

Position statement - August 2020 - for immediate release

## **Public Health rationale for NOT opening/re-opening communal airspace sleeping facilities for homeless people during the SARS-CoV-2 pandemic:**

Dr Al Story & Prof Andrew Hayward - UCL Collaborative Centre for Inclusion Health

**STATEMENT:** International evidence indicates that communal airspace homeless shelters are unsafe during periods of SARS-CoV-2 transmission, regardless of whether control measures are in place

**STATEMENT:** The international evidence strongly suggests that symptom screening to identify potentially infectious cases among homeless people would be ineffective to mitigate the risk of SARS-CoV-2 transmission in communal shared airspaces

**RECOMMENDATION:** Homeless people should NOT be accommodated in communal airspace sleeping facilities while Government measures to contain the spread of SARS-CoV-2 remain in place

**RECOMMENDATION:** Service commissioners, statutory and faith based providers should advocate for and resource the continued and commensurate provision of own-room accommodation with minimal sharing of bathrooms for homeless people throughout the SARS-CoV-2 pandemic

### **Introduction:**

The *Triage-Test-Cohort-Care* Homeless sector plan, launched in March 2020, strongly recommended closure of dormitory style night shelters with communal airspace sleeping facilities and rapid triaging and protective cohorting of homeless people into single room accommodation in hotels known as COVID-PROTECT facilities. This was the single most important factor preventing significant outbreaks in homeless communities across the UK and **contrasts markedly with rates of infection reported in North America where communal night shelters were kept open** (Table 1:). The high attack rate seen in North America occurred despite stringent measures to enforce social distancing, hand washing, testing and rapid isolation of symptomatic cases (Appendix 1).

London, which was hit hardest and earliest by COVID-19, and which has the largest number of rough sleepers, has, so far, successfully contained transmission in the homeless population (28 laboratory confirmed cases). More than half of the homeless cases diagnosed in London had recently used night-shelters before they were closed (night-shelters make up less than 20% of homeless accommodation). These cases were mainly diagnosed within 2 weeks of closure of night shelters. This demonstrates how **the timely closure of night-shelters, effectively shut down transmission** amongst rough sleepers who had been using these facilities.

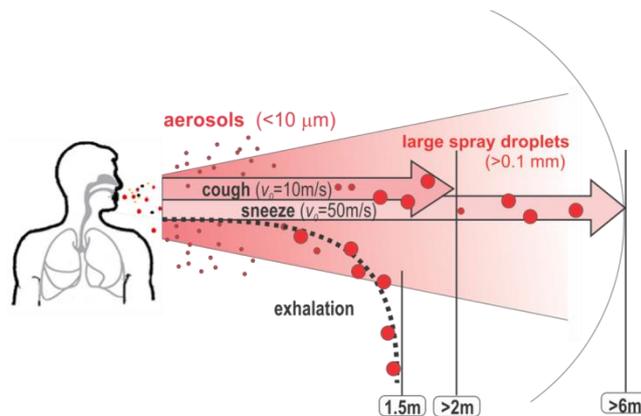
### **Transmission risk following prolonged exposure in shared airspaces:**

**SARS-CoV-2 transmission is thought to mostly be via respiratory droplets coming from infected individuals<sup>1</sup>.** Respiratory droplets are usually classed as particles  $>10\ \mu\text{m}$  and will rapidly fall to the ground or settle on surfaces due to gravity, typically within 1-2m. This is the scientific basis to social distancing and mask wearing while on public transport and in shops. In addition to droplets we also generate **submicron droplets i.e. aerosols** ( $\leq 10\ \mu\text{m}$  diameter), during speech and coughing that are small and light enough to **remain suspended in the air for hours. These aerosol particles can contain live virus which can remain viable and infectious for 3 hours<sup>2</sup>.**

<sup>1</sup> Lai CC, Shih TP, Ko WC, Tang HJ, Hsueh PR. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus disease-2019 (COVID-19): the epidemic and the challenges. *Int J Antimicrob Agents.* 2020; 55105924

<sup>2</sup> van Doremalen N, Bushmaker T, Morris DH et al. Aerosol and surface stability of SARS-CoV-2 as compared with SARS-CoV-1. *N Engl J Med.* 2020; 382: 1564-1567

