

**MORE
TRUST**

**LESS
CRIME**

**HIGH
STANDARDS**

Factors associated with the use of strip-search in MPS custody suites



**METROPOLITAN
POLICE**

Executive Summary

MPS analysts conducted analysis to understand which factors are linked with the likelihood that a detainee will be strip-searched in custody, and to assess disproportionality in the likelihood that detainees of different ethnicities will be strip-searched.

- This paper presents findings from analysis of 403,208 arrests carried out in the three years between 1st January 2019 and 31st December 2021. The statistical modelling reported here provides an event-level assessment of how strongly various factors (e.g. age, ethnicity, offence type, etc.) relate to the likelihood of strip-search, after accounting for the other factors included.
- **More thorough searches outside of the custody environment – such as those exposing intimate parts (previously known as “Most Thorough search where Intimate Parts are exposed” or MTIP) – were not included in this analysis.**
- The analysis described in this paper focuses on one specific outcome – whether a detainee was strip-searched whilst in custody – and does not take account of disproportionality in other decisions involving the detainee, e.g. whether to arrest.
- **Offence type was the factor most strongly associated with the relative likelihood of being strip-searched:** those arrested for a drug offence were nearly nine times as likely to be strip-searched as those not. Other important factors included the location (custody suites), whether the detainee was homeless (or of no fixed abode), whether they were cooperative, and whether they had previously been strip-searched. Younger detainees (aged 10-17) were less likely to be strip-searched than older detainees.
- **Black detainees were (after considering all other factors) more likely to be strip-searched compared to White detainees.** The odds of Black detainees being strip-searched were 1.12 times greater compared with White detainees (after considering all other factors). For children aged 10-17, the odds of Black detainees being strip-searched were 1.5 times greater compared with White detainees (after considering all other factors).
- The MPS are currently rolling-out and evaluating the impact of work focused on improving the consistency of strip-search decision-making.

1. Introduction

This analysis forms part of a wider programme of work by the Metropolitan Police Service (MPS) to assess and address the presence of unexplained disproportionality at key touchpoints in police activity. This paper describes analysis of strip-searches conducted in MPS custody after arrest which occurred between January 2019 and December 2021, and accompanies published data about the use of strip-search, which can be found [here](#)¹.

The analysis described in this paper focused on the use of strip-search in custody after arrest, meaning that it does not take account of any disproportionality that may be present at other stages of the detainee's journey (e.g. the earlier decisions to stop and search or to arrest). **More thorough searches outside of the custody environment – such as those exposing intimate parts (previously known as “Most Thorough search where Intimate Parts are exposed” or MTIP) – were not included in the analysis described here**, as these are not accessible within the custody data.

Appendix A provides a summary of why police use strip search and the legal powers that allow them to do so. This paper provides a summary of the analysis conducted to assess the degree to which a range of factors had a relationship with whether a detainee was strip-searched.

2. Methodology

The statistical approach used in this paper – logistic regression – assesses the strength of the relationship between each factor and whether or not a detainee was strip-searched, *after accounting for each of the other factors included in the model*. Further information about the methodology is provided in Appendix B. The analysis included data from 403,208 arrests recorded in MPS's custody system (NSPIS²), carried out between 1st January 2019 and 31st December 2021, and considered the following factors:

- **Arrest offence type** – whether at least one of the presenting offences was either a drug, weapon, or theft offence. Possession of prohibited items that either have evidential value or could cause harm to the detainee/others is logically relevant to the decision to carry out a strip-search, and that relevance differs for different offence types.
- **Previous strip-search** – whether the detainee had been strip-searched by the MPS in the three years of data we analysed.

¹ <https://public.tableau.com/app/profile/metropolitan.police.service/viz/CustodyDashboard/Coversheet>

² National Strategy for Police Information Systems (UK).

- **Homelessness** – whether the detainee’s address at the time of their arrest was recorded as ‘no fixed abode’.
- **Demeanour** – whether the detainee’s behaviour on arrival at custody was described as anything other than ‘cooperative’, e.g. violent, aggressive, under the influence etc.
- **Previous detention** – whether the detainee had been arrested on at least one occasion by the MPS in the previous 3 years.
- **Age** – whether the detainee’s age fell into one of three mutually-exclusive bands (10-17, 18-29 or 30+). These groups were chosen to differentiate between the broad groups with which the MPS interacts – juveniles, young adults, and older adults.
- **Ethnic appearance** – whether the detainee’s ethnic appearance was ‘White’, ‘Black’, or ‘Other’. These categories were based on Identity Codes, known as ‘IC’ codes, which represent the ethnicity of a detainee, as perceived by the custody officer booking them in. This may not match the detainee’s self-defined ethnicity so there is a risk of mis-classification.
- **PNC ID not available/not recorded** – whether a Police National Computer (PNC) Identification number (PNC ID) was recorded in the custody data. Detainees who have previously been arrested are more likely to have an existing PNC ID. More importantly, those who have an ID recorded in PNC could have risk flags recorded there which may indicate a stronger need to strip-search them whilst in custody.
- **Custody suite** – the custody facility at which the detainee was first detained.

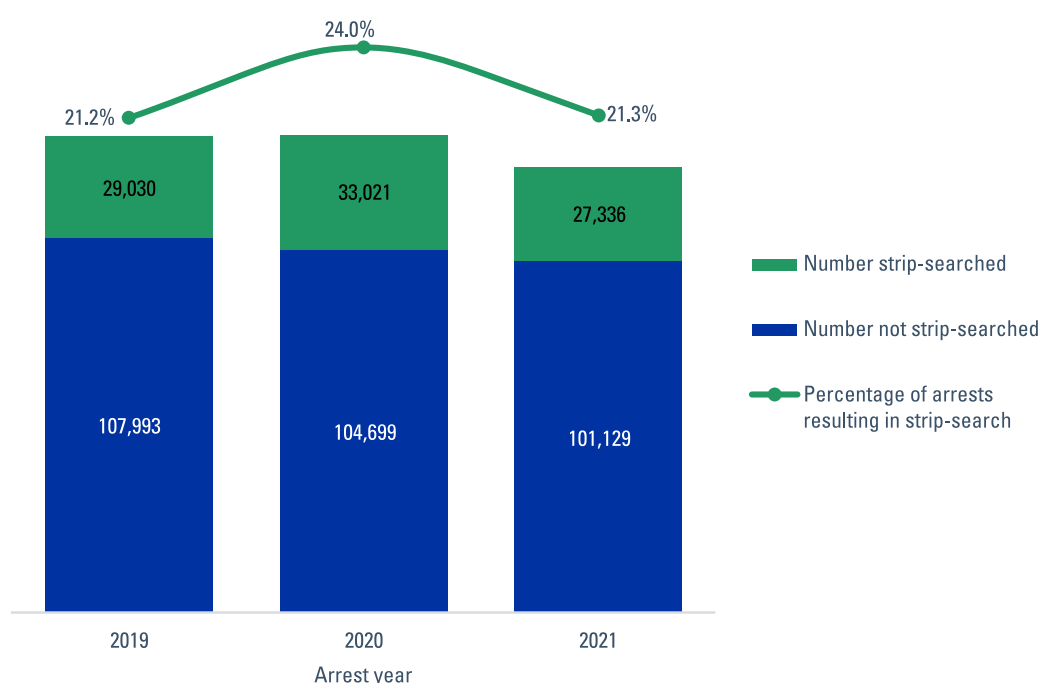
Looking at each of these factors in isolation from others risks producing misleading conclusions about the presence or absence of a relationship to the likelihood of strip-search. For example, we know that some custody suites have higher volumes of detainees than others; if we do not account for this in our analysis, it will distort the results. To allow us to account for many factors at once, logistic regression was used to test which factors were most strongly associated with the use of strip-search. This assessed which factors had the strongest relationship with whether or not a detainee was strip-searched, after taking into account the other factors being considered. Full details about the methodological approach and the full statistical results are included in Appendix B. We conducted a sub-group analysis focused only on those detainees aged 10-17. A summary of findings are presented in Section 3 (and more details are provided in Appendix C).

3. Findings

3.1 How often was strip-search used in custody?

Of the 403,208 arrests recorded in MPS's custody system in the three years between 1st January 2019 and 31st December 2021, 22.2% of detainees were strip-searched. This figure rose to 24.0% in 2020 and fell to 21.3% in 2021 (see Figure 1). These figures are likely to be affected by COVID-19, which resulted in a change in crime profile caused by various periods of lockdown and enforcement of new COVID-19 related legislation.

