COVID-19 in inclusion health populations.

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Aim: To rapidly inform scalable strategies for control of COVID-19 in inclusion health settings.

The COVID-19 pandemic is having a disproportionate impact on the poorest communities internationally. PHE's report – "Disparities in the risk and outcomes of COVID-19" has also demonstrated this effect in England. The report covers social deprivation, ethnicity and migration but highlights the lack of data on the extent of the problem in Inclusion Health populations. Internationally, COVID-19 has been shown to transmit readily in institutional settings. Most of the attention to date has been focussed on hospitals and nursing homes. There is also a wide range of institutional settings that accommodate socially and clinically vulnerable populations including prisons, homeless shelters and migrant worker accommodation in which large scale outbreaks have been reported. Internationally, there are also reports of extensive transmission in rough sleepers and Roma, Gypsy and Traveller groups.

These Inclusion Health populations have significant barriers to accessing mainstream health care and other services. With the exception of young healthy migrants and prisoners, all these populations have very high levels of comorbidity which place them at increased risk of death from COVID-19. The average age of death of a homeless person is less than 50 years. Our ongoing health needs assessment of former rough sleepers currently in hotel accommodation showed that at least 8% meet shielding criteria (at least twice the rate of the general population despite an average age of 43). There are very high levels of severe Chronic Obstructive Airways Disease and Cardiovascular Disease. 42% are eligible for influenza vaccination by virtue of comorbidities.

Intensive emergency interventions have been introduced for detained populations and for rough sleepers. Prison authorities continue to ban visiting, confine inmates to their cells for 23 hours a day, quarantine new arrivals for 14 days and sought to reduce overcrowding by releasing prisoners early. There is now a significant backlog in the criminal justice system. It is recognised that current restrictions cannot be maintained long-term. Detention and accommodation facilities for migrants and asylum seekers have been reconfigured to reduce overcrowding. HMPS and Home Office have also sought to separate and isolate those with symptoms. The majority of asylum seekers remain in the community in Houses of Multiple Occupancy (HMOs) with shared facilities.

The rough sleeper population was highlighted early as a population unable to follow government advice to stay at home. A high proportion slept in congregate emergency accommodation with extreme risk of transmission. Almost 10,000 rough sleepers are currently accommodated in unused hotels. This is again recognised as an impractical long-term solution. An additional 35,000, mainly single homeless people, remain in hostels with communal facilities. Despite no specific national guidance many hostels have attempted to reduce transmission by closing communal areas, but maintaining effective social distancing within these facilities is extremely challenging. There is already a significant increase in the numbers of people who are new to homelessness on the streets. The homeless population remain at significant risk and options for future adequate accommodation remain extremely limited.

Approximately one quarter of Roma Gypsy and Irish Traveller families live in caravans or other mobile temporary structures. The bi-annual government traveller caravan count estimated the number of Traveller caravans in England in July 2019 at 23,125. Of these, 6,633 caravans were on socially rented sites, 13,410 were on private sites, 2047 were on unauthorised developments and 1,035 were on unauthorised developments. These figures are widely recognised as an underestimate. The majority of sites have little or no access to sanitation and running water, limiting opportunities to follow hygiene advice. Gypsy and Traveller communities are estimated to have life expectancies of between ten and 25 years shorter than the general population. There is no systematic data on occurrence of COVID in these population but multiple anecdotal reports of outbreaks and significant mortality.

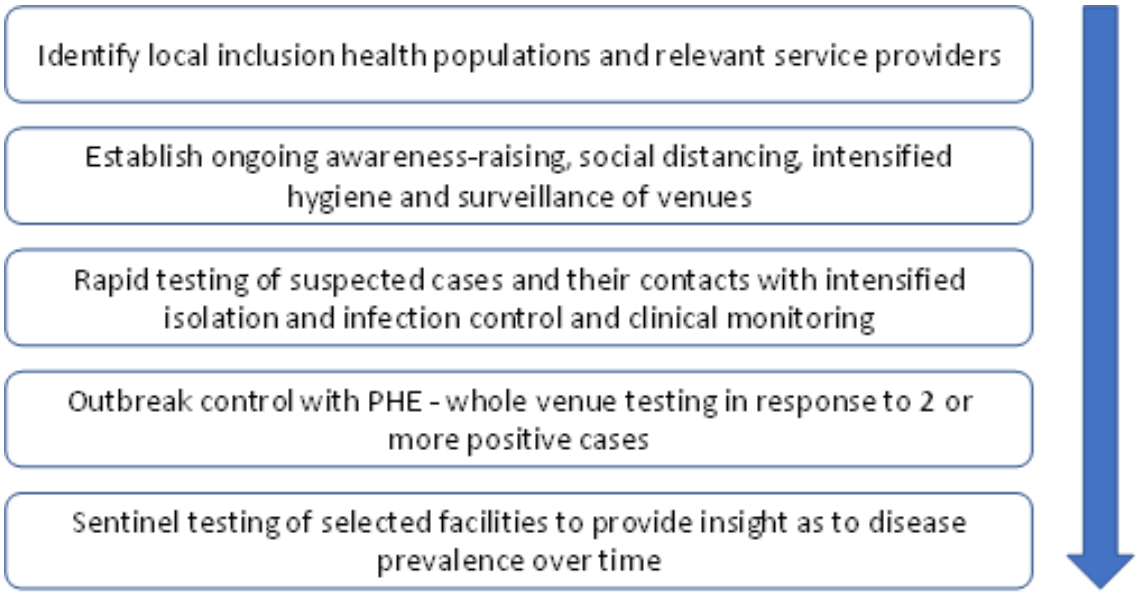
Inclusion Health Population	Estimated #
Prisoners	81,000
Immigrant Detention Centres	750
Initial accommodation centres	2738
Asylum Seekers in dispersed accommodation	40,000
Rough sleepers currently in hotel accommodation	10,000
Single homeless people in hostels	35,000
Romany Gypsy and Irish Traveller in Caravan Accommodation	75,000
Total	244,488

