# CASA0007 WRITTEN INVESTIGATION

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### Introduction & Background (400 words)

In 2019, Public Health England (PHE), an executive agency of the UK Department of Health and Social Care, released a pathway report towards zero HIV transmission in the UK by 2030. A key part of this strategy is the implementation of HIV Pre-Exposure Prophylaxis (PrEP) among communities at high-risk of HIV infection, including men who have sex with men (MSM), Black African heterosexuals, and people who inject drugs (PWID) (@phe-framework). HIV PrEP is a combination medication that is highly effective at preventing HIV infection when taken daily or on an event-based regimen (@molina2017-efficacy). The medication was made available nationwide as a publicly funded pharmaceutical through the NHS on October 1st 2020 (@ukhealth-nhsstatement), following a trial period (the PROUD pilot study, and subsequent PrEP Impact trial) that predominantly served MSM in London and other large urban centres (@lancethiv2017).

Spatial disparity in PrEP access, particularly between urban and rural areas, has been well documented. However, most contemporary studies on spatial accessibility of PrEP have been conducted in the US (@rossiter2021-urbanicity), Australia (@hammoud2019-aus), and Europe (@wang2022-netherlands), and there is a notable scarcity of English research explicitly addressing the urban-rural dimension. This is despite a 2017 editorial in *the Lancet HIV* calling for greater understanding and consideration of geographical inequalities faced by those at risk of HIV in the UK (@lancethiv2017).

Additionally, likely because of the relatively recent introduction of PrEP in countries where it has been made publicly available, there is a lack of population-wide studies utilising higher-scale administrative and census data. Previous research on PrEP access and uptake in the UK has predominantly been limited to surveys and small-sample qualitative studies. The publication of the first nationwide PrEP indicator data from the UK Health Security Agency (UKHSA) in 2022 makes it possible to investigate measures of PrEP access and need across England, and their relation to demographic and socioeconomic characteristics of populations.

The most common factors identified in international studies of urban-regional differences in PrEP access include accessibility to sexual health services and HIV specialists, stigma associated with taking PrEP (including stigma against MSM, transgender, and PWID communities), HIV literacy, and general education level (@mwaturura2021-barriers, @rossiter2021-urbanicity, @wang2022-netherlands). Populations at higher risk of HIV also tend to concentrate in urban areas, and consequently healthcare workers in urban areas report greater HIV literacy and are more comfortable implementing PrEP clinical activities (@owens2022-gps).

[Add point on SHSs outside London less likely to offer HIV tests to eligible patients (81% compared with 88%) (@phe-framework)]

### Research Question (100 words)

Text

### Data Sources (150 words)

The outcome data on estimates of PrEP need by LAC are sourced from the UK Health Security Agency (UKHSA). PrEP need is a calculated measure that assesses the proportion of all people accessing a specialist SHS who are both (i) HIV negative and (ii) considered to be at substantial HIV risk. The estimate of HIV risk is assessed using clinical coding data from the Genitourinary Medicine Clinic Activity Dataset (GUMCAD), which is England's mandatory STI surveillance system operated by UKHSA (@ukhsa-framework). A detailed definition of the GUMCAD criteria is listed in Appendix X.

Rural-urban classifications for LACs are produced by the UK Department of Environment, Food & Rural Affairs (DEFRA). LACs are classified into 1 of 6 categories based on the proportion of the population residing in rural areas (Table 1). Areas are classed as rural if they fall outside of settlements with a population of 10,000 or greater (@defra-ruralurban).

Demographic data for LACs are sourced from England’s Census 2021. A range of variables encompassing socioeconomic status, education level, ethnic diversity, sexual minorities, and social attitudes were selected based on an assessment of the literature on factors affecting PrEP literacy, attitude, and uptake, both in the UK and abroad.

Table : Rural-Urban Classification for Local Authority Councils in England (@defra-ruralurban)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Classification** | | | | | |
| **2-class** | Regional-Rural | | | Urban | | |
| **3-class** | Predominantly rural | | Urban with significant rural | Predominantly urban | | |
| **6-class** | Mainly rural | Largely rural | Urban with significant rural | Urban with city and town | Urban with minor conurbation | Urban with major conurbation |
| **Definition** | ≥80% rural | 50–79% rural | 26–49% rural | ≤26% rural | | |

### Methodology (150 words)

Text

### Results (300 words)

Text

### Discussion (500 words)

Text

#### Limitations

The UKHSA’s first PrEP monitoring framework was released in 2022, reflecting the recent introduction of the medication to England under NHS-funding, and the relatively rapid transition to PrEP uptake as a key strategy in combatting the HIV epidemic in the UK. The data used in this analysis is thus the first release of data for these indicators, and provisional analysis by the UKHSA suggests that under reporting and inconsistent use of novel PrEP surveillance codes in GUMCAD is likely to lead to underestimates in calculation of PrEP need. It is also possible that this underestimation will be greater in regional-rural areas, as healthcare workers in these areas are likely to have lower exposure to HIV at-risk communities and less specialist expertise in PrEP and HIV care (@owens2022-gps; @petroll2017). Disrupted access to healthcare services due to the COVID pandemic and associated lockdowns in 2021 should also be considered when drawing interpretations from this data (@wich-monitoringtool). Further analysis in this area should be conducted as the PrEP monitoring framework matures and more years of data become available, in anticipation that these data quality issues will lessen over time.

The denominator for estimating PrEP need only accounts for the population that access and engage in care with SHSs. Any person at-risk of HIV who is not seen by an SHS is not included in the calculation of PrEP need – this is especially pertinent for people who inject drugs (PWID), who are less likely to engage in care (@phe-framework) and who should be classified as PrEP-eligible independent of sexual or demographic risk factors.

This investigation is further limited by the geographic scale of analysis, as PrEP monitoring data is only released at the LAC level. There is wide variance in the population and area of LACs in the UK, and a binary urban-rural classification at this scale necessarily involves including a proportion of population who are effectively urban under ‘regional-rural’ LACs, and vice versa.

### Conclusion (150 words)

Text

### Appendix A

**Abbreviations**

|  |  |
| --- | --- |
| **LAC** | Local authority: council |
| **GUMCAD** | Genitourinary Medicine Clinic Activity Dataset |
| **UKHSA** | United Kingdom Health Security Agency |
| **DEFRA** | Department of Environment, Food & Rural Affairs |
| **PHE** | Public Health England |
| **PrEP** | Pre-Exposure Prophylaxis |
| **STI** | Sexually Transmitted Infection |
| **SHS** | Sexual Health Service |
| **NHS** | National Health Service |
| **MSM** | Men who have sex with men |
| **PWID** | People who inject drugs |

### Appendix B

[Include table on determining PrEP need indicator]

### Bibliography

* @ukhsa-framework
* @ukhealth-nhsstatement
* @phe-framework
* @defra-ruralurban
* @wich-monitoringtool
* @hammoud2019-aus
* @lancethiv2017
* @molina2017-efficacy
* @mwaturura2021-barriers
* @owens2022-gps
* @petroll2017
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* @walters2022-pwid
* @wang2022-netherlands