Figure 1 – MPS custody strip-search volumes and percentages, by arrest year.



3.2 Which factors were most strongly associated with the use of strip-search?

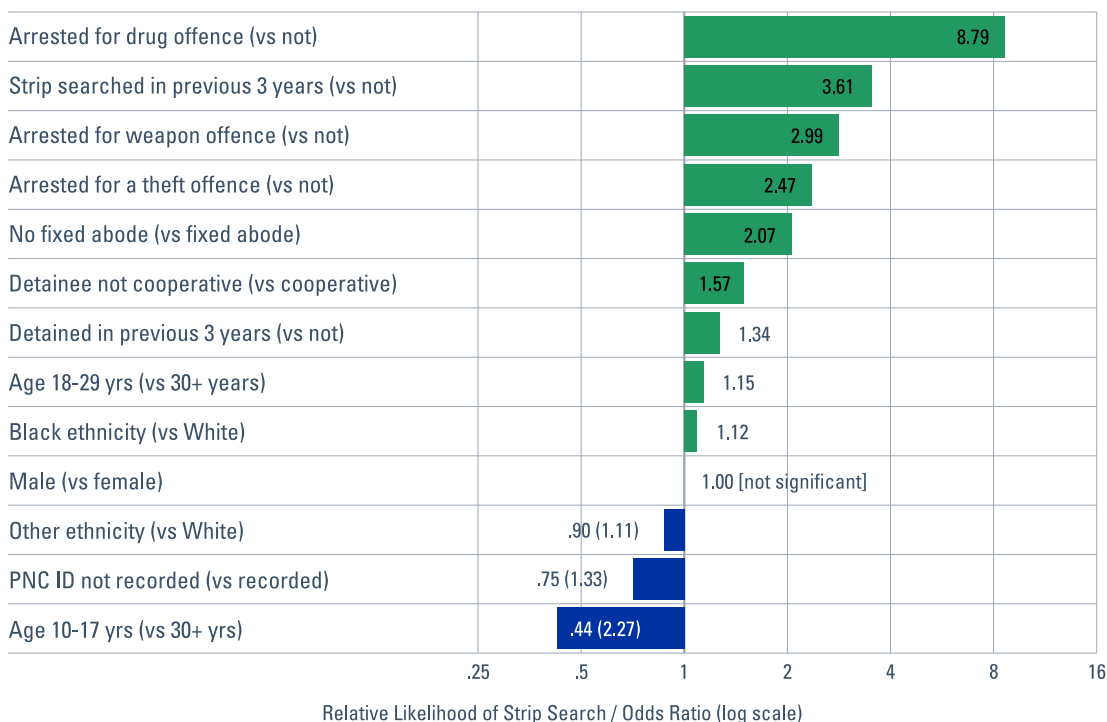
Figure 2 presents odds ratios, which represent the relative likelihood that something would occur in one situation, compared with another. In this case, these represent the likelihood that strip search would occur when a given factor (e.g. drug arrest) was present in an arrest, compared to situations when it was not (e.g. arrested for a non-drug offence).

It is important to note the difference between odds and probabilities. Odds ratios cannot be directly interpreted as a percentage difference in risk. They are ratios (comparisons) of odds, so where we use the phrase 'relative likelihood' we are referring to comparative differences in odds based on the odds ratio. Similarly, where we use percentages to describe differences between groups, we are referring to the percentage difference in odds³.

³ As an illustration of how probabilities and odds differ. If we have 100 officers and 25 of them arrested someone during a shift:
 - The *probability* of an officer arresting someone is: $25/100 = 0.25$ (the number of officers arresting / the total number of officers).
 - The *odds* are a *comparison* of events happening to events not happening. In this case: $25/75 = 0.33$ or odds of 1:3 that an officer has arrested someone. (Number of officers arresting / number of officers not arresting.)

To interpret Figure 2, numbers greater than 1 indicate a higher relative odds; numbers less than 1 indicate a lower relative likelihood. For example, detainees were nearly nine (8.79) times as likely to be strip-searched if they were arrested for a drug offence, compared with those who were not, after taking into consideration all other factors modelled. Detainees aged 10-17 were less likely to be strip-searched, compared with those aged 30+. (By a factor of 0.44 which is equivalent in magnitude to an odds ratio of 2.27,⁴ meaning that those older than 17 were more than twice as likely to be strip-searched as children taken into custody.)

Figure 2 – Relative odds of a detainee being strip-searched, after accounting for all other modelled factors⁵.



Note: For graphs of results we have displayed odds on a log (base 2) scale to ensure that results are of comparable size for presentational purposes.

⁴ An odds ratio below 1 means that an event is less likely to occur. In log terms, the odds ratio of 0.44 is equivalent in magnitude to 2.27 (taking the inverse of 0.44, or $1/0.44=2.27$).

⁵ The full regression model includes custody suite of detention, which, for the sake of space, is not shown on this chart. Custody suite difference is shown separately in Figure 5, below.

Offence type

Since strip-search is used to find prohibited objects, it is unsurprising that the presence of drug, weapon and theft offences had a strong relationship with the decision to strip-search.

In total, 80,150 (19.9%) arrests included at least one drug offence; 52,738 (13.1%) included a theft offence; and 31,842 (7.9%) included a weapon offence. There was some cross-over between the categories – e.g. detainees who were arrested for more than one offence type – but all drug, all weapon and all theft offence types each had a separate, independent association with the decision to strip-search.

Detainees arrested for a drug offence were 8.8 times as likely to be strip-searched as those with no drug offence. Those arrested for weapons, and theft offences were 3.0 times and 2.5 times as likely to be strip-searched as those without, respectively.

Custody history

Detainees with one or more MPS strip-searches in the previous three years were 3.6 times as likely to be strip-searched as those without. Custody staff may retrieve previous records of a detainee when booking them into custody. For example, a Police National Computer (PNC) check may also highlight that the detainee is known to conceal items on their person, presents a heightened risk of self-harm, or has some other flag that might influence the decision to employ strip-searching.

Detainees with one or more MPS arrest in the previous three years were 1.3 times as likely to be strip-searched as those without. As with previous strip-searches, if a detainee has been arrested before, information from a previous detention may influence the decision to strip-search. Detainees with no PNC ID recorded in the data were 0.8 times as likely (i.e. less likely) to be strip-searched compared to those with a PNC ID.

Almost 12% of custody records did not have a PNC ID recorded in the analysis data; as discussed in Appendix B, the exact reason for this is not known, but the absence of this value is significantly associated with the decision to strip-search. For this reason, it must be included in the model to control for its influence, so that the impact of the other factors can be isolated and measured appropriately.

