth Companions, the Howard League, Her Majesty's Prison and Probation Service (HMPPS), an Inside Recovery and Service User Involvement Manager, NHS England/Improvement, Public Health England, a researcher from the University of Nottingham and the Royal College of General Practitioners Secure Environments Group.

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This work uses data provided by patients and collected by the NHS as part of their care and support. Read more on our website: [www.nuffieldtrust.org.uk/about/corporate-policies#informationsecurity-and-data](http://www.nuffieldtrust.org.uk/about/corporate-policies#informationsecurity-and-data).

Hospital Episode Statistics data (year range 2016/17–2019/20)  
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# 1 Introduction

The number of people in prison in England and Wales remained fairly static during the 2010s, but since the start of the Covid-19 pandemic, the prison population has shrunk by approximately 6%, from just under 83,000 people in March 2020 (GOV.UK, 2021b) to around 78,000 people in March 2021 (GOV.UK, 2021a) – the smallest the prison population has been since 2006 (Ministry of Justice (2020a). This is because prisoners who had reached the end of their jail term were still being released and fewer people were being sent to prison because the courts were not operating at normal capacity (Criminal Justice Joint Inspection, 2021; Edge and others, 2021).

While people are in prison they are still entitled to receive health care and the ambition of the National Prison Healthcare Board (2019) is that prison health care is equivalent to the health care people in the general population receive. But prison is a unique environment in which to provide health care. Delivering health care to prisoners is secondary to the primary function of the prison, and the custodial environment impacts on how care can be delivered day-to-day. The Royal College of General Practitioners (2018) has written a position paper on care in secure settings, which highlights that the focus should be on ensuring equitable health outcomes for prisoners. In practice this may mean providing a higher intensity or different range of services than might be needed in the general population.

## Prisoners' health care needs

People in prison are generally in poorer health than those not in prison (House of Commons Health and Social Care Committee, 2018). Many people entering prison have complex health care needs, including mental health needs as well as drug and alcohol addiction. Estimates of the scale of need related to mental health in prison rely primarily on self-reported survey data. HM Inspectorate of Prisons reports 71% of women and 47% of men in prison as having mental health problems (Prison Reform Trust, 2020). While there is a consistent picture of high-level need among prisoners related to mental

health, it is hard to gain an up-to-date sense of the full scale of the problem and therefore the resources required to support people (House of Commons Public Accounts Committee, 2017; Prison Reform Trust, 2020).

Self-harm has an effect on people's *physical* health but self-harm data are often used as a marker of the high level of mental health care needs in prison. There were more than 55,000 self-harm incidents in prison in the year to December 2020 (Ministry of Justice, 2021b), which has an impact on demand for in-prison health care as well as use of hospital services. Just under 20% of all admissions to hospital by prisoners in 2017/18 were due to injury or poisoning, which would include cases of self-harm as well as those injured in prison due to violence (Davies and others, 2020).

Targeted screening is needed to identify people entering prison with distinct health needs, such as those who have experienced a traumatic brain injury. Around half of people in prison may have had a traumatic brain injury (HM Prison and Probation Service, 2019). Work by the Disabilities Trust (Pressat, 2020) should now mean that people entering prison are screened for acquired brain injury as a result of domestic abuse.

Prisons are required to meet the health care needs of a diverse range of people. While a third of the prison population is under 30 years old (Ministry of Justice, 2020a), prisons hold people of all ages. In prison, people aged 50 and above are considered to be in old age (House of Commons Justice Committee, 2020). This is much younger than we might normally consider to be the case in wider society, and a reflection of the fact that people in prison experience health issues normally associated with ageing around 10 years earlier than might be expected (House of Commons Justice Committee, 2020).

In June 2020, there were more than 13,000 people in prison over the age of 50 (Ministry of Justice, 2020a). Older prisoners are more likely than younger prisoners to experience physical and mental health problems as well as disabilities (House of Commons Justice Committee, 2020) and there are specific challenges to meeting the needs of older prisoners with mobility difficulties and those who require end-of-life care, in a prison setting. Hospice UK (2021) highlights the variation in end-of-life care between prisons and specific practices of concern in relation to those receiving palliative care, such as inappropriate use of restraints.

## Access to health care services in prison

Hutchings and Davies (2021) provide a detailed summary of the health care services that should be available to prisoners. In terms of how easy it is to see a nurse or GP while in prison, waiting times can be long. During an inspection at HMP Lowdham Grange in January and February 2021, some prisoners were found to have been waiting 14 weeks for a GP appointment, and while this was during the Covid-19 pandemic, extended waiting times were reported as being a longstanding issue (HM Inspectorate of Prisons, 2021a).

The practicalities of getting prisoners to health care appointments can also be a barrier to access. At least two members of staff normally have to escort prisoners to health care appointments (Department of Health, 2006), and escort availability is a common cause of missed appointments (House of Commons Health and Social Care Committee, 2018). In 2017/18, 40% of outpatient appointments for prisoners were not attended (32,987 appointments) – double the proportion of non-attended appointments in the general population (Davies and others, 2020).

Our previous analysis in this area (Davies and others, 2020), assessing prisoners' use of hospital services in 2017/18, made recommendations around the need to improve prisoners' access to hospital care and how improved data collection could help us to better understand prisoners' health care needs. We review those recommendations in Box 1.1.

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### Box 1.1: Recommendations from our previous analysis

Our report *Locked Out: Prisoners' use of hospital services* (Davies and others, 2020) aimed to address an evidence gap around what we know about the health care needs of prisoners. Although people often talk about prisoners having complex health care needs, there was limited data that could be used to determine what this really meant and therefore how health care services should be designed to ensure people can be properly cared for. That first report looked at hospital data from 2017/18 to see how often prisoners were using hospital services and for what reasons. We found that prisoners were really struggling to access hospital services and that for certain groups of prisoners, such as pregnant women and prisoners with diabetes, there were potential lapses in the health care they received in prison. We believe that hospital data could be better used to ensure prisoners receive equivalent care to the general population as well as providing a means of monitoring avoidable health outcomes. We recommended the following in our report.

#### **Improving prisoners' access to hospital care**

1. Provide greater transparency over prison escort numbers and review the supply of prison escorts.
2. Increase access to outpatient services via telemedicine consultations.

#### **Making better use of hospital data**

1. Collect, collate and publish regular data on prisoners' health care use and how it compares to the general population.
  2. Identify and monitor avoidable health outcomes for prisoners.
  3. Collect and publish data on pregnant women in prisons.
-

## 2 Has prisoners' access to hospital services changed over time?

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### Key findings

- Prisoners continue to face challenges accessing hospital services, meaning there is a risk they will be more seriously ill by the time they are seen. In 2019/20, prisoners missed 42% of scheduled outpatient appointments. The percentage of missed appointments where no advanced warning was given (18%) was three times higher than in the general population (6%).
  - Injury or poisoning remains the most common reason why prisoners are admitted to hospital, highlighting the ongoing impact of conditions in prison on prisoners' health.
  - A small number of prisoners with chronic kidney disease continue to attend hospital regularly for dialysis. This will have a knock-on impact on escort capacity, meaning other prisoners cannot be seen.
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### Prisoners' use of hospital services between 2016/17 and 2019/20

We first looked at the number of hospital admissions and outpatient appointments by prisoners from 2016/17 to 2019/20 to see how this had changed over time (see Table 2.1). We found a significant increase in both hospital admissions and outpatient appointments by prisoners between 2018/19 and 2019/20. It is likely that at least part of this increase is due to the roll-out of the Personal Demographic Service (PDS) for prisons between October 2018 and May 2019. The PDS is a national database containing

the demographic details of users of the National Health Service (NHS) in England, including name, address, date of birth and NHS number. The roll-out of the database for prisons means that a prisoner's address should now be consistently registered as the prison where they are currently located, and that prison addresses are recorded in a standardised way, including postcode. In previous years this would not necessarily have been the case. There is therefore a higher degree of assurance that the more recent data from 2019/20 comprehensively reflect how prisoners are using hospital services. Analysis to explore the impact of the PDS on captured hospital data is reported in full in Appendix A.

**Table 2.1: Number of inpatient admissions and outpatient appointments by prisoners, 2016/17–2019/20**

Year	Inpatient admissions (no. of people)	Outpatient appointments (no. of people)
2016/17	11,838 (7,729)	78,877 (27,013)
2017/18	12,103 (7,674)	83,473 (27,963)
2018/19	13,037 (8,222)	89,984 (28,906)
2019/20	14,758 (9,086)	101,277 (31,894)

We also looked at all the years of data we had available to see if the profile of prisoners had changed over time. Table 2.2 provides details of prisoners' demographic characteristics as well as the total number of episodes of care (care provided by individual consultants during a stay in hospital) and the split between emergency, elective and other admission types. Even though there were more data in 2019/20, the general profile of prisoners remained fairly consistent over the period under study, which means that even though the main focus of this report is on 2019/20 data, we can make broad comparisons between the years.

**Table 2.2: Summary statistics for prisoners' admitted patient care activity,  
2016/17–2019/20**

	2016/17	2017/18	2018/19	2019/20
No. of admissions	11,838	12,103	13,037	14,758
No. of people	7,729	7,674	8,222	9,086
No. of episodes of care	14,148	14,666	15,884	18,110
% male/female	93% male, 7% female	93% male, 7% female	93% female, 7% female	92% male, 8% female
Mean age (range)	44 years old (16–93 years)	45 years old (15–96 years)	45 years old (15–95 years)	44 years old (15–98 years)
No. of emergency admissions (%)	5,315 (45%)	5,426 (45%)	5,951 (46%)	7,278 (49%)
No. of elective admissions (%)	6,338 (53%)	6,506 (54%)	6,950 (53%)	7,259 (49%)
No. of other admission types (%)*	185 (2%)	171 (1%)	136 (1%)	221 (2%)

\* Other admission types include maternity admissions, as well as transfers between hospitals or where the admission type is not specified.