Risk of infection depends on multiple factors including the route, the infectious dose or quantity of virus (inoculum), the duration of exposure, and the host immune defences. This leads to wide variation in attack rates (Table 2). In closed airspace environments where people are socially distanced and spending relatively short periods of time the risk of SARS-CoV-2 transmission from airborne aerosols is most likely extremely low. However, in closed and poorly ventilated airspaces where people are congregating for several hours or sleeping, the duration and intensity of exposure, irrespective of social distancing, can result in a much higher inoculum and consequent greater risk of transmission. Aerosols can both penetrate and circumnavigate face coverings and surgical masks which would be unlikely to protect against aerosol borne infection over prolonged exposure in communal airspaces.



The high attack rates seem among residents and staff in US homeless communal shelters compared to no evidence of outbreaks to date in single room, own bathroom COVID-PROTECT facilities in London, strongly points to the role of aerosol transmission due to prolonged exposure in shared airspaces. These comparative data are derived from a period when intense community transmission was occurring in both London and US Cities. CDC published extensive guidance early in the pandemic on how to control transmission within homeless shelter accommodation. This included strict social distancing, distancing and screens between sleeping spaces, extensive testing of venues, regular symptom and temperature screening, rapid isolation of symptomatic and confirmed cases, moving the most vulnerable to alternative accommodation, intensive cleaning, and minimising of the sharing of bathrooms. **The US approach to seeking to prevent and control outbreaks in homeless shelters has been a failure.**

**Table 2:** Attack rates (% of people contracting SARS-CoV-2) when testing followed identification of a cluster

Setting	Attack rate
Passing interactions among people shopping <sup>3</sup>	0.6%
Interactions such as sharing a meal <sup>3</sup>	7%
Interactions among household members <sup>4, 5</sup>	10% - 40%
Crowded and confined indoor workplaces <sup>6</sup>	44%
Communal US homeless shelter staff <sup>7</sup>	16% - 30%
Communal US homeless shelter residents <sup>7</sup>	17% - 66%

<sup>3</sup> Chen Y, Wang AH, Yi B, et al. Epidemiological characteristics of infection in COVID-19 close contacts in Ningbo. Article in Chinese. Zhonghua Liu Xing Bing Xue Za Zhi. 2020;41(5):667-671.

<sup>4</sup> Cheng HY, Jian SW, Liu DP, Ng TC, Huang WT, Lin HH; Taiwan COVID-19 Outbreak Investigation Team. Contact tracing assessment of COVID-19 transmission dynamics in Taiwan and risk at different exposure periods before and after symptom onset. JAMA Intern Med. Published online May 1, 2020.

<sup>5</sup> Rosenberg ES, Dufort EM, Blog DS, et al; New York State Coronavirus 2019 Response Team. COVID-19 testing, epidemic features, hospital outcomes, and household prevalence, New York State-March 2020. Clin Infect Dis. Published online May 8, 2020

<sup>6</sup> Park SY, Kim YM, Yi S, Lee S, Na BJ, Kim CB, et al. Coronavirus Disease Outbreak in Call Center, South Korea. Emerg Infect Dis. 2020 Apr 23;26(8).

<sup>7</sup> Mosites E, Parker EM, Clarke KEN, Gaeta JM, Baggett TP, Imbert E, Sankaran M, Scarborough A, Huster K, Hanson M, Gonzales E, Rauch J, Page L, McMichael TM, Keating R, Marx GE, Andrews T, Schmit K, Morris SB, Dowling NF, Peacock G; COVID-19 Homelessness Team. Assessment of SARS-CoV-2 Infection Prevalence in Homeless Shelters - Four U.S. Cities, March 27-April 15, 2020. MMWR Morb Mortal Wkly Rep. 2020 May 1;69(17):521-522. doi: 10.15585/mmwr.mm6917e1. PMID: 32352957

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**Limitations of symptom screening to identify potentially infectious cases:**

SARS-CoV-2 has the potential to transmit from asymptomatic patients<sup>8</sup>. The virus can be identified in respiratory tract specimens 1-2 days before the onset of symptoms<sup>9</sup>. A recent evidence review found 16% of confirmed RNA positive cases remained asymptomatic<sup>10</sup>. Studies among homeless people have confirmed these findings indicating a high level of RNA positivity among asymptomatic patients<sup>11</sup>. The effectiveness of symptom screening to identify and isolate potentially infectious cases among homeless people is further undermined by the non-specific clinical presentation and the high prevalence of co-morbidities that potentially mask and complicate symptom screening. Respiratory symptoms are the most common presenting symptom for SARS-CoV-2 infection, but, almost 50% of homeless people report chronic cough.