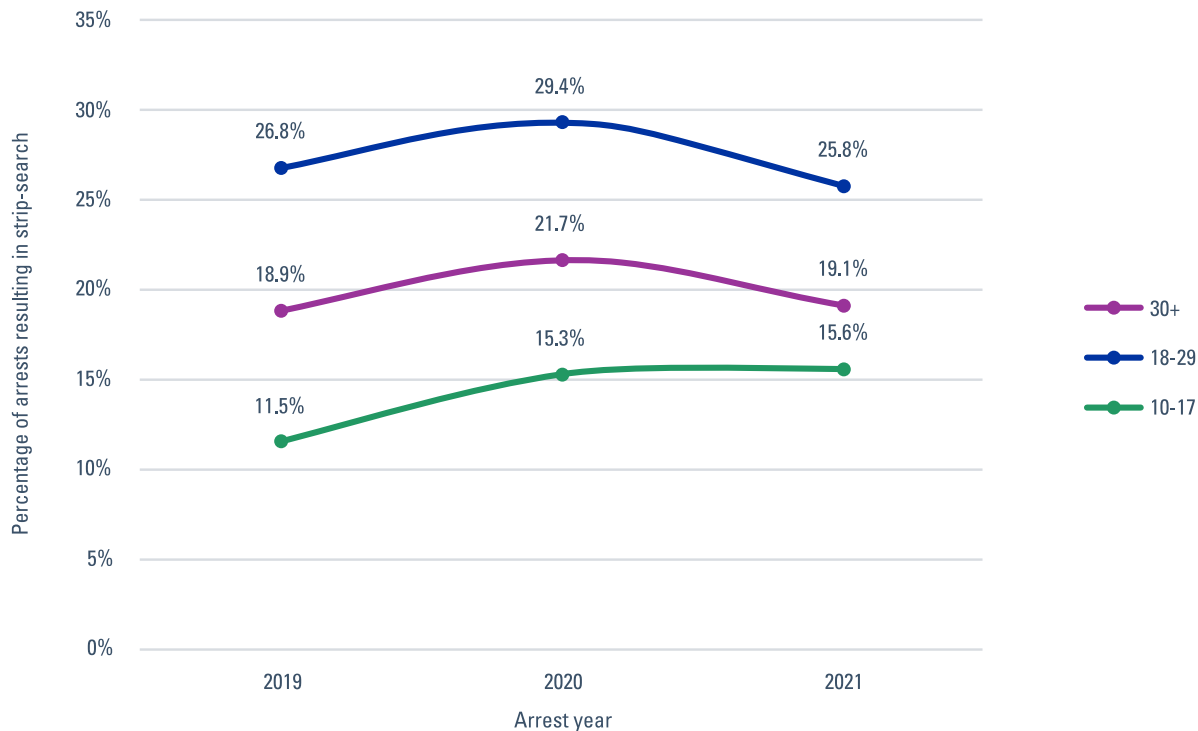
Address

Homeless detainees (those with 'no fixed abode') were 2.1 times as likely to be strip-searched as those who were not homeless. Police officers strip search based on risk or perception of risk; people of no fixed abode are likely to present with a mixture of complex needs and factors that could affect the likelihood of strip-search.

Age

Of all detainees, 34,911 (8.7%) were aged 10-17; 150,044 (37.2%) were aged 18-29; and 218,253 (54.1%) were aged 30+. This relationship between age and strip-searching, broken down across each of the three years used for our analysis, is presented in Figure 3.

Figure 3 – Percentage of arrests with a strip-search (strip-search rate), by arrest year and detainee age.



Detainees aged between 10 and 17 were 0.4 times as likely as those aged 30+ to be strip-searched. The reduced likelihood for under 18s is not surprising, since additional considerations are made for this group, such as the presence of an appropriate adult⁶.

Detainees aged between 18 and 29 were 1.2 times as likely to be strip-searched as those aged 30+. This difference is less easily explained. It is possible that subjective beliefs or bias about the perceived riskiness of younger adults increases the likelihood that they will be strip-searched.

Behaviour

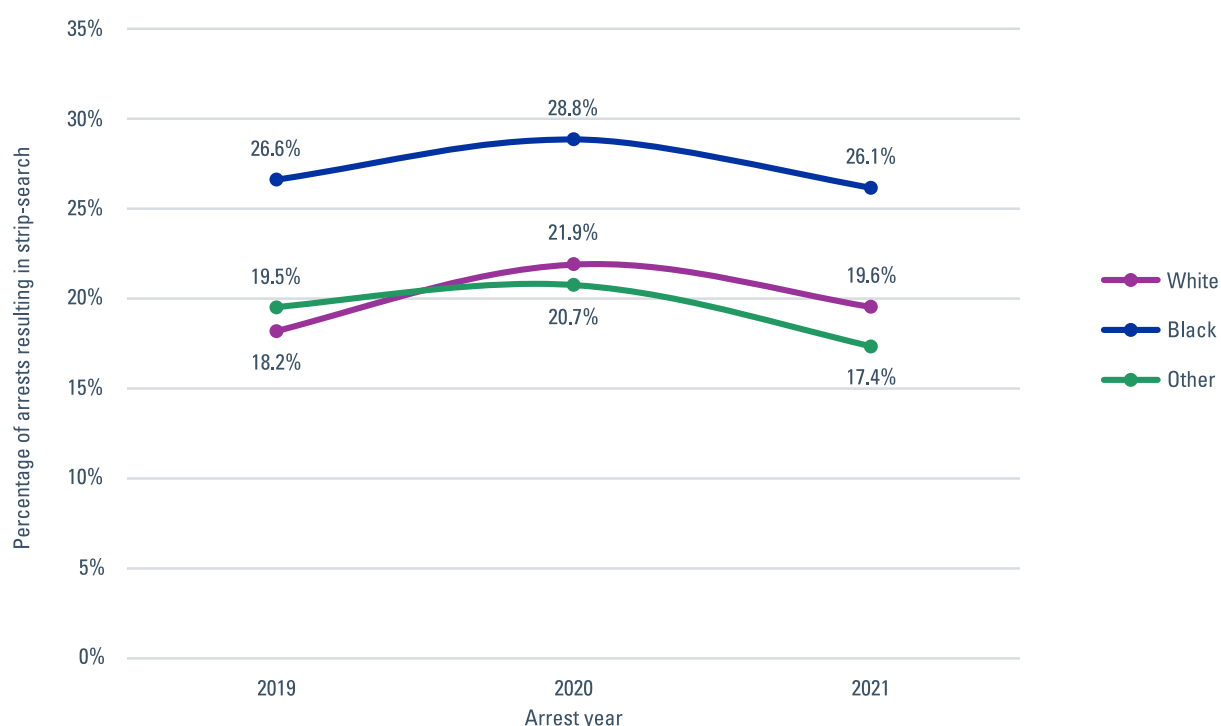
Detainees whose demeanour on arrival at custody was described as anything other than 'cooperative' were 1.6 times as likely to be strip-searched as those who were noted as 'cooperative'. Of all arrests, 88,410 (21.9%) were recorded as non-cooperative. Assessing and minimising any risk to or from the detainee is a vital part of a custody officer's role, and a non-cooperative demeanour may have been interpreted by custody staff as an attempt to deceive or conceal. However, in the absence of more objective grounds for strip-search, subjective beliefs or bias could also influence the assessment of behaviour and decision to strip-search.

⁶ Unless there is risk of serious harm to the child/young person or another, an appropriate adult must be present for a strip-search if it involves exposure of intimate body parts. It can only take place in the absence of the appropriate adult if the child/young person has specifically requested this and the adult agrees. The decision should be recorded and signed by the appropriate adult. [PACE Code C section 1.7\(a\)](#) defines an appropriate adult for a child or young person. Appropriate adults must be able to provide effective support. A parent or guardian should be considered in the first instance.

Ethnic appearance

Of all arrests over this three year period, 194,656 (48.3%) were White; 132,602 (32.9%) were Black; and 75,950 (18.8%) were Other (note that ethnicity was defined by the custody officer, rather than self-defined). The relationship between ethnicity and strip-searching, broken down by the year of arrest, is provided in Figure 4. Over the full three-year period of this analysis, Black detainees were 1.12 times as likely to be strip-searched as White detainees. Detainees of Other ethnicities were 0.90 times as likely to be strip-searched as White detainees.

Figure 4 – Percentage of arrests resulting in strip-search for each ethnic group, by arrest year.