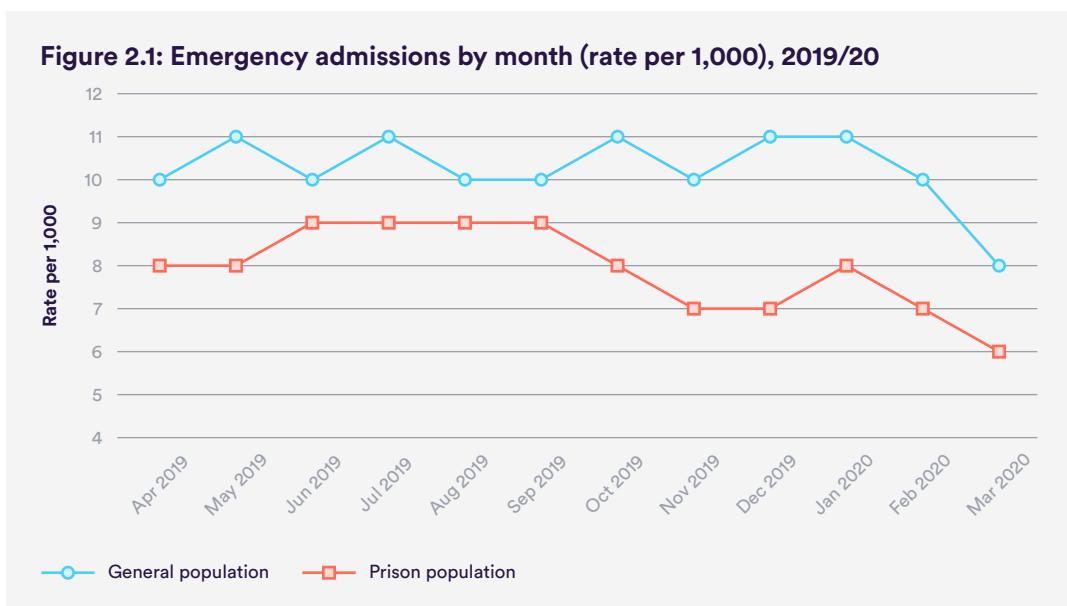
Age- and sex-specific inpatient admission rates and outpatient appointment rates per 1,000 people, comparing prisoners and the general population, can be found in Appendix B.

## Emergency and elective admissions by month

We also looked at the number of hospital admissions for prisoners by month. Figure 2.1 shows the monthly trends in the rate of emergency admission

episodes per 1,000 people across 2019/20 for prisoners and the general population, and Figure 2.2 shows equivalent figures for elective admissions. There was a drop in emergency activity for prisoners and the general population in March 2020, at the start of the coronavirus pandemic in England. Emergency admissions by prisoners fell 16.1%, from a rate of 7.06 per 1,000 in February 2020 to 5.92 per 1,000 in March 2020.

Setting aside the drop in activity linked to Covid-19, which is described in detail in Chapter 3, the lowest rate of emergency admissions by prisoners across the year was in December 2019. Emergency admissions by prisoners fell 7.32% between November and December 2019 (from a rate of 7.38 per 1,000 to 6.84 per 1,000). A corresponding drop was not seen in the general population, where the rate actually increased by just under 1%, from 10.43 to 10.53 per 1,000.



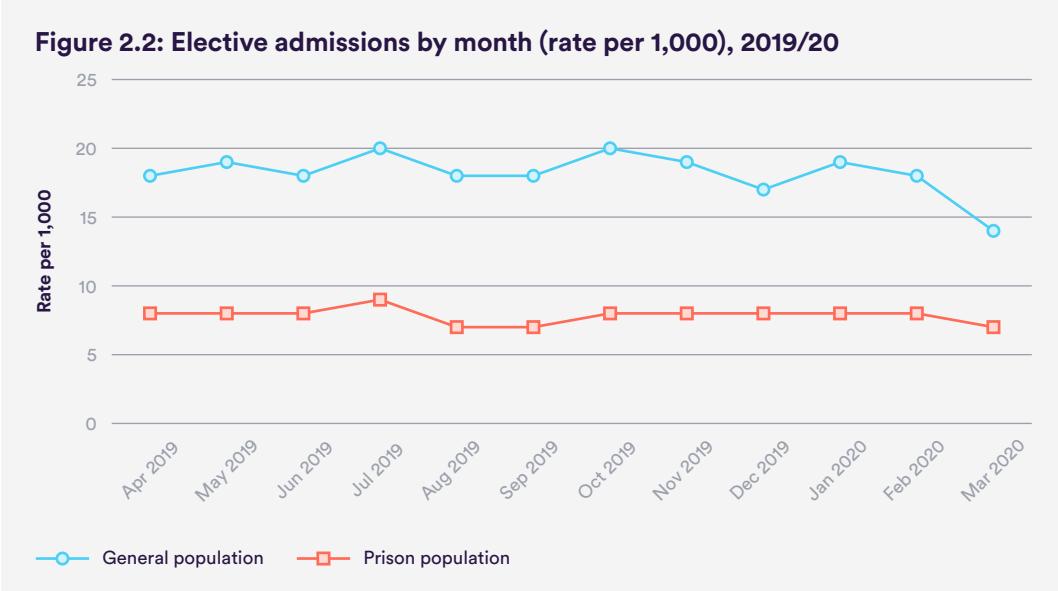
We also reported a fall in emergency admissions by prisoners in December 2019, in our previous research looking at prisoners' use of hospital services (Davies and others, 2020). The reasons for this drop are still not fully understood though. On the one hand, it could be that there are simply fewer emergencies in December due to changes in the prison regime, or conversely that the drop is linked to reduced escort availability due to the holiday period, meaning fewer prisoners can be taken to hospital. The cause is worth understanding either way. If it is due to a change in the regime, resulting in fewer emergencies, this could suggest approaches to adopt on a more

long-term basis if we want to reduce the need for emergency admissions. Even this is not straight forward, however. For example, we know that in the 12 months up to December 2020, covering the first 10 months of the Covid-19 pandemic, there was a reduction in the number of assaults (Ministry of Justice, 2021b) due to the fact that prisoners were locked in their cells for at least 23 hours a day (HM Inspectorate of Prisons, 2020). Despite the fact that a reduced number of assaults is positive, there are obvious implications of this change (for example, reduced opportunities to engage in work and education, and concerns regarding the impact on mental health).

If the drop in the number of emergency admissions is due to escort shortages, this raises questions about how – and whether – prisoners' health care needs are being met under this scenario. It could mean that prison health care is having to deal with a higher level of demand itself rather than sending prisoners to hospital, or that people are just not seen unless it is extremely urgent.

Figure 2.2 shows that elective admissions by prisoners remained at a fairly consistent level across 2019/20. The drop in elective activity for prisoners at the start of the Covid-19 pandemic was much less pronounced than that seen in the general population where there was an 18.6% reduction in the number of admissions, from a rate of 17.7 per 1,000 to 14.4 per 1,000.

**Figure 2.2: Elective admissions by month (rate per 1,000), 2019/20**



## Prisoners' continued challenges accessing hospital services

Analysis of outpatient attendance rates in 2019/20 suggests that prisoners continue to face challenges accessing hospital services.

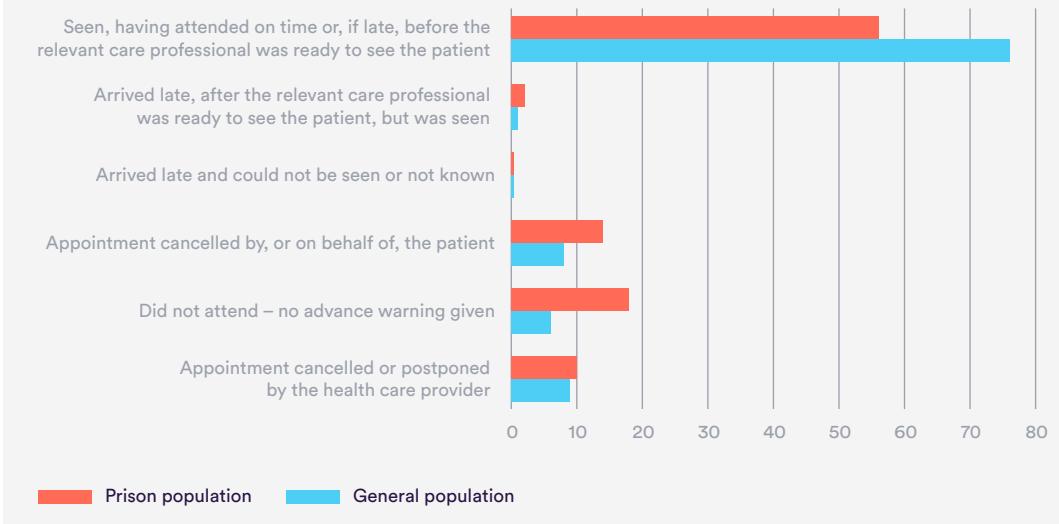
We looked at outpatient data for prisoners in 2019/20, which included more than 100,000 appointments for 31,894 people (see Table 2.3).

**Table 2.3: Number of outpatient appointments and patient demographics, 2019/20**

Year	No. of appointments	No. of people	% male/female	Mean age (range)
2019/20	101,277	31,894	91% male, 9% female	42 years old (15–98)

Figure 2.3 shows that, in 2019/20, just under 60% of prisoner outpatient appointments ( $n = 58,648$ ) were attended, while over 40% of appointments (approximately 42,000) were missed. This is consistent with our analysis of missed outpatient appointments by prisoners in 2017/18 (Davies and others, 2020). In 2019/20, 76% of outpatient appointments in the general population were attended (more than 84.5 million) while 24% were missed (around 24.5 million). Non-attendances included patient cancellations, health care provider cancellations or where no prior warning was given. The 'did not attend' percentage for prisoner outpatient appointments where no advanced warning was given was three times higher than the percentage for the general population (18% versus 6%).