Clinical and Public Health Justification

Inclusion health populations:

- Are clinically vulnerable individuals with high risk of morbidity and mortality from COVID-19;
- Commonly experience significant barriers to accessing mainstream healthcare and require tailored approaches to achieve effective engagement with health providers;
- Act as amplifiers of infection, due to overcrowding and shared facilities increasing risk of outbreaks;
- Can have high contact rates with service providers and/or local communities;
- Have higher rates of emergency health care usage and admission, especially homeless people;
- Are largely invisible within routine health and surveillance data leading to unrecognised/hidden outbreaks which act as reservoirs of infection making local elimination challenging.

We envisage this research informing a rational ongoing policy response to COVID-19 control in inclusion health populations as outlined below.



Objective	Approach	Measurement
1) Identify local inclusion health populations and relevant service providers in demonstration sites across NHS regions. **Timeframe**: Month 1 **Resource**: Secondment of UCL Centre for Inclusion Health academic training fellows: Chantal Edge - Detention Settings lead; Binta Sultan community settings lead. Shared administrative resource. Rob Aldridge - Public Health Data Science lead. Public Health Trainees. Existing UCL/Virus Watch collaboration with ERSI Survey and mapping tools https://www.esri.com/en-us/covid-19/response	**National** - MOJ and Home Office. National umbrella organisations. National Prison Health Care Providers. NHSE/I lead homeless health COVID-19 response - Olivia Butterworth. PHE Migration Health Lead Ines Campos-Matos **Regional** – NHS Inclusion Health Leads & and PHE Covid-19 response teams. **Local** – Inclusion Health Partnership (IHP)- Directors of Public Health, Health Protection Teams, Statutory and Voluntary Health and Social Care Providers.	**Mapping** of facilities (e.g. prisons, IRCs, IACs, hostels, hotels, encampments etc). Population demographics. Identifying local delivery partners. Development of sampling frame for surveys and sentinel testing.
2) **Understand risk and preparedness in inclusion health populations.** **Timeframe:** Month 2 **Resources:** As per objective 1.	**Online survey infrastructure**. Baseline surveys completed by service providers of facilities.	**Quantify key risk parameters:** Shared communal facilities; Population churn; Clinical vulnerability; Connectivity with key services & local population IPC & PPE
3) Measure **point prevalence and cumulative prevalence** of COVID-19 in inclusion health settings **Timeframe:** From month 1 and throughout. **Resources** – as per Objective 1 **Realist evaluation support.** (tbc - Justin Jagosh-Liverpool/Geoff Wong-Oxford) **Training -Engagement -Delivery (TED)** - Find&Treat Street Outreach (A.Story) - Research Funding to support local Inclusion Health Teams & Health teams in Detention settings - Experts by Experience from all inclusion health populations. **Laboratory:** Pillar 2 swab testing. Serology - Health Service Laboratory (UCLH)	**Sentinel Swabbing, Serology and symptom surveys** Frequency of repetition informed by baseline and responsive to R in local community – but minimum quarterly for 9 months. **Realist evaluation of TED** - barriers and enablers to success	- Point prevalence - Cumulative prevalence - Proportion symptomatic - Analysis of Risk Factors - Comparison to general population Context of mechanisms (intervention-resources) that influence outcomes.
4) **Rapid reporting** of sus. cases, **outreach testing, isolation, IPC advice, contact tracing** and **outbreak management** (with expanded testing in partnership with PHE) **Timeframe**: From month 2 **Resources**: GDPR compliant online reporting infrastructure (PHE and IHPs) As per TED objective 3. Local NHS rapid turnaround testing.	**Real Time reporting** suspected cases Delegated testing models Evaluation of self-sampling Exploration of POCT in detention settings and mobile diagnostics **Realist evaluation of TED** - barriers and enablers to success	Refine clinical case definitions Monitor R Contact Index and Yield Delay in diagnosis and isolation Impact of POCT and alternative sampling models Clinical outcomes
5) Modelling & **Data linkage -**The Foundry **Timeframe**: Throughout **Resource:** Ian Diamond –Manchester, Max Eyre Lancaster tbc Rob Aldridge - HDRUK Economist – Rachel Hunter UCL (tbc)	Dynamic models of institutional transmission and spread in inclusion health populations. Linkage to HES, Lab Data, Mortality	Prediction of potential impact Potential effectiveness and cost effectiveness of control strategies. Health care usage and Mortality
6) Dissemination and scaling **Timeframe – From month 3** **Resources:** See National, Regional and Local approach Objective 1	Tailored resources for Inclusion Health Networks and commissioners. Webinars -Toolkits Information Resources for Inclusion Health Populations	Uptake of surveillance, outreach and testing. Collection of outcomes from other centres. Commissioning/Sustainability