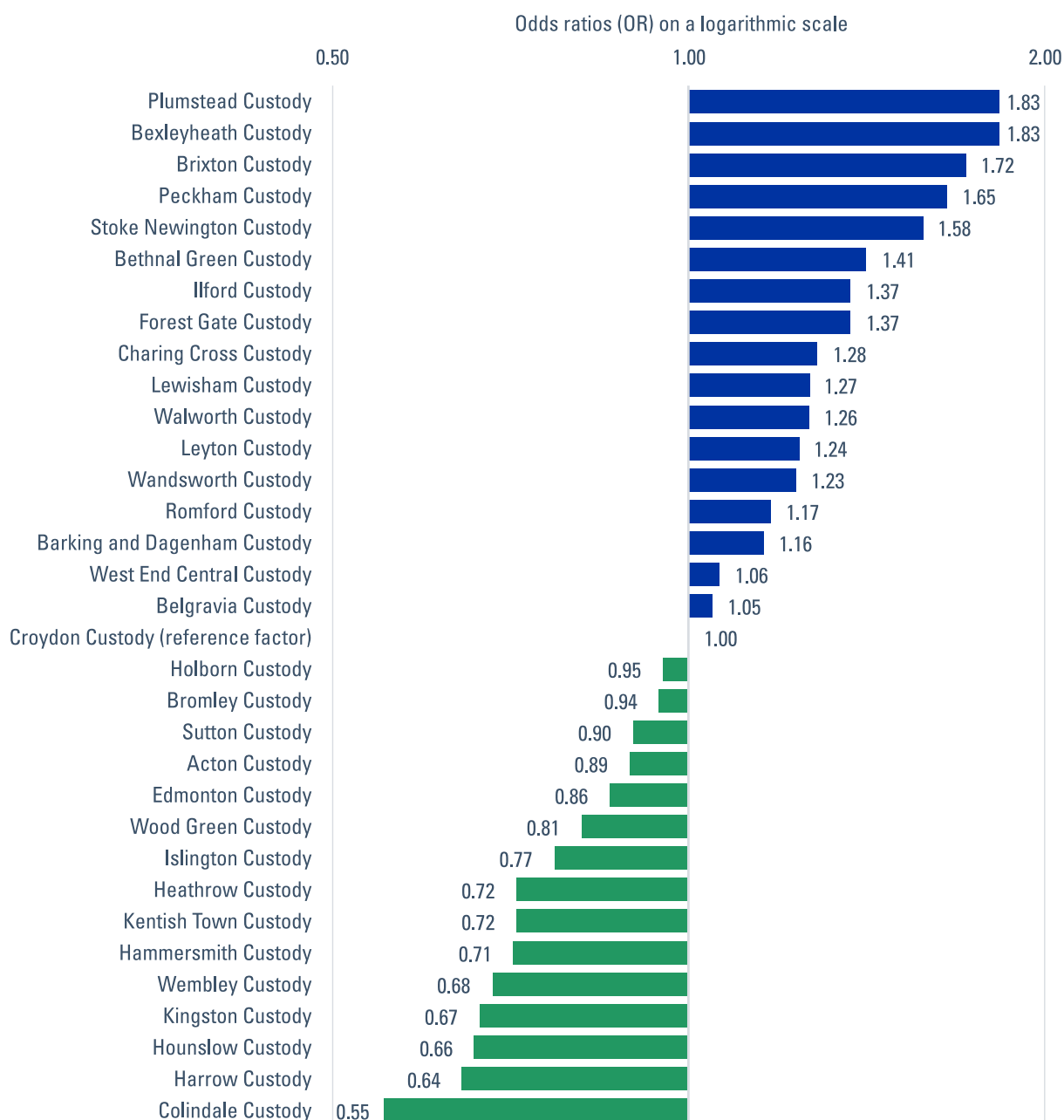
Sex

After all of the other factors listed were taken into account, the relative likelihood of being strip-searched was statistically identical for male and female detainees.

Custody suite

Figure 2 focusses on the relative odds of factors related to each detainee, but our model also includes differences between the custody suites themselves. As shown in Figure 5, there was considerable variation across custody suites. This variation could be driven by variability in crime and offender profiles present at each location, but could also be impacted by local variation (e.g. cultural norms within different suites) regarding how MPS policies are applied. Further work is required (and planned) to understand this variation in greater depth.

Figure 5 – Relative odds of a detainee being strip-searched at each custody suite⁷, after accounting for all other modelled factors.



Note: For graphs of results we have displayed odds on a log (base 2) scale to ensure that results are of comparable size for presentational purposes.

⁷ Several of the custody suites in the model were not full-time suites, but opened when required, either due to refurbishment of other sites, or due to resourcing specific policing requirements.

3.3 Which factors were most strongly associated with the use of strip-search among younger detainees (aged 10-17)?

Additional analyses (using the same approach described in Section 2) were conducted to understand which factors are linked with a higher/lower likelihood that a detainee will be strip-searched in custody, focusing on detainees aged 10-17. A summary of the main findings is provided below and full details are included in Appendix C.

- Being arrested for a drug offence was the factor with the strongest relationship with being strip-searched for detainees aged 10-17. Drug offence detainees were 7.3 times as likely to be strip searched as those without a drug offence. This was broadly consistent with the relationship for all detainees. When considering the year-on-year change, the relative odds ratio of the drug offence factor increased slightly between 2019 and 2021, from 6.8 to 8.0, but remained broadly consistent through time.
- Male detainees aged 10-17 were 1.8 times as likely to be strip searched as females. This contrasts with all detainees, where detainee sex had no measurable effect on strip search decision-making once other factors had been taken into account.
- Detainees aged 10-17 who were of 'no fixed abode' were on average 1.8 times as likely to be strip searched. Although this is weaker than for all detainee, year-on-year, this factor had an increasingly strong relationship with being strip searched and in 2021 it was stronger for this age group than for all detainees.
- Detainees aged 10-17 who are Black or Other ethnicity were more likely to be strip searched (1.5 and 1.3 times as likely as White detainees) than all detainees (1.1 and 0.9 times as likely).
- Detainees aged 10-17 recorded as 'not cooperative' were broadly as likely to be strip searched as all detainees (around 1.5 times as likely), but in 2021 this factor became more strongly related to strip search for 10-17 year-olds than for all detainees.

4. Conclusions

There are policies and procedures in place for the robust use of strip-search to gather evidence and reduce risk to and from detainees in the custody environment (see Appendix A). The factors most strongly related to the decision to strip-search include:

- Offence type, particularly drug, weapon and theft offences.
- MPS custody history, especially previous strip-search.
- Homelessness, where the detainee is of 'no fixed abode'.
- Whether the detainee is un-cooperative.
- The location (custody suite).

Compared with these factors, age, ethnicity and sex are relatively weakly associated with the decision to strip-search.

The MPS are currently delivering work to help to standardise decision-making. The THRIVE+ framework is a decision support tool that encourages recording rationale. Custody officers will use this framework to:

1. Consider factors when assessing and managing risk.
2. Provide a structure for recording decisions.

This systematic approach to risk management and record keeping is intended to improve consistency and the SIU will evaluate its impact on officer decision-making.

Appendix A: MPS use of strip search and legal powers

Under PACE codes of practice and college of policing guidance, custody sergeants have an obligation to manage and assess risk within custody. PACE states that:

'The custody officer is responsible for initiating an assessment to consider whether the detainee is likely to present specific risks to custody staff, any individual who may have contact with detainee (e.g. legal advisers, medical staff) or themselves. This risk assessment must include the taking of reasonable steps to establish the detainee's identity and to obtain information about the detainee that is relevant to their safe custody, security and welfare and risks to others. The custody officer is responsible for implementing the response to any specific risk assessment.'

All members of staff have a duty of care to a detainee, and are reminded that risk assessment is an ongoing process from the moment a person is detained.

Any matters that could affect the health and welfare of a detainee should be brought to the attention of the custody officer.

In relation to risk assessment and risk management, the custody officer is responsible for:

- Determining what immediate and/or further action is needed to avert or reduce the risk of harm to the detainee.
- Implementing that action.

A strip search within custody must be authorised by the custody sergeant and is one way of managing risk.

In line with Code C PACE Annex A para 10,

'A strip search may take place only if it is considered necessary to remove an article which a detainee would not be allowed to keep and the officer reasonably considers the detainee might have concealed such an article. Strip searches shall not be routinely carried out if there is no reason to consider that articles are concealed.'

Under section S54 (1)(4)(6)&(7) PACE 1984 the articles a detainee would not be allowed to keep are articles they could use to:

- Cause physical injury to himself or another.
- Damage property.
- Interfere with evidence.
- Assist him to escape; or has reasonable grounds for believing that they may be evidence relating to an offence.

In summary, police use strip search as a way to manage risk within custody and to ensure a detainee is not in possession of an article as listed above.⁸

⁸ Guidance taken from PACE code C, codes of practice, college of policing guidance and custody policy pages.

Appendix B: Analysis of detainees of all ages

Analysis

Data and method

MPS analysts analysed detention data for arrests between January 2019 and December 2021. After initial cleaning of the data and removing duplicates there were 407,796 unique records. A further 4,163 records were removed as they had 'unknown' ethnic appearance, and another 425 records had 'unknown' age, bringing the analysis data to a total of 403,208 unique records.

A logistic regression was chosen for the analysis as the output was inherently a binary variable i.e. whether a detainee was strip-searched (1) versus not (0).