**Figure 2.3: Percentage of prisoner outpatient appointments attended, and not attended, categorised by reason, and compared with the general population, 2019/20**



There are a range of reasons why appointments can be missed, which are well cited (Davies and others, 2020; House of Commons Health and Social Care Committee, 2018), but escort availability – whether this be about enough staff being available to physically take people to hospital, or whether there are enough escort slots to meet demand – remains a significant issue. This led to our specific recommendation in our previous report on prisoners' use of hospital services that there is the need both to provide greater transparency over prison escort numbers and to review the supply of prison escorts (Davies and others, 2020).

The challenge of staff availability is potentially the easier of the two points to resolve if staff can be either employed or diverted to take on a dedicated health escort role (staff whose job is to take people to and from health care appointments), although this is dependent on being financially viable and whether people are willing to take on these positions. Matching escort numbers to the level of health care need is less well understood. What remains unclear is, first, the extent to which the set number of escorts per prison factors in the level of health care need. Second, in cases where prisoners' needs have to be prioritised, it is unclear who decides which patients are seen and how those who are not seen are then managed.

# The impact of injury and poisoning on use of hospital services

## Hospital admissions

As an initial step to understanding the sorts of reasons why prisoners are admitted to hospital, we looked at primary admitting diagnosis at ICD-10 ‘chapter’ level (for both emergency and planned admissions) (see Box 2.1 for further explanation).

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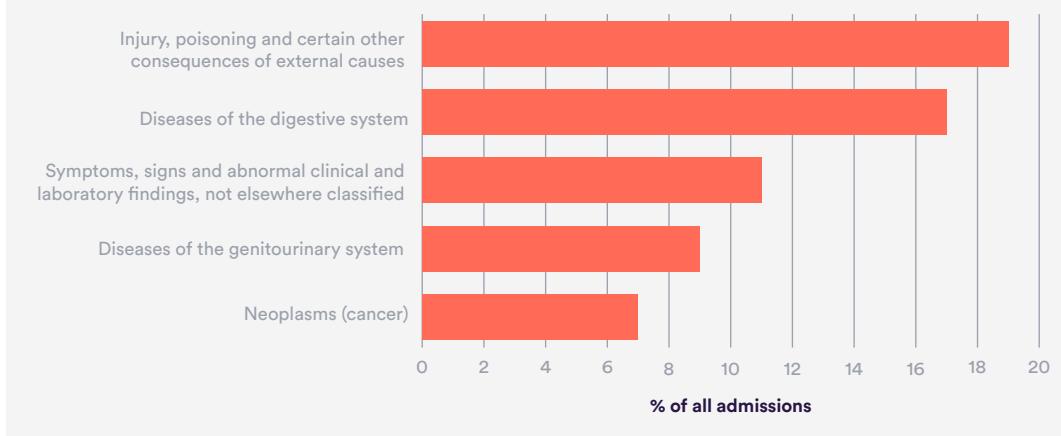
### Box 2.1: Diagnosis codes in hospital data

There are up to 20 diagnosis fields available in admitted patient care data, although not all will be completed for each patient. Diagnosis codes in hospital data use codes from the 10th revision of the *International Statistical Classification of Diseases and Related Health Problems* (ICD-10) from the World Health Organization (WHO). ICD-10 codes provide a way of classifying diagnoses into broad categories such as ‘neoplasms’ (cancer), at the highest level of ‘chapter’, which can then be broken down further into chapter blocks (such as cancer of the urinary tract) as well as further subcategories, and lastly individual diagnosis.

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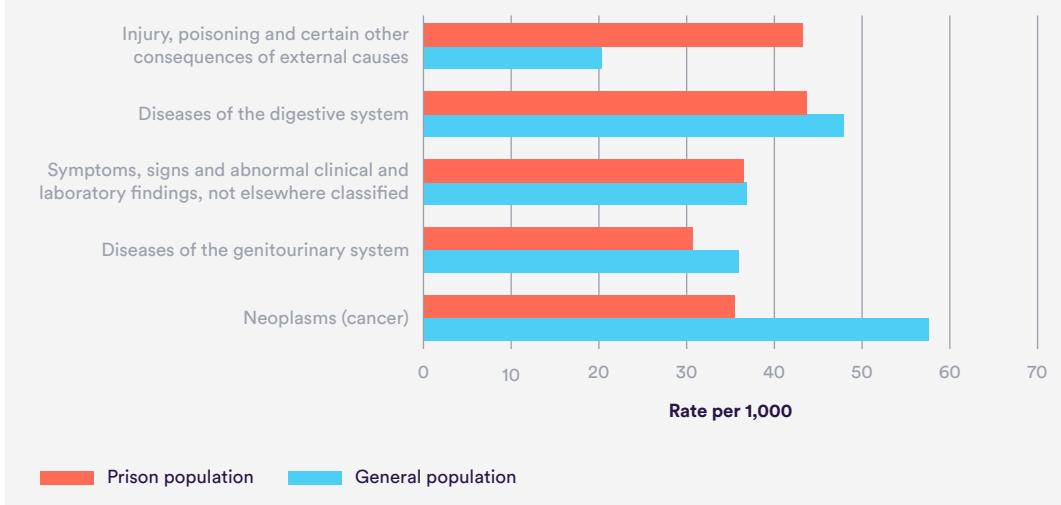
The five most common reasons why prisoners required an admission to hospital were the same from 2016/17 all the way up to 2019/20 (see Appendix C). Figure 2.4 shows that, in 2019/20, nearly 20% of admissions by prisoners ( $n = 2,788$ ) were linked to injury or poisoning.

**Figure 2.4: Top five primary diagnosis categories for prisoners, 2019/20**



We then looked at how this compares to the general population by calculating age- and sex-standardised primary diagnosis rates. Figure 2.5 shows that, in 2019/20, prisoners' admission rate for injury and poisoning was more than double the general population rate (43.3 per 1,000 compared with 20.3 per 1,000). The cancer admission rate was noticeably higher in the general population than in the prison population, however (57.7 per 1,000 compared with 35.6 per 1,000).

**Figure 2.5: Age- and sex-standardised primary diagnosis rates (rate per 1,000), 2019/20**



Some prisons provide ‘in-house’ care for circumstances that might otherwise require a trip to hospital (for instance, some have X-ray machines to avoid the need for prisoners to attend hospital for a suspected broken bone). Therefore the fact that admissions in this area have remained consistently at around 20% raises concerns that this may reflect either increasing severity of instances necessitating secondary care or increasing pressures on prison health care, meaning some prisoners have to attend hospital to receive care.

Rates of violence and self-harm in prison have wider implications for access to hospital services. Where a prisoner has to attend hospital as a result of sustaining an injury, this may result in another prisoner’s hospital appointment being cancelled given that escort numbers are limited.

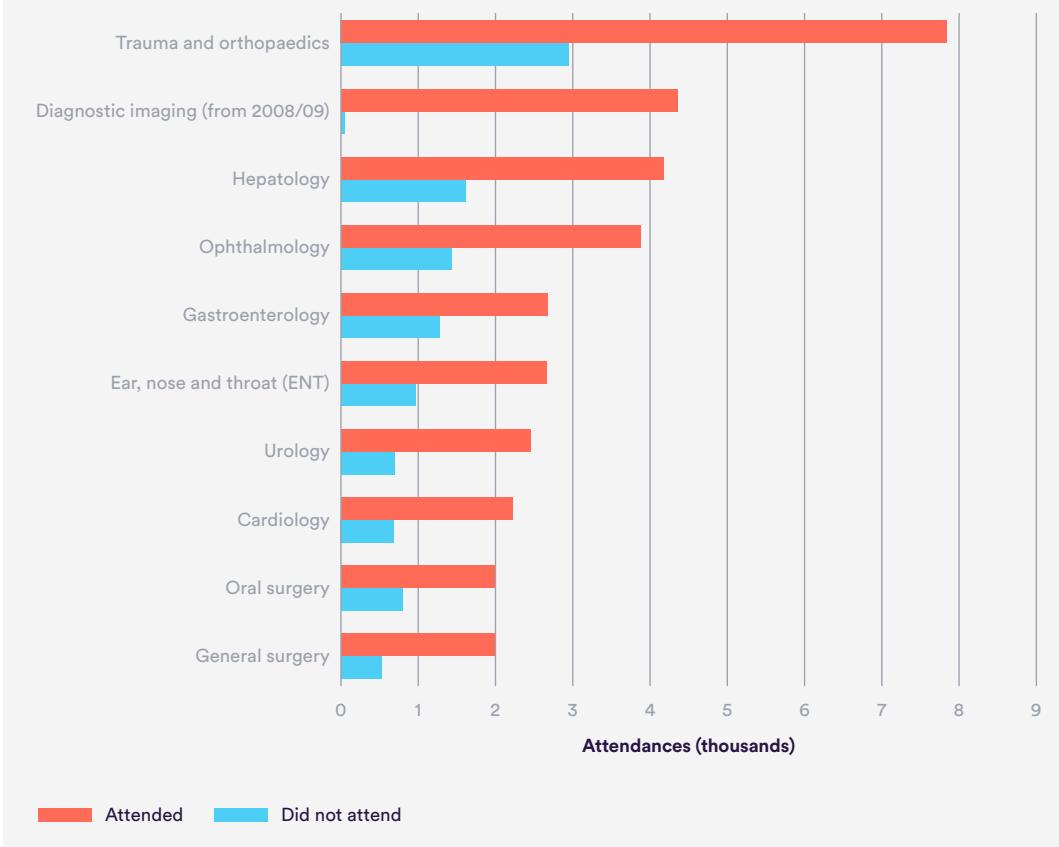
Further analysis looking at specific reasons why prisoners were admitted to hospital is reported in the appendix materials. For hospital admissions by prisoners with diabetes, see Appendix D. We also broke down the top five primary diagnosis groups (such as injury or poisoning) into specific diagnoses (see Appendix E).

## Outpatient activity by treatment speciality

The impact of violence and self-harm on demand for hospital care can also be seen when looking at prisoners’ use of outpatient services and the most common treatment specialties. Figure 2.6 shows the 10 treatment specialties with the highest number of prisoner outpatient appointments in 2019/20. The number of missed appointments for these treatment specialties (where no advanced warning was given) is also highlighted. The highest number of attendances occurred for trauma and orthopaedics ( $n = 7,843$ ).