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**Additional considerations:**

- Homeless people age prematurely and have high rates of chronic disease placing them at very high risk of death if infected with SARS-CoV-2<sup>12,13</sup>
- Almost 1:10 former rough sleepers medically assessed in COVID-PROTECT facilities in London are classified as extremely clinically vulnerable and >40% have one or more clinical risk factors that make them eligible for influenza vaccination and at increased risk following SARS-CoV-2 infection
- 38% of homeless people in London are from BAME groups – opening/re-opening communal airspace sleeping facilities for homeless people will further increase the extreme disparities in mortality between white and BAME groups
- Local health protection teams have limited engagement with many providers of Night Shelters for homeless people leading to important gaps in control and surveillance efforts and significant challenges in controlling any potential outbreaks that will likely amplify community transmission

<sup>8</sup> Zou L, Ruan F, Huang M, Liang L, Huang H, Hong Z, et al. SARS-CoV-2 Viral Load in Upper Respiratory Specimens of Infected Patients. *New England Journal of Medicine*. 2020

<sup>9</sup> Wölfel R, Corman VM, Guggemos W, Seilmaier M, Zange S, Müller MA, et al. Virological assessment of hospitalized patients with COVID-2019. *Nature*. 1 April, 2020.

<sup>10</sup> Byambasuren O, Cardona M, Bell K, Clark J, McLaws M-L, Glasziou P. Estimating the extent of true asymptomatic COVID-19 and its potential for community transmission: systematic review and meta-analysis. *medRxiv*. 2020.

<sup>11</sup> Travis P, Baggett, Harrison Keyes, Nora Sporn, Jessie M. Gaeta. Prevalence of SARS-CoV-2 Infection in Residents of a Large Homeless Shelter in Boston. *JAMA*. 2020 Jun 2; 323(21): 2191–2192. Published online 2020 Apr 27. doi: 10.1001/jama.2020.6887

<sup>12</sup> Aldridge RW, Story A, Hwang SW, Nordentoft M, Luchenski SA, Hartwell G, Tweed EJ, Lewer D, Vittal Katikireddi S, Hayward AC. Morbidity and mortality in homeless individuals, prisoners, sex workers, and individuals with substance use disorders in high-income countries: a systematic review and meta-analysis. *Lancet*. 2018 Jan 20;391(10117):241-250. doi: 10.1016/S0140-6736(17)31869-X

<sup>13</sup> Lewer D, Aldridge RW, Menezes D, Sawyer C, Zaninotto P, Dediccoat M, Ahmed I, Luchenski S, Hayward A, Story A. Health-related quality of life and prevalence of six chronic diseases in homeless and housed people: a cross-sectional study in London and Birmingham, England. *BMJ Open*. 2019 Apr 24;9(4):e025192. doi: 10.1136/bmjopen-2018-025192.

- Adequate housing was recognized as part of the right to an adequate standard of living in the 1948 Universal Declaration of Human Rights and in the 1966 International Covenant on Economic, Social and Cultural Rights. Accommodation provided by the State is defined as inadequate if it does not guarantee physical safety or provide adequate space, as well as protection against threats to health. In the context of SARS-CoV-2 transmission it is clear that **communal airspace sleeping facilities for homeless people do not comply with the Universal Declaration of Human Rights** as they cannot provide adequate protection against threats to health even when intensive control measures are attempted.
- The need for emergency night shelter accommodation is becoming more acute due to closure of temporary hotel and B&B facilities and increasing numbers of people becoming street homeless. This need will be further increased due to adverse weather during the winter period.