The factors included were:

- Offence type (Drug, Weapon, Theft).
- Custody History (Strip-searched in previous 3 years, Detained in previous 3 years).
- Detainee address type (No Fixed Abode).
- Age group (10-17, 18-29, 30+).
- Sex (Male).
- Behaviour (Not-cooperative).
- Ethnic Appearance (Black, Other, White).
- PNC ID (Not Recorded).
- Custody Suite of Detention (Acton, Barking and Dagenham, Belgravia, Bethnal Green, Bexleyheath, Bromley, Charing Cross, Colindale, Croydon, Edmonton, Forest Gate, Hammersmith, Harrow, Heathrow, Holborn, Hounslow, Ilford, Islington, Kentish Town, Kingston, Lewisham, Leyton, Peckham, Plumstead, Romford, Stoke Newington, Sutton, Walworth, Wandsworth, Wembley, West End Central, Wood Green).

Due to the factors being categorical in nature (e.g. male, White, drug offence) each record was coded with ones and zeros. Detainee age had a non-linear relationship with strip-search so was coded by age range rather than treated as a single ordered or continuous variable.

Throughout this paper, descriptors of ethnicity are based on the 'Detainee Ethnic Appearance' values used in custody suites and in common usage in the Metropolitan Police Service, referred to as Identity Codes or 'IC' codes.

These descriptors are a record of each detainee's ethnic appearance, as judged by the custody officer booking them in, rather than their self-defined ethnicity.

Table B.1 – Coding schema for ethnic appearance

IC Code	Description	Factor as coded
0	Unknown	[removed]
1	North European – White	White
2	South European – White	White
3	Black	Black
4	Asian	Other
5	Chinese, Japanese or SE Asian	Other
6	Arabic or North African	Other

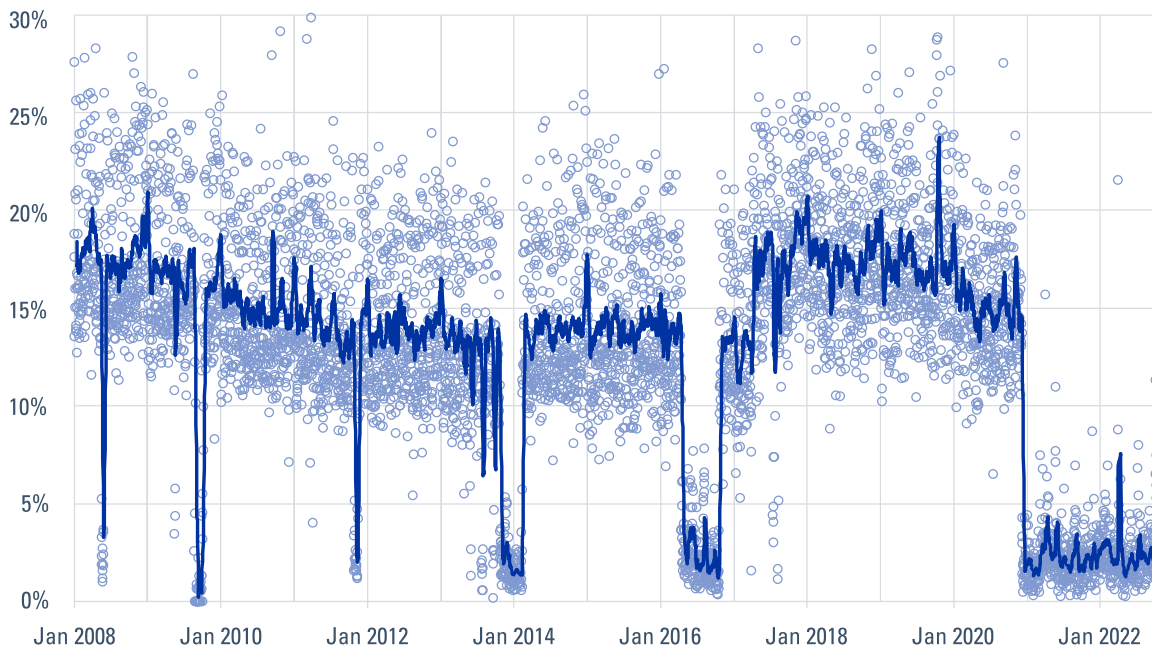
Missing PNC ID values

As described in the paper, the absence of a PNC ID number in the custody data has a powerful (and statistically significant) association with the decision to strip-search. This factor is not easy to understand, and the meaning behind its connection with strip-search decisions is less than clear.

Figure B1 presents day-by-day percentages, representing how many custody records contained a missing value for PNC ID. This issue has been a problem with MPS custody data for quite some time, dating back as far as 2008. But there have been brief periods of time when it occurred far less frequently. Although this percentage rarely drops all the way to zero, it does appear possible to attenuate its impact to the point where this problem becomes quite rare.

Figure B1 – Daily percentage of custody records that contain no recorded PNC ID value, with 28 day moving average.

Percent of custody records with missing PNC ID

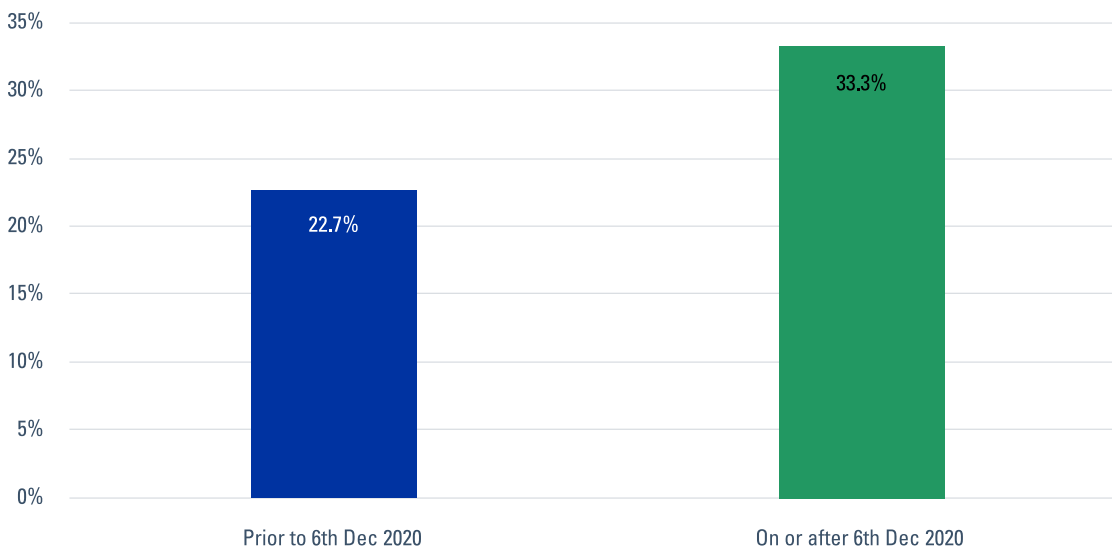


For the purpose of the current analysis, which relies upon data from 2019 onwards, Figure B1 shows a large improvement in the quality of the most recent custody data. From 6th December 2020 onwards, only 2.3% of the custody records hold a missing value for PNC ID. Before this date, however (i.e., between 1st January 2019 and 5th December 2020), 16.3% of these records have no PNC ID recorded.

Further analysis of the data used for this report shows that this issue is strongly tied to first-time detainees. Obviously, these first time detainees can be identified only among those who have a recorded PNC ID, because we use this identifier to verify that that have been no prior instances of detention. But once the data are limited to those who have a PNC ID available, we would expect that the proportion of all detainees who were first-timers would be fairly consistent over time. Figure B2 shows that this is not the case. Detainees who have no prior record of arrest become far more prevalent after the sudden improvement in recording PNC IDs – which occurred on 6th December 2020 – than they were beforehand.

Figure B2 – Prevalence of first time detainees among custody records where the PNC ID was present, prior to and after the improvement in PNC ID recording.

Percent of PNC-Present Records Involving First-Time Detainees



The number of custody records which contained a PNC ID grew enormously after 6th December 2020, with nearly all of this increase accounted for by first-time detainees.

This pattern suggests a number of concerns for the present analysis. First, the need for this factor is likely to disappear in later analyses. Roughly two-thirds of the data used to build the current model stem from the period when PNC IDs were more frequently missing from the data. Assuming that the data issues that led to these missing PNC IDs are now fixed, the next iteration of the model will be able to use far less of this problematic data, and will rely more upon the more recent custody data where this issue is far less prevalent.

Secondly, although PNC ID is a useful linking variable to search for any prior instances of detention or strip-searching, most of the factors in the current model do not rely upon the availability of a PNC ID. Instead, they can be calculated in the same manner regardless of whether this value is or is not present in the data.