Collectively, attendances across the 10 specialties accounted for 58% of all prisoner outpatient appointment attendances.

**Figure 2.6: Top 10 treatment specialties with the highest number of outpatient attendances by the prison population and corresponding non-attendance ('did not attend') levels (thousands), 2019/20**



There are important differences between prisoners and the general population in terms of outpatient appointment specialties (see Appendix F). In the general population, ophthalmology (treatment for eye conditions) is the treatment specialty with the highest number of outpatient appointments (just under 7.5 million), followed by trauma and orthopaedics (6.7 million). There were proportionately fewer ophthalmology appointments for prisoners, and some treatment specialities such as physiotherapy and dermatology featured in the top 10 for the general population but not for prisoners.

Box 2.2 highlights chronic kidney disease as the most common specific diagnosis for prisoners admitted to hospital.

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### Box 2.2: Frequent users of hospital services – prisoners with chronic kidney disease

In our previous analysis of prisoners' use of hospital services we found that, in 2017/18, chronic kidney disease (CKD) was the most common *specific* diagnosis for prisoners admitted to hospital, and that this was a result of a small number of prisoners attending regularly for dialysis (Davies and others, 2020). We wanted to see if this pattern continued in 2019/20 due to its impact on escort numbers available in prisons where there are people with CKD. We found that, in 2019/20, there were 888 admissions by 29 prisoners, with the majority of these admissions (862) being for haemodialysis.

Management of CKD therefore continues to have a significant impact on the need for hospital services among prisoners, remaining the most common specific reason for a hospital admission. As escort numbers for individual prisons are fixed, if a prison contains a prisoner who requires regular attendances for dialysis, this effectively reduces the number of escorts available for prisoners who need to attend hospital for other reasons. Managing the small number of prisoners with CKD in a different way (whether through mobile dialysis services or having dialysis machines on site) would increase the availability of escorts. While there are some regional initiatives to manage patients with CKD, a coordinated national approach may be of value to avoid a disproportionate local impact on prisons that have a prisoner who requires dialysis.

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## Use of psychoactive substances

There were more than 9,000 incidents where psychoactive substances were found in prisons in the 12 months ending March 2021 – more than any other type of drug (Ministry of Justice, 2021a). Because prisoners' use of harmful psychoactive substances remains a key concern, we looked at how often this was recorded as a diagnosis when prisoners were admitted to hospital in 2019/20 (see Table 2.4).

**Table 2.4: Hospital admissions with a diagnosis of psychoactive substance use, 2019/20**

Mental, behavioural and neurodevelopmental disorders (chapter blocks)	No. of admissions (no. where this was the primary diagnosis)	No. of people
Mental and behavioural disorders due to psychoactive substance use	3,036 (201)	2,364

In 2019/20, there were 201 prisoner hospital admissions with a primary diagnosis of psychoactive substance use. We looked at how this compared to the general population by calculating age- and sex-standardised admission rates for psychoactive substance use. Prisoners' admissions where there was a primary diagnosis of mental and behavioural disorders due to psychoactive substance use were higher than those seen in the general population (1.74 per 1,000 compared with 1.07 per 1,000), but looking across all diagnosis codes (that is, where psychoactive substance use may have been a secondary or subsidiary diagnosis) the rates were higher in the general population (43.7 per 1,000 compared with 37.3 per 1,000).

In 2017/18, psychoactive substance use was the primary reason for admission in 47 instances, whereas in 2019/20 this figure had risen to 201. While caution should be taken when comparing data from different years because more data were available in 2019/20 due to improved data recording, this level of increase raises concerns that there are more prisoners having serious reactions to psychoactive substances that necessitate an inpatient admission. In roughly 10% of these admissions ( $n = 21$ ) patients had a head scan while in hospital.

We then looked at the specific diagnoses within mental and behavioural disorders due to psychoactive substance use to learn more about which substances were more frequently coded in hospital admissions (see Table 2.5).

**Table 2.5: Specific diagnoses within mental and behavioural disorders due to psychoactive substance use, 2019/20**

Mental and behavioural disorders due to psychoactive substance use (individual diagnoses)	No. of admissions (no. where this was the primary diagnosis)	No. of people
Alcohol-related disorders	501 (106)	376
Other psychoactive substance-related disorders	295 (56)	238
Opioid-related disorders	783 (14)	629
Cannabis-related disorders	126 (11)	111
Cocaine-related disorders	98 (7)	88
Nicotine dependence	2,053 (6)	1,661
Sedative-, hypnotic- or anxiolytic-related disorders	16 (1)	15
Other stimulant-related disorders	20 (0)	18

The prison estate has theoretically been smoke free since 2018, but nicotine dependency was coded in 14% of all hospital admissions by prisoners in 2019/20 (although it was rarely the primary reason for admission). It is estimated that around 80% of prisoners are smokers on arrival to prison (O'Moore, 2018), compared with just under 15% of people in the general population (Chief Medical Officer's Annual Report, 2020). The extent to which prisoners are still smoking despite the smoking ban is unclear. But a study of air quality in prisons before and after implementation of the ban (Jayes and others, 2019) reported that while air quality was much improved, there was evidence that some smoking was still taking place.

## 3 New research areas

In this chapter we consider important new evidence in relation to areas of increasing policy significance: the use of remote consultations, different ethnic groups' use of health services, the early impact of the Covid-19 pandemic and improving understanding of people's health care needs on entry to prison.

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### Key findings

- There were 1,567 remote consultations in prison in total in 2019/20. More outpatient appointments were conducted remotely in prison than in 2017/18, but a further increase would offer patient benefits and may minimise the number of missed appointments.
- Remote consultations were most commonly used for trauma and orthopaedics cases. This is consistent with our findings regarding the use of remote consultation services in 2017/18 (Davies and others, 2020) and is likely to reflect health care needs linked to violence or self-harm.
- A third of prisoners' admitted patient care activity has missing ethnicity data – compared with only 13% in the general population. Improving the quality of ethnicity recording is important as a means to understand whether prisoners have equitable access to hospital services.
- Prisoners' hospital admissions fell at the start of the Covid-19 pandemic, in March 2020, to 1,019. This was the lowest number of admissions seen in any month in 2019/20.
- At a time when access to hospital services was reduced due to Covid-19, prisoners with certain conditions were prioritised, such as those requiring dialysis, as well as urgent cancer referrals.
- People entering prison are likely to have specific health needs relating to drug and alcohol use and mental health and therefore prison health services need to be equipped to meet demand. For example, from a sample of 582 prisoners, 38% ( $n = 221$ ) had been admitted to hospital before prison with a diagnosis related to drugs.

## How much use was made of remote consultations in prison in 2019/20?

In our previous work on prisoners' use of hospital services (Davies and others, 2020), we recommended that remote consultations should be used as a means of improving prisoners' access to these services. In this current work we looked at whether prisoners' outpatient appointments in 2019/20 took place face-to-face or via telephone or video consultation, to see how use of such services had changed over time.

The term 'telemedicine' is often used to refer to remote consultations in a prison setting, but as it can refer to broader remote consultation methods or monitoring methods, we refer here to 'remote consultations' to reflect that hospital records capture telephone- or video-based contact. The Covid-19 pandemic has been the catalyst for the rapid implementation of remote consultations across the prison estate and therefore understanding pre-existing use of remote consultation methods just before the pandemic provides a baseline to measure any increase in activity as well as changes in specialties making use of such services. In the general population, a large change can be seen. In April and May 2020, more than one in three consultations took place remotely (Morris and others, 2021).

Table 3.1 provides details of the top 10 treatment specialties where telephone/ telemedicine appointments for prisoners were taking place in 2019/20. There were 1,567 such consultations recorded in total in 2019/20. This equated to 3% of all the outpatient appointments that prisoners attended – slightly less than that seen in the general population (4%). Most appointments ( $n = 271$ ) were for trauma and orthopaedics consultations.

**Table 3.1: Top 10 treatment specialties where prisoners' outpatient appointments were conducted via a telephone or telemedicine consultation, 2019/20**

Treatment specialty	Frequency	% of all remote consultations
Trauma and orthopaedics	271	17
Gastroenterology	145	9
General surgery	96	6
Urology	85	5
Adult mental illness	85	5
Cardiology	78	5
Neurology	76	5
Clinical haematology	74	5
Hepatology	59	4
General medicine	49	3

Our analysis highlights that while the use of remote consultations has increased slightly since 2017/18, there is still significant potential for further use of such services to avoid the need for prisoners to have to go out of prison to hospital. Hospital visits can be challenging for prisoners for many reasons. For example, having to attend hospital in handcuffs and with prison officers means prisoners are very visible to other patients, which can lead to feelings of embarrassment. There are also fewer opportunities for privacy where prison officers are present for consultations and examinations (Edge and others, 2020b). Where appropriate, remote appointments may remove some of these issues for prisoners and may result in fewer cancellations. Remote consultations do not totally avoid missed appointments though as they still require prisoners to be moved to and from where the telephone or computer is located if tablets are not available.

## How does prisoners' use of hospital services vary by ethnic group?

Minority ethnic groups are over-represented in the prison population. In 2019/20, 27% of prisoners reported their ethnicity as Black, Asian or minority ethnic (Ministry of Justice, 2020b), compared with around 14% of people in the general population (NOMIS, 2021).

Minority ethnic groups in prison tend to be younger than White prisoners, which has been attributed to disproportionate treatment across the justice system, meaning young people from minority ethnic backgrounds are more likely to face a custodial sentence (Lammy, 2017). While the number of under-18s in custody has decreased over the past 10 years (Her Majesty's Prison and Probation Service and Youth Custody Service, 2021), the Lammy Review (2017) highlights that, between 2006 and 2016, the proportion of prisoners from Black, Asian or minority ethnic backgrounds in youth custody actually increased, from 25% to 41%.

While there are well-documented concerns regarding the treatment of minority ethnic groups across the justice system (see Lammy, 2017), there is minimal evidence on what access to health services looks like. This is important to understand, as in the general population, minority ethnic groups are more likely than White groups to report that they are in poor health and also that they have less favourable experiences when using health services (Raleigh and Holmes, 2021).