**RECOMMENDATIONS:**

- 1. Homeless people should NOT be accommodated in communal airspace sleeping facilities while Government measures to contain the spread of SARS-CoV-2 remain in place**
- 2. Service commissioners, statutory and faith based providers should advocate for and resource the continued and commensurate provision of own-room accommodation with minimal sharing of bathrooms for homeless people throughout the SARS-CoV-2 pandemic**

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## Appendix: Numbers of diagnosed homeless cases and outbreaks in Homeless Shelters

Reports of Diagnosed homeless cases	
<b>England</b>	As of end of May - <b>57</b> homeless diagnosed with COVID-19. <a href="https://www.gov.uk/government/news/review-into-factors-impacting-health-outcomes-from-covid-19">https://www.gov.uk/government/news/review-into-factors-impacting-health-outcomes-from-covid-19</a> .
<b>London</b>	As of end of April <b>28</b> homeless diagnosed COVID-19 (none diagnosed since end of April). Find&Treat data
<b>New York</b>	As of 6 <sup>th</sup> May – <b>700</b> homeless diagnosed with COVID-19. 69 know to have died <a href="https://blogs.lse.ac.uk/socialpolicy/2020/06/01/new-yorks-homeless-population-should-not-be-pushed-into-the-shadows-during-the-covid-19-pandemic/">https://blogs.lse.ac.uk/socialpolicy/2020/06/01/new-yorks-homeless-population-should-not-be-pushed-into-the-shadows-during-the-covid-19-pandemic/</a>
<b>Los Angeles</b>	As of end of May - <b>455</b> homeless diagnosed with COVID-19. 13 known to have died <a href="https://www.timesheraldonline.com/2020/06/08/coronavirus-in-homeless-communities-how-bad-is-it-in-bay-area-shelters-camps/">https://www.timesheraldonline.com/2020/06/08/coronavirus-in-homeless-communities-how-bad-is-it-in-bay-area-shelters-camps/</a>
<b>San Francisco</b>	As of End of May - <b>167</b> homeless diagnosed with COVID-19 (6% of all cases in the city) <a href="https://www.timesheraldonline.com/2020/06/08/coronavirus-in-homeless-communities-how-bad-is-it-in-bay-area-shelters-camps/">https://www.timesheraldonline.com/2020/06/08/coronavirus-in-homeless-communities-how-bad-is-it-in-bay-area-shelters-camps/</a>
<b>Boston</b>	By 7 <sup>th</sup> June – <b>400</b> homeless diagnosed with COVID-19 <a href="https://vtdigger.org/2020/06/07/after-covid-19-crisis-where-will-homeless-vermonters-go/">https://vtdigger.org/2020/06/07/after-covid-19-crisis-where-will-homeless-vermonters-go/</a>
<b>Toronto</b>	By 25 <sup>th</sup> April - <b>135</b> homeless diagnosed with COVID-19 <a href="https://nationalpost.com/pmnn/news-pmnn/canada-news-pmnn/covid-19-spreads-in-homeless-shelter-who-seeks-funds-in-the-news-for-april-25">https://nationalpost.com/pmnn/news-pmnn/canada-news-pmnn/covid-19-spreads-in-homeless-shelter-who-seeks-funds-in-the-news-for-april-25</a>
<b>Massachusetts</b>	Rate of COVID-19 in homeless 24 times higher than general population <a href="https://deepblue.lib.umich.edu/bitstream/handle/2027.42/154734/Baggett%20Deep%20Blue%20article.pdf?sequence=1">https://deepblue.lib.umich.edu/bitstream/handle/2027.42/154734/Baggett%20Deep%20Blue%20article.pdf?sequence=1</a>
Reports of Outbreaks	
<b>London</b>	<b>3%-4%</b> of residents screened in 3 hotels diagnosed with COVID-19 in first 2 weeks of April – all had come from Night Shelter Accommodation. No outbreaks identified since despite screening in 58 venues. – Find&Treat Data
<b>Boston</b>	<b>36%</b> of 408 Nightshelter residents tested positive. <a href="https://doi.org/10.1001/jama.2020.6887">https://doi.org/10.1001/jama.2020.6887</a>