Finally, because it seems like PNC IDs are more likely to be missing in records involving first-time detainees, its strong association with the absence of strip-searching makes sense. First-time detainees would have no record within PNC, and would therefore have no warning flags from prior arrests that would suggest the need to use strip-search during the present custody event.

Our speculation is that – in the current data – the “PNC ID Missing” factor represents the potential combination of a number of different things at once. For one thing, it is strongly correlated with appearing earlier in the analysis dataset, prior to December 2020. It also seems to be correlated with being in detention for the very first time, and subsequently with having no prior information available which could influence present-day decisions regarding strip-search.

Nevertheless, we do not, and cannot, have a complete understanding for why some custody records have a PNC ID available, and others do not. What we can say, with certainty, is that this factor has a very strong and statistically significant relationship with the decision to use strip-search. Therefore, regardless of what this factor “means”, it presents a great deal of explanatory influence on the outcome variable of our logistic regression. We therefore have little choice but to include in the model. But including it, we allow its influence to be isolated and removed from all of the other factors. This not only makes our model more accurate, but removes bias from the other coefficients, and helps isolate the unique association that each of these factors have with strip-searching.

Regression results

One main multi-variate logistic regression model including all selected factors was created, the results of which are explored in the sections above. In addition, separate bi-variate regression models were created for the majority of factor types⁹ in order to explore the difference between multivariate and bi-variate results. The two sets of results are shown in the table below.

Table B2 – Multi-variate and bi-variate logistic regression model results¹⁰

Factor	Multi-variate model <i>Pseudo R-sq 0.26</i>		Bi-variate models <i>Each with pseudo R-sq <0.12</i>	
	p value	Odds Ratio (OR)	p value	Odds Ratio (OR)
Arrested for drug offence (vs not)	0.000	8.79	0.000	6.60
Strip-searched in previous 3 years (vs not)	0.000	3.61	0.000	4.52
Arrested for weapon offence (vs not)	0.000	2.99	0.000	2.53
Arrested for a theft offence (vs not)	0.000	2.47	0.000	2.13
No fixed abode (vs fixed abode)	0.000	2.07	0.000	2.23
Detainee not cooperative (vs cooperative)	0.000	1.57	0.000	1.37
Detained in previous 3 years (vs not)	0.000	1.34	0.000	2.85
Age 18-29 yrs (vs 30+ years)	0.000	1.15	0.000	1.59
Black ethnicity (vs White)	0.000	1.12	0.000	1.53
Male (vs female)	0.648	1.00	0.000	1.47
White ethnicity (reference factor)	--	--	0.000	0.77

⁹ Excluding Custody Suites.

¹⁰ Several of the custody suites in the model were not full time suites, but opened when required, either due to refurbishment of other sites, or due to resourcing specific policing requirements.

	Multi-variate model <i>Pseudo R-sq 0.26</i>		Bi-variate models <i>Each with pseudo R-sq <0.12</i>	
Factor	p value	Odds Ratio (OR)	p value	Odds Ratio (OR)
Age 30+ yrs (reference factor)	--	--	0.000	0.76
Other ethnicity (vs White)	0.000	0.90	0.000	0.81
PNC ID not recorded (vs recorded)	0.000	0.75	0.000	0.36
Age 10-17 yrs. (vs 30+ yrs.)	0.000	0.44	0.000	0.53
Plumstead Custody	0.000	1.83		
Bexleyheath Custody	0.000	1.83		
Brixton Custody	0.000	1.72		
Peckham Custody	0.000	1.65		
Stoke Newington Custody	0.000	1.58		
Bethnal Green Custody	0.000	1.41		
Ilford Custody	0.000	1.37		
Forest Gate Custody	0.000	1.37		
Charing Cross Custody	0.000	1.28		
Lewisham Custody	0.000	1.27		
Walworth Custody	0.000	1.26		
Leyton Custody	0.000	1.24		
Wandsworth Custody	0.000	1.23		
Romford Custody	0.000	1.17		
Barking and Dagenham Custody	0.000	1.16		
West End Central Custody	0.052	1.06		
Belgravia Custody	0.458	1.05		
Croydon Custody (reference factor)	--	--		
Holborn Custody	0.019	0.95		
Bromley Custody	0.005	0.94		

Factor	Multi-variate model <i>Pseudo R-sq 0.26</i>		Bi-variate models <i>Each with pseudo R-sq <0.12</i>	
	p value	Odds Ratio (OR)	p value	Odds Ratio (OR)
Sutton Custody	0.023	0.90		
Acton Custody	0.000	0.89		
Edmonton Custody	0.058	0.86		
Wood Green Custody	0.000	0.81		
Islington Custody	0.000	0.77		
Heathrow Custody	0.000	0.72		
Kentish Town Custody	0.000	0.72		
Hammersmith Custody	0.000	0.71		
Wembley Custody	0.000	0.68		
Kingston Custody	0.000	0.67		
Hounslow Custody	0.000	0.66		
Harrow Custody	0.000	0.64		
Colindale Custody	0.000	0.55		

Converting odds ratio to model-adjusted percentage difference for ethnic group

For White detainees 19.9% of detainees across the three years of data were, on average, strip searched. We can use this baseline to convert the odds ratios from the statistical model into a percentage for Black detainees, after taking into account the other factors in the model (i.e. calculate an adjusted difference). To do this we use the following formula:¹¹

$$P(\text{Black}) = \text{OR} \times P(\text{White}) / 1 + \text{OR} \times P(\text{White}) - P(\text{White}) \quad [\text{Eq. 1}]$$

The OR is the odds ratio – in this case 1.12. P(White) is the proportion of White detainees strip searched, 19.9% expressed as 0.199.

$$P(\text{Black}) = 1.12 \times 0.199 / 1 + 1.12 \times 0.199 - 0.199 = 0.22 / 1.02 = 0.218 \text{ or } 21.8\%$$

So this conversion shows that the adjusted strip-search rate for Black detainees would be 21.8%, compared to 19.9% for Whites; an absolute difference of 1.9 percentage points. As a relative difference in percentages, $21.8/19.9 = 1.095$ – so Black detainees were 9.5 percent more likely to be strip searched than White detainees, after accounting for the other factors in the model.

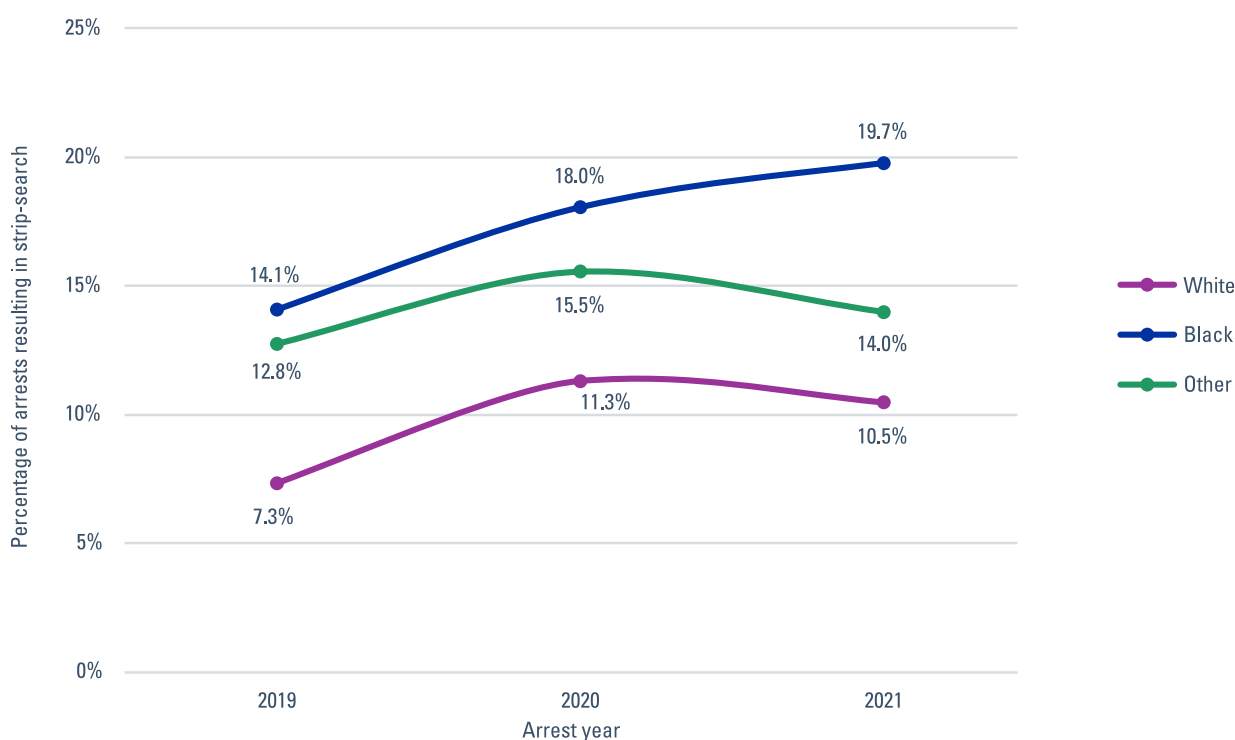
¹¹ Source: <https://realrisklight.wintoncentre.uk>

Appendix C: Analysis of detainees aged 10-17

How often was strip-search applied to detainees aged 10-17?