When thinking about the use of services by different ethnic groups in prison, there are other factors that will have an impact on service use, such as age. The prison population has a predominantly younger demographic, with 84% of prisoners in England under the age of 50 in June 2019 (see Appendix B). The population peaks between ages 30 and 39, with relatively few people in the youngest age bands or older than 60. We also need to think about how different age groups in prison might use services. Prisoners' hospital admissions increase with age, to a peak at ages 30–39 (the largest proportion of the population). They then fall slightly between 40 and 59 years of age, before rising for those aged 60+. Finally, we need to think about the proportion of

minority ethnic prisoners by age band, as the percentage of prisoners from minority ethnic backgrounds decreases steadily with age.

First, we looked at hospital data to see what information on prisoners' ethnicity was captured. Table 3.2 shows how prisoners' ethnicity was recorded in admitted patient care (inpatient) and outpatient data in 2019/20, as well as the ethnicity breakdown in the prison population as a whole (as of 30 June 2019). Prisoners' admitted patient care activity had a large proportion of missing ethnicity data – a third of admissions ( $n = 4,893$ ) were recorded as either 'not stated' or 'not known'. Outpatient data had even more missing values, with just under 50% of ethnicity coding in these data either 'not stated' or 'not known'. In the general population, ethnicity coding was missing or not stated from 13% of inpatient spells and 17% of outpatient appointments in 2019/20 (Scobie and others, 2021).

**Table 3.2: Prisoners' ethnicity as recorded in admitted patient care and outpatient activity, 2019/20 and in the prison population overall, as of 30 June 2019**

Ethnicity	Admitted patient care – no. of admissions (no. of people)	Outpatients – no. of appointments (no. of people)	England and Wales' prison estate overall (30 June 2019) – no. of people (%)*
Asian or Asian British	485 (221)	2,303 (767)	6,636 (8.02)
Black or Black British	781 (361)	3,872 (1,244)	10,558 (12.8)
Mixed	260 (169)	1,518 (513)	3,853 (4.66)
Other ethnic group	308 (229)	2,270 (739)	1,277 (1.54)
White	8,031 (4,969)	41,711 (13,449)	59,861 (72.4)
Not known	2,307 (1,643)	22,378 (9,279)	318 (0.38)
Not stated	2,586 (1,882)	27,225 (10,188)	207 (0.25)

\* Figures from Ministry of Justice, 2019.

Missing data means it is hard to make direct comparisons between the proportions for each ethnic group and what we see across the prison population, but as it stands there was a larger gap for minority ethnic groups than for White prisoners. Of admitted patient care activity, 54% related to White prisoners, who made up 72% of the prison population overall, but only 5% of activity related to Black or Black British prisoners, who made up around 13% of the prison population. This could reflect that the ethnicity of minority ethnic groups is more likely than that of White prisoners to be recorded as 'not known' or 'not stated', or it could simply be that there are differences between ethnic groups in terms of use of services – whether this is in terms of need or access.

To learn more about the 'not known' and 'not stated' groups, we looked at the five most common reasons why prisoners were admitted to hospital in 2019/20 and how admissions for those reasons varied by ethnic group. Table 3.3 shows that the proportion of 'not known' and 'not stated' patient ethnicity varied considerably by diagnosis group. Cancer-related admissions had the lowest amount of missing ethnicity data (8%), while admissions due to diseases of the digestive system had the highest (23%).

**Table 3.3: Most common primary admitting diagnosis by ethnic group (no. and % of admissions by group)**

Primary admitting diagnosis (chapter level)	Asian or Asian British	Black or Black British	Mixed	Other ethnic group	White	Not known or not stated
Neoplasms (cancer)	11 (2%)	28 (4%)	19 (7%)	18 (6%)	604 (8%)	393 (8%)
Diseases of the digestive system	63 (13%)	92 (12%)	37 (14%)	49 (16%)	1144 (14%)	1,140 (23%)
Diseases of the genitourinary system	161 (33%)	282 (36%)	15 (6%)	14 (5%)	439 (5%)	462 (9%)
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	40 (8%)	40 (5%)	29 (11%)	41 (13%)	931 (12%)	598 (12%)
Injury, poisoning and certain other consequences of external causes	64 (13%)	118 (15%)	60 (23%)	85 (28%)	1,813 (23%)	648 (13%)

Where ethnicity was recorded, Asian or Asian British and Black or Black British prisoners were most likely to be admitted due to diseases of the genitourinary system. More than a third of all admissions for these groups related to these diseases – most commonly, chronic kidney disease (CKD). There were 269 admissions by five Black or Black British prisoners with a primary diagnosis of CKD. CKD is more common in people who are Black or Asian (KidneyCareUK, no date) and therefore we might expect more CKD-related admissions than for other ethnic groups. There are more than 10,000 Black or Black British prisoners in England and Wales, however, and if more than a third of admissions for this group involve just five prisoners with CKD, this could suggest challenges accessing hospital services for the range of reasons we might expect.

Firm conclusions cannot be drawn from existing data about whether different ethnic groups are using hospital services in different ways, due to the high proportion of missing ethnicity information. Improving the quality of ethnicity recording is important as a means to understand whether prisoners' access to hospital services is equitable.

## What do we know about prisoners' use of hospital services in the early stages of the Covid-19 pandemic?

In the early stages of the pandemic, testing for Covid-19 in prisons was not widespread. The general approach taken was that if a certain number of prisoners were confirmed as testing positive for Covid-19, any other symptomatic prisoners were managed as though they had Covid-19 as well (O'Moore, 2020). There were 79 confirmed cases of prisoners in England and Wales with Covid-19 in March 2020 (Ministry of Justice and HM Prison and Probation Service, 2021), but true case numbers are likely to have been far higher.

We had access to hospital data up to the end of March 2020, therefore covering just the start of the coronavirus pandemic. During March 2020, we identified inpatient admissions (by 12 prisoners) where Covid-19 was recorded as a diagnosis code at any time while they were in hospital.

### **Wider impact on inpatient care activity in the early stages of the pandemic**

There were 1,019 admissions (emergency and elective) to hospital by prisoners in March 2020. We looked at these admissions to see the reasons why prisoners were having to go to hospital at this time unrelated to Covid-19.

Table 3.4 shows the five most common primary diagnoses for prisoners admitted to hospital in March 2020, as well as the percentage of all admissions these diagnoses accounted for that month as well as across 2019/20 as a whole. The top five categories were the same as those found when looking across the year as a whole, although the proportion of all admissions associated with each diagnosis group differed, with a higher proportion of admissions due to diseases of the genitourinary system and neoplasms (cancer) at the start of the pandemic than over the course of 2019/20 as a whole.

**Table 3.4: Top five primary diagnosis categories, March 2020**

Primary diagnosis (ICD-10 chapter level)	March 2020, no. (%)	2019/20%
Diseases of the digestive system	157 (15%)	17%
Injury, poisoning and certain other consequences of external causes	157 (15%)	19%
Diseases of the genitourinary system	135 (13%)	9%
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	131 (13%)	11%
Neoplasms (cancer)	92 (9%)	7%

Admissions due to diseases of the genitourinary system were 13% of all admissions in March 2020, which was significantly higher than the proportion of genitourinary admissions across the year as a whole (9%). The majority of these admissions ( $n = 135$  and 103 respectively) were due to chronic kidney disease. The proportion of admissions due to neoplasms (cancer) was also significantly higher in March 2020 (9%) than during the year as a whole (7%).

HM Inspectorate of Prisons (2020) has reported that prisoners' access to secondary care up to July 2020 was effectively halted except for cancer referrals and emergency care, but our work provides evidence that this type of prioritisation was happening from the very earliest stage. As the pandemic continues, this raises questions about the extent of patient backlog, particularly given existing access challenges. Concerns have been raised that once regime conditions ease and that prisoners are out of their cells for longer, rates of violence may increase and the full effects of extended periods of isolation on prisoners' mental health will be felt (HM Inspectorate of Prisons, 2021b). This will place pressure on escort resources and will have an impact on the prioritisation of prisoners with long-term unmet health care needs.

The proportion of all prisoner hospital admissions that were linked to injury or poisoning was found to be significantly lower in March 2020 (15%) than across the year as a whole (19%). This is likely to reflect prisoners spending more time in their cells. Various commentators have reflected that the reduction

in violence during the pandemic has been positive (Hardwick, 2020; HM Inspectorate of Prisons, 2021b), but the severely restricted regime has meant little or no opportunity for prisoners to take part in education or employment or to maintain contact with their families. The full effects of the extended period of isolation are yet to be fully felt in terms of the immediate and longer-term impact on rates of violence and self-harm when the prison regime returns to normal or for how prisoners will manage upon release from prison. Box 3.1 explores the response to Covid-19 in prisons in more depth.

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### Box 3.1: The response to Covid-19 in prisons

From an early stage in the pandemic, there were serious concerns that Covid-19 would have a catastrophic impact in prisons. Public Health England's modelling estimates predicted 78,000 cases and 2,700 deaths if no action was taken (O'Moore, 2020).

Measures implemented to minimise the spread of Covid-19 included limiting the amount of time prisoners were able to spend outside their cells, stopping most face-to-face education and employment and an end to family visits. While the general population have moved in and out of different phases of lockdown during the pandemic, restrictions in prison have remained more stringent. Prisoners have spent more than 23 hours a day in their cells for an extended period, which HM Inspectorate of Prisons (2020) has highlighted as meeting the definition of indefinite solitary confinement in some instances.

From the start of the pandemic up until 31 March 2021, 18,442 prisoners or children in custody had tested positive for Covid-19 and, sadly, 155 had died (Ministry of Justice and HM Prison and Probation Service, 2021). While total case numbers are much lower than was initially predicted, age- and sex-standardised case rates in prison have consistently been higher than in the general population (Davies and Keeble, 2020). This means that prisoners have been at greater risk of Covid-19 than people not in prison, despite the stringent lockdown measures.

