Letter to the Editor

Community incidence rates of COVID-19 and the severity of care home outbreaks in the City of Hull, England

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Dear Editor

We are writing to share some insight gained from a brief descriptive study of the relationship between community incidence rates of COVID-19 and the severity of recent COVID-19 outbreaks in care homes in the English City of Hull, East Yorkshire. Care homes house some of the most vulnerable elderly people in society and are well recognized as high risk settings for the transmission of COVID-19 [1]. Once the COVID-19 virus enters the home from a visitor or worker infected in the wider community, outbreaks with high attack rates in the confined setting can lead to increased mortality amongst these vulnerable populations [2]. Public health measures such as social distancing may also be harder to implement in these complex settings because of large staff workforces and residents with dementia and related ailments, who may find it difficult to cope with restrictions.

This study was undertaken by the Yorkshire and Humber Public Health England (PHE) regional Health Protection service to support local public health discussion on the implementation of heightened COVID-19 restrictions within the community in Hull where, common with other local authorities, local deliberations often mirrored national debate on the timing of any relaxation of community restrictions. The weekly COVID-19 incidence rate in Hull on November 12, 2020 was 726.8 per 100,000 population, which, at that point in the pandemic, was the highest rate seen in a local authority in England [3] (it has since been surpassed).

An interesting finding from the study was that the risk of both greater severity (attack rate, hospitalization and death) and frequency in care home outbreaks increased as community incidence rates increased. The few care home outbreaks which occurred in the summer months all had much lower attack rates and were identified mainly through whole care home PCR testing of asymptomatic staff and residents.

This raises a potentially important point for local policy discussions on the relaxation of COVID-19 restrictions within the community. In Hull, the severity and frequency of outbreaks increased when seven-day community incidence rates rose to 20 per 100,000 people. The increase in attack rates became more significant when incidence rates reached about 100 per 100,000 people. This coincided with the start of a period from 100/100,000 in early October to almost 800/100,000 four weeks later in early November [4].

These higher attack rates in care home outbreaks in Hull during the second wave occurred despite increased testing activity in these settings, improved access to Personal Protective Equipment, and greater system support from Local Authorities, Commissioners, PHE and local Infection Prevention and Control services. This suggests that the higher community incidence rates in Hull have had a significant impact on the severity of outbreaks in care homes, with infections introduced into these vulnerable settings by visitors and staff infected outside of the care home. This emphasises the value of rapid screening of staff and essential visitors and the exclusion of individuals who may transmit the infection asymptomatically in these settings to minimise the importation of infections.

With specific reference to Hull, a case can therefore be made for maintaining current restrictions (or similar) until community incidence rates drop closer to 100/100,000; or until such a time as the ongoing rapid vaccination programme is considered to have significantly reduced the risk of further outbreaks amongst highly vulnerable people in these settings.

It is recognized that this was a descriptive study (with significant bias and several confounding factors), but it does introduce some quantitative reasoning into the ongoing debate about local restrictions.

References

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