Of the 403,208 arrests between 2019 and 2021 included in the full analysis, 34,911 were of detainees aged between 10-17; of these, 4,868 were strip-searched. Therefore, the average strip-search rate of detainees aged 10-17 was 13.9%, compared with 22.2% for all detainees.

Figure C1 – Percentage of arrests resulting in strip-search for each ethnic group for detainees aged 10-17, by arrest year.



Which factors were most strongly related to strip-search for 10-17 years-olds?

Logistic regression was used to test which factors were most strongly associated with the use of strip-search. This assessed which factors had the strongest relationship with whether or not a detainee was strip-searched, after taking into account the other factors being considered.

Figures C1 and C2 present odds ratios, which describe the relative likelihood that something would occur in one situation, compared with another. Numbers greater than 1 indicate a higher relative likelihood; numbers less than 1 indicate a lower relative likelihood. For example, detainees were 7.30 times as likely to be strip-searched if they were arrested for a drugs offence, compared with those who were not, after taking into consideration all other factors modelled.

The following points have been drawn from the two figures shown below. Figure C1 shows the model outputs for detainees aged 10-17 over the full 2019-2021 period, and Figure C2 shows the model outputs for each of the years 2019, 2020 and 2021, omitting custody suites results due to limited space.

Offence type

As with all detainees, the presence of a drug offence was the factor most strongly related to being strip-searched. Detainees aged 10-17 arrested for a drug offence were 7.30 times as likely to be strip-searched as those without a drug offence. This was a slightly weaker relationship compared with 8.79 times as likely for all detainees, but still consistent.

When considering the year-on-year change, the relative odds ratio of the drug offence factor increased slightly between 2019 and 2021, from 6.78 to 7.97, but remained broadly consistent through time.

Those arrested for a weapon offence were 3.04 times as likely to be strip-searched as those without. This almost exactly the same as for all detainees – with 2.99 times as likely.

Year-on-year, the relative odds ratio of the weapon offence factor increased slightly between 2019 and 2021, from 2.73 to 3.08, but remained broadly consistent through time.

Those arrested for a theft offence had equal odds of being strip-searched as those who had not been – there was no significant relationship identified. This is an unexpected difference when comparing with all detainees, who were 2.47 times as likely to be strip-searched.

Year-on-year, the relative odds ratio of the theft offence factor increased slightly between 2019 and 2021, from 0.91 to 1.11. Although much lower than for all detainees, this change in odds ratio may indicate that the presence of theft offences is increasingly important in the decision to strip-search young detainees.

Custody history

Those who had been strip-searched in the previous 3 years were twice (2.00 times) as likely to be strip-searched as those who hadn't. This factor had a much weaker relationship with being strip-searched for 10-17 year olds than for all detainees, who were 3.61 times as likely to be strip-searched. This difference may be due to younger detainees being less likely to have previous criminality, and therefore lower likelihood of having been previously strip-searched.

Year-on-year, the relative odds ratios reduced steadily from 2.18 to 1.75. This indicates that previous strip-search may have become less important in strip-search decision-making.

Those detainees aged 10-17 who had been detained in the MPS in the previous 3 years were 1.22 times as likely to be strip-searched as those who had not. This was slightly lower than for all detainees, who were 1.34 times as likely.

Year-on-year, the relative odds ratios for this factor fluctuated between 2019 and 2021, dropping slightly in 2020, but returned to a similar level.

Sex

Male detainees aged 10-17 were 1.81 times as likely to be strip-searched as female detainees. This factor had a much stronger relationship with being strip-searched than for all detainees, for whom there was no relationship with strip-search based on their sex (equal odds, 1.00 times as likely, and not statistically significant).

Year-on-year, the relative odds ratios fluctuated between 2019 and 2021, increased slightly in 2020, but reduced again in 2021 and remained broadly stable.

Address

Those detainees aged 10-17 who were recorded as of 'no fixed abode' were 1.80 times as likely to be strip-searched as those who weren't. This was a slightly weaker relationship than for all detainees, who were 2.07 times as likely to be strip-searched.

When looked at year-on-year, the odds ratios for this factor have increased dramatically year-on-year, rising from 1.32 (2019), to 1.72 (2020), and then 2.61 (2021). Further work is required to understand why this factor appears to have an increasingly strong relationship with the decision to strip-search, for this age group.

Behaviour

Detainees aged 10-17 who were recorded as not cooperative were 1.64 times as likely to be strip-searched. This was almost the same as for all detainees, who were 1.57 times as likely to be strip-searched.

Year-on-year, the relative odds ratios have increased, especially in 2021, from 1.61 (2019), 1.50 (2020), and 2.02 (2021). It is unclear why this has changed.

Ethnic appearance

Black detainees aged 10-17 were 1.54 times as likely to be strip-searched as White detainees. This factor had a larger relationship than for all detainees, who were 1.12 times as likely. This means that the relative likelihood that Black detainees aged 10-17 were strip-searched was higher than White detainees in the same age group, controlling for all other factors.

Year-on-year, the odds ratios have fluctuated but remained broadly stable, with 1.70 (2019), 1.45 (2020), and 1.57 (2021).

Detainees of other ethnicities (non-Black BAME) aged 10-17 were 1.32 times as likely to be strip-searched as White detainees. As with young Black detainees, this factor also had a much stronger relationship than for all detainees, who were 0.90 times as likely to be strip-searched as White detainees.

Year-on-year, the odds ratios reduced steadily from 1.41 in 2019 to 1.17 in 2021. Although reduced, this remains higher for this age group than for all detainees.

Converting odds ratio to model-adjusted percentage difference for 10-17 ethnic groups

For White detainees aged 10-17, 9.7% of detainees across the three years of data were, on average, strip searched. We can use this baseline to convert the odds ratios from the statistical model into a percentage for Black detainees aged 10-17, after taking into account the other factors in the model (i.e. calculate an adjusted difference). To do this we use the following formula:

$$P(\text{Black}) = \text{OR} \times P(\text{White}) / 1 + \text{OR} \times P(\text{White}) - P(\text{White}) \quad [\text{Eq. 1}]$$

The OR is the odds ratio – in this case 1.54. P(White) is the proportion of White detainees strip searched, 9.7% expressed as 0.097.