In addition to the higher risk of contracting Covid-19 in prison, there are unknown long-term impacts of steps taken in the prison estate to manage the spread of Covid-19. In the short term (while the pandemic is ongoing), levels of violence have reduced, which has been attributed to the reduced contact prisoners have had with one another (Hewson and others, 2020). The number of assaults in the year to December 2020 (21,489) was 34% lower than the previous year and assaults on staff fell by 20% (HM Prison and Probation Service and Ministry of Justice, 2021).

There have been concerns that extended isolation would lead to an increase in rates of self-harm (Hewson and others, 2020) but at this stage there is a mixed picture. Self-harm fell in the men's estate by 13% (rate per 1,000 prisoners) in 2020 but in the women's estate self-harm it increased by 13% (HM Prison and Probation Service and Ministry of Justice, 2021).

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## What can hospital data tell us about people's health care needs on entry to prison?

To find out what hospital data can tell us about the sorts of health care needs people have on entry to prison, we examined historical inpatient admissions for people who go on to spend time in prison. We looked at 582 people who used hospital services while in prison between 2 April 2017 and 30 April 2019 and also had at least one admission while living in the community within the previous six months. Table 3.5 shows the most common diagnoses reported in hospital admissions by this group before prison.<sup>1</sup> We focused on diagnoses that affected more than 20% of people in our sample.

**Table 3.5: Most common diagnoses in hospital admissions before prison**

Diagnosis*	No. of people	% of sample (n = 582)
Drugs (for example, psychoactive substances)	221	38%
Mental health – mood disorders (for example, bipolar disorder)	169	29%
Alcohol-related disorders (for example, toxic liver disease)	140	24%
Mental health – other	134	23%
Chronic obstructive pulmonary disease (COPD)	128	22%
Poisoning	128	22%
Cognitive	122	21%

\* Diagnosis could be primary, secondary or subsidiary.

1 From April 2016 onwards.

Drug use was noted in admissions for just under 40% of people, and mental health mood disorders such as bipolar disorder were flagged in admissions for just under 30% of people. While prisoners' mental health care needs and any health needs relating to drug and alcohol use should be identified on entry to prison (see Hutchings and Davies, 2021), there is a lack of up-to-date data on how many prisoners have specific mental health conditions and therefore the level of service provision in this area that would be sufficient to meet demand (National Audit Office, 2017). The Prisons and Probation Ombudsman (2016) and the Royal College of Psychiatrists (2021) provide an overview of evidence regarding prisoners' mental health care needs, and highlight concerns about whether resources available truly match the level of need (see Kissell and others, 2014 for work focused on substance misuse).

There are significant pressures on mental health services in prison. The Prisons and Probation Ombudsman (2016) conducted a review of 218 deaths in prison between 2012 and 2014 of prisoners with a mental health diagnosis. It noted that one in five of these prisoners had not received care from a mental health professional while in prison.

While hospital data cannot tell us about people with undiagnosed mental health needs or those who have previously managed through contact with primary care services, they do provide a relatively up-to-date marker of how many people may have high-level needs that need to be managed, given that they have previously been in contact with secondary care. Hospital data on numbers could therefore be of use to commissioners of prison health care services, so that services can be designed accordingly.

We also looked at use of hospital services before prison relating to long-term health conditions. We focused on seven of the chronic conditions that we explored in our previous work on prisoners' use of hospital services (Davies and others, 2020) (see Table 3.6).

**Table 3.6: People admitted to hospital with long-term conditions before prison (n and %)**

Diagnosis*	No. of people	% of sample (n = 582)
Chronic obstructive pulmonary disease (COPD)	128	22%
Asthma	99	17%
Hypertensive diseases	87	15%
Epilepsy and recurrent seizures	70	12%
Ischaemic heart diseases	70	12%
Diabetes	64	11%
Cancer	12	2%

\* Diagnosis could be primary, secondary or subsidiary.

# 4 Reviewing our recommendations

We will now re-evaluate the recommendations we made in our previous Nuffield Trust work exploring prisoners' use of hospital services in 2017/18 (Davies and others, 2020), in light of the new data now available. While 2019/20 data only cover the very start of the Covid-19 pandemic, policy and practice changes (or lack of) over the past year in particular need to be viewed in the context of the pandemic. Covid-19 resulted in significant changes to life in prison, many of which will have had direct implications for the areas where change was needed most, such as prisoners' access to health services. In this chapter we reflect where we can on where the impact of Covid-19 can already been seen, as well as where there is evidence of longstanding issues even before the pandemic.

## Improving prisoners' access to hospital care

Analysis of prisoners' use of hospital services in 2019/20 shows that their access to hospital care remains poor – prisoners still use hospital services less than would be expected based on the same age and sex in the general population. In addition, their use of services is focused primarily on addressing urgent needs associated with injury or poisoning. This means that decisions are having to be made about who to prioritise for treatment within the remaining escort capacity available. It is still unclear how these prioritisation decisions are made, and the extent of unmet need in the prisoner population.

Prisoners also continue to miss a large proportion of outpatient appointments, suggesting that logistical challenges remain in enabling prisoners to attend hospital appointments. This is in terms of both ensuring staff are available

to physically take people to hospital as well as managing the demand for secondary care within the number of escorts available.

The Covid-19 pandemic has evidently compounded the challenges that prisoners experience in accessing health services, with inpatient admissions sinking to their lowest level in March 2020, at the start of the pandemic. While the changes may have been necessary to minimise the spread of Covid-19, after a prolonged period with reduced access to health care, prisoners may be in poorer health by the time they are seen. There is also a significant challenge as to how to identify the backlog of patients to be seen and prioritise their needs.

## **1 Provide greater transparency over prison escort numbers and review the supply of prison escorts**

Prison escort availability remains a key cause of missed appointments, and as yet there is no publicly available data regarding escort numbers and supply.

The latest prison population projections predict that the prison population will increase from its current level of around 78,000 to 98,700 by September 2026 (Ministry of Justice, 2020c). This is due to the planned recruitment of 20,000 police officers, meaning more people are likely to be sent to prison. It is becoming increasingly urgent that we improve understanding of the extent to which escort numbers meet existing need. This knowledge could then be used to make sensible recommendations about how much escort numbers need to be increased by in the face of an increasing prisoner population.

## **2 Increase access to outpatient services via remote consultations**

In 2019/20, 3% of outpatient appointments for prisoners were delivered via remote consultations, slightly less than the proportion of remote appointments in the general population. There is potential for remote consultations to improve prisoners' access to health care but the Covid-19 pandemic has proved that this is not straightforward. The pandemic has acted as a catalyst for the attempted roll-out of remote services, but there are logistical challenges to overcome in terms of technology and relationship building between prisons and hospitals (Edge and others, 2020a).

Hospital data provide a means of determining where remote services are being used and specialties where usage is less common, which could then perhaps be a focus of attention. It is anticipated that the use of remote consultations will have increased during the pandemic due to the rapid roll-out of services and therefore the figures for 2019/20 will provide a useful baseline to see the impact that this roll-out has on how remote services are used.

## Making better use of hospital data

### 1 Collect, collate and publish regular data on prisoners' health care use and how it compares to the general population

This report provides the most recent data on prisoners' use of hospital services. As yet, none of the key agencies involved in the commissioning or delivery of prison health care -the Ministry of Justice, the HM Prison and Probation Service, Public Health England,<sup>2</sup> the Department of Health and Social Care or NHS England and NHS Improvement - produce this type of comparative data regularly. But this data production is already in place in a basic form, as prisons collect data on health care escorts for financial reporting purposes (escorts and bedwatches data). While escorts and bedwatches data only provide basic diagnostic information (without the detail provided by hospital data), making it publicly available would be a first step in increasing transparency.

Our analysis of prisoners' use of hospital services over time highlights that prisons face consistent challenges in terms of managing the health impacts of injury and violence. Comparisons of prisoners' use of services with that of the general population suggest that prisoners access services less than we might expect but what is less clear is the level of unmet need in the prisoner population and which health outcomes would be effective measures of care equivalence.

<sup>2</sup> Public Health England's health and justice responsibilities have been split between UK Health Security Agency, NHS England and the Department of Health and Social Care since 1 Oct 2021.

## 2 Identify and monitor avoidable health outcomes for prisoners

Hospital data provide a means of raising awareness of avoidable health outcomes for people in prison. For instance, they show us that in 2019/20 there were more than 100 admissions by diabetic prisoners with ketoacidosis. While there are researchers using routinely collected data to explore the impact of specific conditions such as cancer in relation to prisoners (Dr Elizabeth Davies and colleagues, King's College London), there is scope to learn much more.

In the next stage of our work we will be focusing on the specific health care needs of female prisoners, older prisoners and younger prisoners. Part of this work will include working with a range of stakeholders to identify avoidable health outcomes for these groups of prisoners that can be monitored in hospital data. For instance, in our previous work on prisoners' use of hospital services we looked at the number of women in prison who gave birth outside of hospital, meaning either in prison or en route to hospital. This is an example of poor practice as prisons are not equipped to support women in labour (Davies and others, 2020).

## 3 Collect and publish data on pregnant women in prisons

Some attention has been given to pregnant women and their babies in prison since our previous work, due to the tragic deaths of two babies in prison within an 18-month period (see Devlin and Taylor, 2019; Taylor, 2020). The Prisons and Probation Ombudsman (2021) official report into the death at HMP Bronzefield was published in September 2021, but the investigation into the death at HMP Styal is yet to be published.

Separate from these specific cases, since our previous work the Ministry of Justice (2020d) published its *Review of Operational Policy on Pregnancy, Mother and Baby Units and Maternal Separation* and made various commitments. It committed to addressing the recommendation that we and others have made regarding making data available, and said it would publish quarterly figures on the number of pregnant women in prison as well as the yearly number of births. Between July 2020 and March 2021 31 women in prison gave birth, and three of these births took place en route to hospital (HM Prison and Probation Service, 2021).