<b>Chicago</b>	<b>24%</b> (19/80) of night shelter residents tested positive - 2 staff in homeless sector died of COVID-19 <a href="https://chicago.suntimes.com/columnists/2020/5/21/21266311/covid-19-outbreak-homeless-shelter-raises-concerns-some-staying-there">https://chicago.suntimes.com/columnists/2020/5/21/21266311/covid-19-outbreak-homeless-shelter-raises-concerns-some-staying-there</a>
<b>King County Seattle</b>	<b>18%</b> of night shelter residents (35/195) and 21% of staff (8/38) across three shelter <a href="https://www.cdc.gov/mmwr/volumes/69/wr/mm6917e2.htm">https://www.cdc.gov/mmwr/volumes/69/wr/mm6917e2.htm</a>
<b>Toronto</b>	<b>40%</b> (18/45) of night shelter residents with 2 deaths <b>88</b> positive Willowdale Welcome Centre for Migrants <a href="https://www.youtube.com/watch?v=xZ-HjC_aHyQ">https://www.youtube.com/watch?v=xZ-HjC_aHyQ</a> <a href="https://nationalpost.com/pmnn/news-pmnn/canada-news-pmnn/covid-19-spreads-in-homeless-shelter-who-seeks-funds-in-the-news-for-april-25">https://nationalpost.com/pmnn/news-pmnn/canada-news-pmnn/covid-19-spreads-in-homeless-shelter-who-seeks-funds-in-the-news-for-april-25</a>
<b>San Francisco</b>	MSC South Night Shelter San Francisco <b>96</b> residents 10 staff diagnosed with COVID-19 <a href="https://sanfrancisco.cbslocal.com/2020/04/19/coronavirus-update-san-francisco-homeless-shelter-outbreak-grows-to-over-100-confirmed-cases/">https://sanfrancisco.cbslocal.com/2020/04/19/coronavirus-update-san-francisco-homeless-shelter-outbreak-grows-to-over-100-confirmed-cases/</a>
<b>Los Angeles</b>	> <b>100</b> diagnosed cases at Union Recue Mission Night Shelter despite weekly testing and intensive control measures <a href="https://www.nbclosangeles.com/investigations/coronavirus-spreads-to-most-skid-row-homeless-shelters-despite-efforts-to-stop-it/2360838/">https://www.nbclosangeles.com/investigations/coronavirus-spreads-to-most-skid-row-homeless-shelters-despite-efforts-to-stop-it/2360838/</a>
<b>Boston San Francisco Seattle 5 night shelter study</b>	<b>37%</b> among residents and <b>21%</b> among staff members. Rates were as high as 95 of 143 residents ( <b>66%</b> ) tested at the San Francisco shelter and 15 of 50 staff members ( <b>30%</b> ) tested at the Boston shelter <a href="https://jamanetwork.com/channels/health-forum/fullarticle/2765745">https://jamanetwork.com/channels/health-forum/fullarticle/2765745</a>
<b>Philadelphia</b>	<b>21%</b> (32/149) residents of night shelter in Philadelphia. 1 death <a href="https://www.inquirer.com/news/covid-outbreak-death-philadelphia-homeless-shelter-after-city-broke-up-encampment-convention-center-20200501.html">https://www.inquirer.com/news/covid-outbreak-death-philadelphia-homeless-shelter-after-city-broke-up-encampment-convention-center-20200501.html</a>
<b>Maine</b>	<b>39%</b> (21/54) night shelter <a href="https://bangordailynews.com/2020/04/29/mainefocus/bangor-homeless-shelter-records-coronavirus-outbreak-among-20-residents-and-staff/">https://bangordailynews.com/2020/04/29/mainefocus/bangor-homeless-shelter-records-coronavirus-outbreak-among-20-residents-and-staff/</a>
<b>New York</b>	<b>21%</b> (32/149) residents of homeless shelter tested positive - 1 death <a href="https://blogs.lse.ac.uk/socialpolicy/2020/06/01/new-yorks-homeless-population-should-not-be-pushed-into-the-shadows-during-the-covid-19-pandemic/">https://blogs.lse.ac.uk/socialpolicy/2020/06/01/new-yorks-homeless-population-should-not-be-pushed-into-the-shadows-during-the-covid-19-pandemic/</a>
<b>Houston</b>	<b>77</b> COVID-19 positive at one night shelter <a href="https://www.khou.com/article/health/coronavirus/77-positive-covid-19-cases-at-houston-homeless-shelter/285-f8ad7306-cb8d-4471-b8bb-4ce310ebd3a7">https://www.khou.com/article/health/coronavirus/77-positive-covid-19-cases-at-houston-homeless-shelter/285-f8ad7306-cb8d-4471-b8bb-4ce310ebd3a7</a>