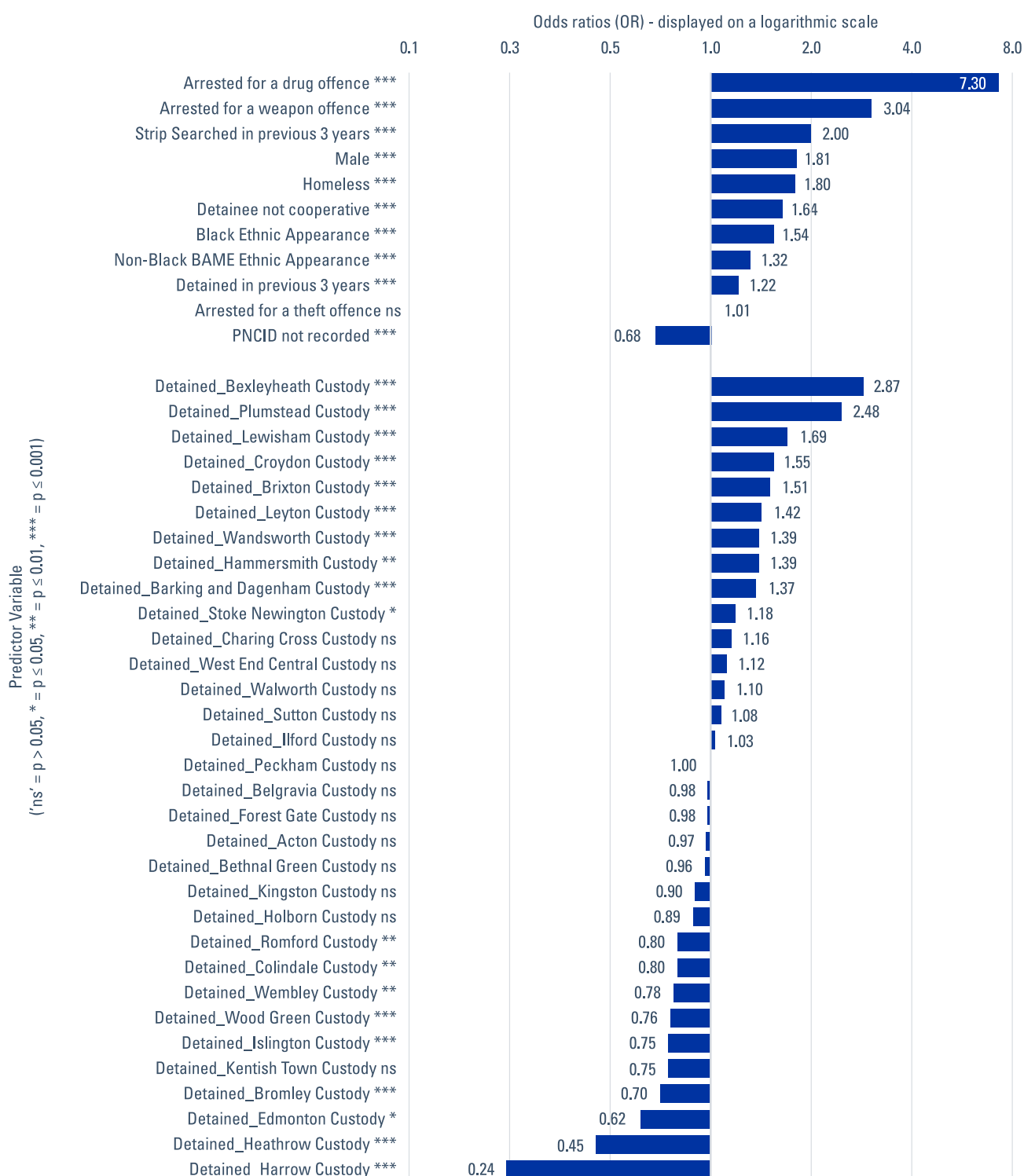
$$P(\text{Black}) = 1.54 \times 0.097 / 1 + 1.54 \times 0.097 - 0.097 = 0.149 / 1.05 = 0.142 \text{ or } 14.2\%$$

As for all detainees, this conversion shows the adjusted strip-search rate for Black detainees. In this case, it would be 14.2% compared to 9.7% for Whites, an absolute difference of 4.5 percentage points. As a relative difference in percentages, $14.2/9.7 = 1.46$ – so Black detainees aged 10-17 were 46 percent more likely to be strip searched than White detainees, after accounting for other factors in the model.

PNCID not recorded

Those detainees aged 10-17 who did not have a PNCID recorded on NSPIS were 0.68 times as likely (47% less likely) to be strip-searched. This factor had a slightly stronger relationship with strip-search than for all detainees, who were 0.75 times as likely (33% less likely) to be strip-searched.

Year-on-year, the odds ratios for this factor have remained linked to a lower likelihood of being strip-searched. This factor also became non-significant in 2021. The previously significant effect is understood to have been caused by a legacy IT issue, which had largely been fixed by 2021.

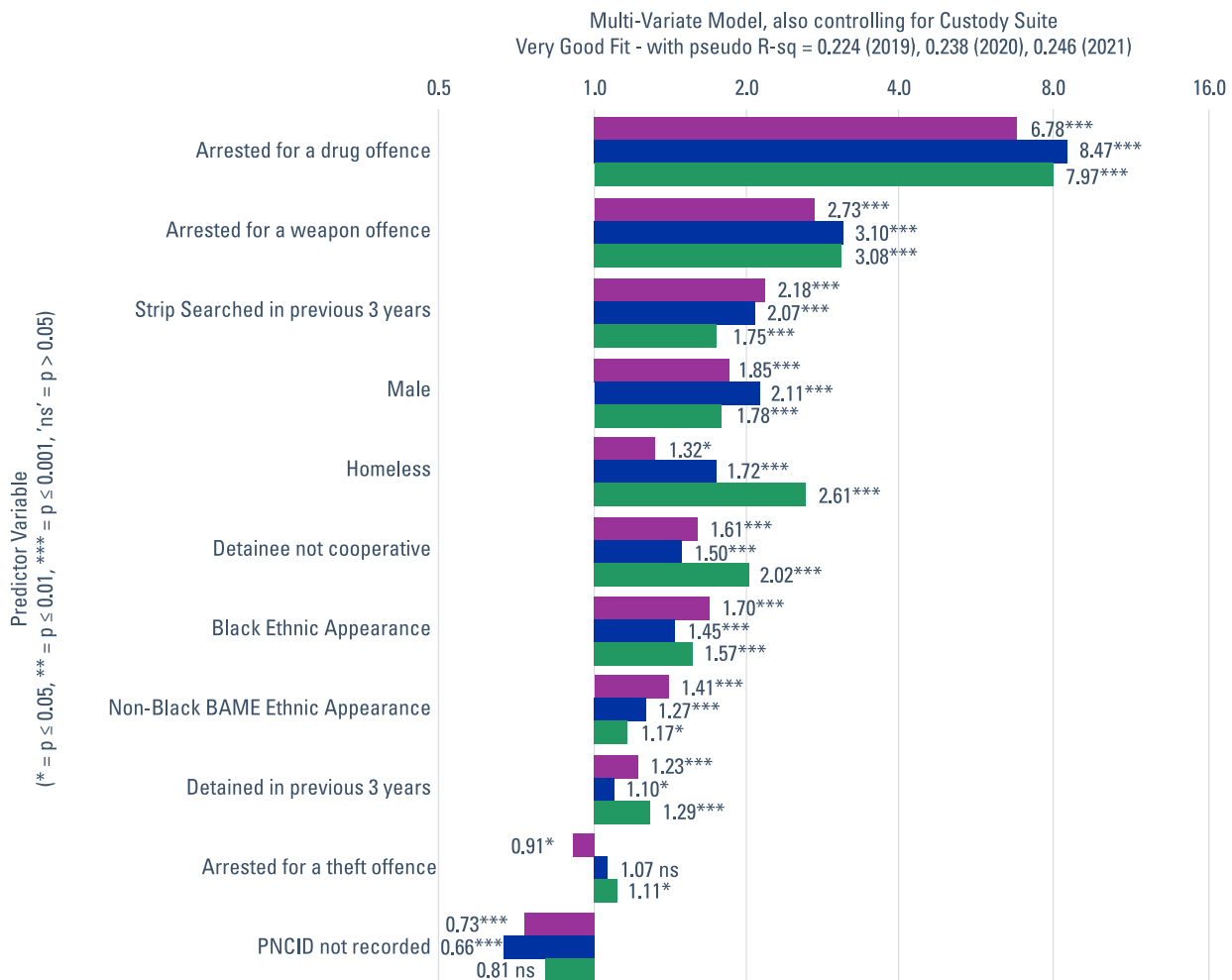
Figure C2 – Relative odds ratios (OR) of a detainee aged 10-17 being strip-searched, when considering the presence of different factors¹².

Note: For graphs of results we have displayed odds on a log (base 2) scale to ensure that results are of comparable size for presentational purposes.

¹² Several of the custody suites in the model were not full time suites, but opened when required, either due to refurbishment of other sites, or due to resourcing specific policing requirements.

Figure C3 – Relative odds ratios (OR) of a detainee aged 10-17 being strip-searched, when considering the effect of different factors, by arrest year.

Legend: Purple = 2019, Dark blue = 2020, Green = 2021.



Note: For graphs of results we have displayed odds on a log (base 2) scale to ensure that results are of comparable size for presentational purposes.