In terms of the impact of Covid-19, it was recognised that pregnant women and those with young children were a vulnerable group who should be considered for temporary release (GOV.UK, 2020), but only 25 pregnant women or women with young children were released under this scheme (TheyWorkForYou, 2020).

## 5 What does the future look like?

Over the next five years, the prison population is predicted to increase and therefore the challenge of how to effectively meet the varied health care needs of people in prison will become all the more urgent without action. There is no indication about whether health care services for prisoners will be adapted to meet the demand that a rise in the prison population would inevitably cause, in terms of either what health provision in prison should look like or ensuring health escort numbers for hospital care are increased proportionally.

Understanding the long-term challenges surrounding prisoners' access to hospital services provides important lessons for the future, particularly when thinking about how access to health care should be re-established after the Covid-19 pandemic. Early evidence indicates that the pandemic has further squeezed prisoners' access to hospital services and we need to carefully monitor how services recover over the coming months, particularly given the backdrop of poor access and prisoners' varied and complex health care needs.

While there is evidence of an increasing emphasis being placed on the importance of identifying prisoners' specific health care needs, for instance screening prisoners on entry for brain injury acquired as a result of domestic abuse (Pressat, 2020), it is less clear how the identification of health care needs relates to services available and whether people receive the treatment they need.

In this report we have considered prisoners' use of admitted patient care (inpatient) and outpatient hospital services up to 2019/20, providing the most up-to-date data before the pandemic on how services were used. The ambition is that prisoners receive health care that is equivalent to the health care people in the general population receive, but this report raises concerns around longstanding poor access to health care for prisoners and the impact of violence and self-harm in prison on demand for limited health care resources. Efforts to provide equivalent health care to people in prison will continue to be compromised without progress in these key areas.

# Appendix A: Prisoners' use of hospital services over time

Table A1 shows the number of inpatient admissions, Accident & Emergency (A&E) attendances and outpatient appointments by prisoners between 2016/17 and 2019/20. It shows increasing hospital activity by prisoners year-on-year.

**Table A1: Number of inpatient admissions, A&E attendances and outpatient appointments by prisoners, 2016/17–2019/20**

Year	Inpatient admissions (no. of people)	A&E attendances (no. of people)	Outpatient appointments (no. of people)
2016/17	11,838 (7,729)	17,632 (9,700)	78,877 (27,013)
2017/18	12,103 (7,674)	18,058 (10,012)	83,473 (27,963)
2018/19	13,037 (8,222)	19,520 (10,940)	89,984 (28,906)
2019/20	14,758 (9,086)	–	101,277 (31,894)

Note: A&E data was superseded by the Emergency Care Data Set (ECDS) in HES in April 2019 (NHS England, 2019) and at the time of analysis the transition between the two datasets meant data comparative to 2019/20 was not available.

Because we know that the Personal Demographics Service (PDS) was introduced for prisons between October 2018 and May 2019, we wanted to explore the extent to which this was a significant part of the identified increase.

## The Personal Demographics Service and prison-linked hospital activity

The introduction of the PDS for prisons should ensure that when people access health care from prison, the prison address is used and it is recorded in a standardised way. For our project this means that since the PDS was introduced, HES records may be being more reliably tagged as 'in prison' than before. This is important to understand, when thinking about possible reasons for changes in the volume of activity over time.

Because we had a full four years of data for admitted patient care and outpatient appointments, we began by looking at changes year-to-year in these datasets. There was some evidence of more hospital activity from prison being recorded in 2019/20 than in previous years, although this varied by activity type. Table A2 shows that the number of inpatient episodes that were linked to a prison increased by 13.2% between 2018/19 and 2019/20. The increase was most pronounced for emergency episodes, which increased by 22.3%.

**Table A2: Changes in the number of inpatient and outpatient episodes, 2016/17–2019/20**

Year	Inpatient episodes (% change)	% change for emergency/ elective inpatient episodes	% change for outpatient appointments
2016/17	11,838 (-)		
2017/18	12,103 (2.2%)	2.1%/2.7%	5.9%
2018/19	13,037 (7.7%)	9.7%/6.8%	7.8%
2019/20	14,758 (13.2%)	22.3%/4.4%	12.6%

Using interrupted time series with a quasi-Poisson model for over-dispersed count data, we see that emergency admissions were significantly higher ( $p < 0.0001$ ) in the period after the PDS was introduced, as were overall admissions ( $p < 0.0001$ ) and outpatient appointments ( $p = 0.0008$ ) but not elective admissions ( $p = 0.1067$ ).

# Appendix B: Age- and sex-standardised activity-rate calculations

Prisoners should receive equivalent health care to people in the general population and therefore comparisons between the two groups' use of services are of interest as a means of assessing whether prisoners are receiving the care they need. Equivalence does not mean that care should be the 'same', rather that it meets the needs of the population – which may mean providing services differently (Royal College of General Practitioners, 2018).

## Calculating and interpreting age- and sex-standardised rates

To calculate age- and sex-standardised rates you need to know how many men and women of different age groups there are in total in the population. Although the prison estate as a whole covers locations in both England and Wales, our work focused specifically on prisons and young offender institutions within the secure estate in England. We therefore needed an age-sex breakdown for the prison population of England only in order to calculate accurate age-sex standardised rates. At the time of this research, publicly available information only reported age and sex breakdowns for the combined England and Wales prison population and therefore we had to calculate our own figures just for England.

We calculated the figures for the men's and women's prison estate in different ways. For the men's estate we used the prison population data tool for June 2019. This tool is reported as part of the Ministry of Justice and HM Prison

Service Offender Management Statistics. We selected the relevant prison estate establishments in Wales as well as the immigration removal centres (The Verne and The Mount), and combined them to create a total for each age band. The data tool suppresses values of less than 2 to minimise any likelihood of making the data identifiable, and therefore where small numbers were suppressed, these were given a nominal value of 1. This would represent the lowest possible value for the data point and would not artificially inflate the totals. We then deducted these figures by age from the combined England and Wales male prison population figures to give England-only male prison population figures.

For the women's estate, figures were drawn from Offender Management Statistics data for England and Wales as there are no women's locations in Wales, meaning the figures refer solely to England-based locations. The figures we used in our analysis where a prison population age-sex breakdown was required can be found in Table B1.

The resulting England population totals from age-sex breakdowns were accurate to within 20 people of the England population total provided by custody type in the prison population data tool. Any differences will have arisen due to the suppressed values but will have had a minimal impact on any calculated rates due to the numbers involved.

**Table B1: Calculated age and sex breakdown of the prison population in England, June 2019**

Age bands	Men	Women	Total
15–17	546	0	546
18–20	3,895	115	4,010
21–24	8,399	298	8,697
25–29	13,022	585	13,607
30–39	22,679	1,384	24,063
40–49	12,818	840	13,658
50–59	7,588	426	8,014
60+	4,622	122	4,744
<b>Sum</b>	<b>73,569</b>	<b>3,770</b>	<b>77,339</b>

When thinking about interpreting age- and sex-standardised rates, it is important to highlight that if prisoners had the same admission rates as the general population, this would not necessarily tell us that they were receiving equivalent care. Admission rates should primarily be used to compare general patterns of activity between the prison population and the general population to inform discussions regarding whether prisoners' health care needs are being met and what good-quality health care for prisoners should look like.

These types of comparisons also need to take into account the impact of other health services, such as primary care, on the need for hospital admissions or attendances. For instance, prisoners can access prison-based primary care services, and access to specialist clinics in prison may avoid the need for secondary care. There are no regularly reported data on primary care usage in prison but research is currently underway to explore the quality of health care within prisons (see Qual-P, no date). In our data we can only see hospital-recorded data so differences may reflect how health care is provided in prison.

## Age- and sex-standardised inpatient admission rates

We calculated age- and sex-specific admission rates per 1,000 people to compare the number of inpatient admissions by prisoners to what we see in the general population. Table B2 shows the expected number of admissions for prisoners if admission rates were the same as those in the general population. This can then be compared to the actual number of admissions (see the ‘Observed’ column).

**Table B2: Expected versus observed admission rates for prisoners, 2019/20**

Age band	Male inpatient admissions		Female inpatient admissions	
	Expected	Observed	Expected	Observed
15–17	52	22		
18–20	376	326	24	39
21–24	858	889	81	68
25–29	1,507	1,541	206	209
30–39	3,245	3,346	478	365
40–49	2,478	2,390	218	262
50–59	2,460	2,140	147	159
60+	3,226	2,914	73	88
Total	14,202	13,568	1,227	1,190

If prisoners had the same admission rate as is seen in the general population, we would have expected 15,429 admissions in 2019/20 rather than the actual number of 14,758. The overall admission rate for prisoners was 349 per 1,000 population – 4.12% lower than in the general population (where the admission rate was 364 per 1,000 population). Admission rates by age and sex can be found in Table B3.

**Table B3: Admitted patient care crude admission rates by age and sex, 2019/20**

Age band	Men		Women	
	Prison population (rate per 1,000)	General population (rate per 1,000)	Prison population (rate per 1,000)	General population (rate per 1,000)
15–17	40.3	95.8		
18–20	83.7	96.6	339	207
21–24	106	102	228	273
25–29	118	116	357	351
30–39	148	143	264	345
40–49	186	193	312	259
50–59	282	324	373	346
60+	630	698	721	600

## Age- and sex-standardised outpatient appointment rates

We also calculated the expected number of outpatient appointments for prisoners by age and sex if appointment rates were the same as those in the general population. Table B4 compares what we would expect appointment levels to be versus the number of appointments actually scheduled (observed).

**Table B4: Expected versus observed outpatient appointment rates for prisoners, 2019/20**

Age band	Male outpatient appointments		Female outpatient appointments	
	Expected	Observed	Expected	Observed
15–17	619	546	–	–
–	376	326	24	39
18–20	3,100	2,387	161	209
21–24	6,272	5,815	540	555
25–29	10,737	11,637	1,496	1,172
30–39	22,728	25,235	3,867	3,346
40–49	17,129	18,892	1,802	2,023
50–59	14,873	14,197	1,089	1,272
60+	18,415	13,577	459	414
Total	93,873	92,286	9,414	8,991

For the general population, the outpatient appointment rate was 2,413 per 1,000 population, and for prisoners the equivalent rate was 2,366 per 1,000 population. If the prison population had the same appointment rates by age and sex as the general population, the expected overall number of outpatient appointments would have been 103,287 (93,873 male, 9,414 female), rather than 101,277.

While the overall expected appointment rate for prisoners was fairly similar to that for the general population, this masks major differences with the general population for particular age groups. The greatest difference in actual versus expected appointments was for men aged 60+. Male prisoners over 60 years old had a rate (2,937 per 1,000) that was 26% less than what we saw for the general population (3,984 per 1,000). This represents a statistically significant difference.

While we cannot account for the health care prisoners receive while in prison, and the impact this has on their need to be admitted to hospital, this difference is worth exploring further as there is longstanding recognition of the need for a strategy about how to meet the needs of older prisoners (House of Commons Justice Committee, 2013; 2020). Injury or poisoning is the most common primary reason for a hospital admission and hospital admissions are highest for those aged 30–39, so it is likely that the gap for older prisoners at least in part reflects an access challenge due to the pressure on escort availability in the face of steep demand, driven by levels of violence and self-harm in the younger age groups where rates are higher than expected.

A breakdown of age- and sex-standardised outpatient appointment rates per 1,000 people can be found in Table B5.

**Table B5: Outpatient care crude admission rates by age and sex, 2019/20**

Age band	Men		Women	
	Prison population (rate per 1,000)	General population (rate per 1,000)	Prison population (rate per 1,000)	General population (rate per 1,000)
15–17	1,000	1,134	–	–
18–20	613	796	1,817	1,400
21–24	692	747	1,862	1,812
25–29	894	825	2,003	2,558
30–39	1,113	1,002	2,418	2,794
40–49	1,474	1,336	2,408	2,145
50–59	1,871	1,960	2,986	2,557
60+	2,937	3,984	3,393	3,761

# Appendix C:

## Top five primary diagnosis categories, 2016/17–2019/20

The most common reasons for admission to hospital by prisoners have remained consistent over the last four years and in similar proportions. Between 2016/17 and 2019/20 just under 20% of all hospital admissions by prisoners were as a result of injury or poisoning.

**Table C1: Top five primary diagnosis categories, 2016/17–2019/20**

Primary diagnosis (ICD-10 chapter level)	2016/17 n (%)	2017/18 n (%)	2018/19 n (%)	2019/20 n (%)
Injury, poisoning and certain other consequences of external causes	2,181 (18%)	2,186 (18%)	2,302 (18%)	2,788 (19%)
Diseases of the digestive system	2,143 (18%)	2,056 (17%)	2,338 (18%)	2,525 (17%)
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	1,406 (12%)	1,526 (13%)	1,571 (12%)	1,679 (11%)
Diseases of the genitourinary system	1,130 (10%)	1,268 (10%)	1,202 (9%)	1,373 (9%)
Neoplasms	903 (8%)	889 (7%)	1,072 (8%)	1,073 (7%)

# Appendix D: Monitoring hospital admissions by prisoners with diabetes

One of the key findings from our analysis of prisoners' use of hospital services in 2017/18 (Davies and others, 2020) was that people in prison with diabetes were being admitted to hospital with ketoacidosis, an entirely preventable condition. Here we update our analysis of inpatient admissions by prisoners with diabetes.

People in prison are at high risk for diabetes. Gray and others (2021) have estimated that over the next 10 years, for prisoners aged 50+, 16.4 per 100 will develop type 2 diabetes. Table D1 shows that, in 2019/20, there were 1,566 admissions with a diagnosis of type 1 or type 2 diabetes mellitus, and type 1 or type 2 diabetes mellitus was the primary diagnosis in 199 admissions.

Where prisoners have type 1 diabetes, it is much more likely to be the primary cause of admission, but there are many more patients being admitted who have type 2 diabetes as a secondary diagnosis.

**Table D1: The most common individual diagnoses within the top diagnostic categories of endocrine, nutritional and metabolic diseases (ICD-10 chapter blocks) for prisoners, 2019/20**

Diagnosis group	Individual diagnoses	No. of admissions (no. where this was the primary diagnosis)	No. of people
Diabetes mellitus	Type 1 diabetes mellitus	332 (160)	164
	Type 2 diabetes mellitus	1,234 (39)	748

In 2019/20, there were 110 admissions with a primary diagnosis of type 1 diabetes mellitus due to type 1 diabetes mellitus with ketoacidosis (involving 56 people). Ketoacidosis is a preventable condition caused by a lack of insulin. This is an increase on the number of cases in 2017/18, where there were 51 admissions by 39 prisoners as a result of diabetic ketoacidosis (Davies and others, 2020). Caution is needed over the direct comparison of figures as the 2019/20 data are more complete, but these findings highlight that this remains an ongoing problem and some patients are being admitted more than once with this life-threatening condition.

# Appendix E: Most common individual diagnoses

Table E1 shows the most common individual diagnoses for the top diagnosis categories. Of particular note is that there were 888 admissions by 29 patients with Chronic Kidney disease.

**Table E1: The most common individual diagnoses within the top diagnostic categories (ICD-10 chapters) for prisoners, 2019/20**

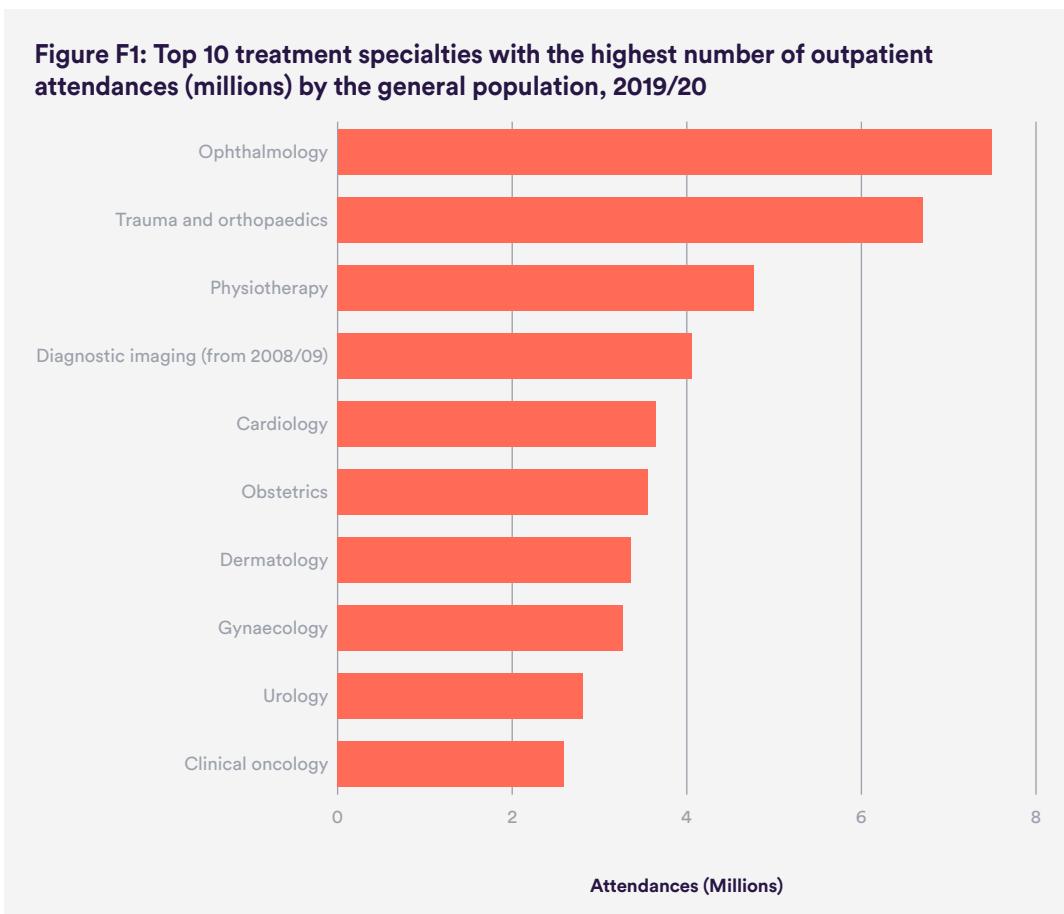
Diagnosis group	Description	No. of admissions (no. of people)
	Fracture of skull and facial bones	315 (291)
	Poisoning by, adverse effect of and underdosing of nonopioid analgesics, antipyretics and antirheumatics	224 (193)
Injury, poisoning and certain other consequences of external causes	Foreign body in alimentary tract	149 (88)
	Open wound of head	145 (136)
	Open wound of elbow and forearm	122 (86)
	Poisoning by, adverse effect of and underdosing of narcotics and psychodysleptics [hallucinogens]	113 (107)
	Foreign body in genitourinary tract	106 (25)

<b>Diagnosis group</b>	<b>Description</b>	<b>No. of admissions (no. of people)</b>
Diseases of the digestive system	Dental caries	256 (243)
	Other diseases of digestive system	228 (202)
	Gastritis and duodenitis	144 (141)
	Haemorrhoids and perianal venous thrombosis	131 (124)
	Ulcerative colitis	130 (65)
	Gastro-oesophageal reflux disease	120 (117)
	Inguinal hernia	118 (107)
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	Other diseases of anus and rectum	118 (112)
	Pain in throat and chest	414 (369)
Diseases of the genitourinary system	Abdominal and pelvic pain	335 (301)
	Chronic kidney disease (CKD)	888 (29)
	Malignant neoplasm of bronchus and lung	76 (20)
	Malignant neoplasm of colon	63 (16)
Neoplasms (cancer)	Malignant neoplasm of prostate	61 (30)

Note: Individual diagnosis groups > 100 admissions (50+ for neoplasms).

# Appendix F: General population outpatient treatment specialties

Figure F1 shows the most common outpatient treatment specialties for people in the general population. Ophthalmology (Diseases of the eye) was the most common outpatient treatment specialty followed by trauma and orthopaedics.



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