

# Benefits of inpatient contact tracing and illustration of social inequalities and their relation to increasing risk of hospitalisation by COVID-19

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## Introduction

Strategies implemented to control COVID-19 transmission rates and reduce hospitalisation include vaccinations and contact tracing. With vaccinations effective in reducing hospital admissions owing to COVID-19, vaccine hesitancy may adversely affect this.<sup>1</sup> Hesitancy rates rise to 21% in Black, Asian and minority ethnic (BAME) communities.<sup>2</sup> Additionally, social inequalities negatively affect hospitalisation risk by COVID-19. Mortality rate increases in BAME communities and with social deprivation.<sup>3</sup>

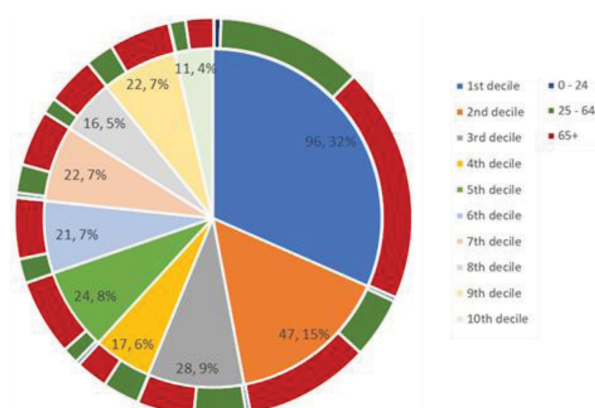
NHS Test and Trace (NHSTT) aimed to reduce transmission through contact tracing. Following a pilot study at Sheffield Teaching Hospitals (STH) identifying 65% of inpatients failing to engage with NHSTT, an inpatient contact tracing team (IPCT) was established.<sup>4</sup>

## Methodology

Between September and November 2021, 305 STH inpatients with COVID-19 were interviewed by the IPCT. An electronic form was completed for each patient, which included close contact details, vaccination status, NHSTT engagement and recent locations visited. The form was sent to Sheffield City Council who uploaded the relevant details to the Contact Tracing and Advisory Service. A student team compiled the data forms into an anonymised database with the aim of looking for underlying factors associated with patient hospitalisation.

## Results

Patient distribution by Index of Multiple Deprivation (IMD) deciles within Sheffield showed the first (ie most deprived) decile had the largest number of individuals (32%), followed by the second decile (15%) and third decile (9%; Fig 1). Younger inpatients (under 65 years) were more likely to reside in more deprived areas (IMD deciles 1–4; Fig 1).



**Fig 1.** Patient distribution based on IMD deciles (inner ring) and age (outer ring).

Vaccination uptake based on IMD deciles showed that mean uptake was 72%. The first decile had the lowest uptake rate of 57%, whereas the eighth decile had the highest uptake rate of 81% (Fig 2).

## Discussion

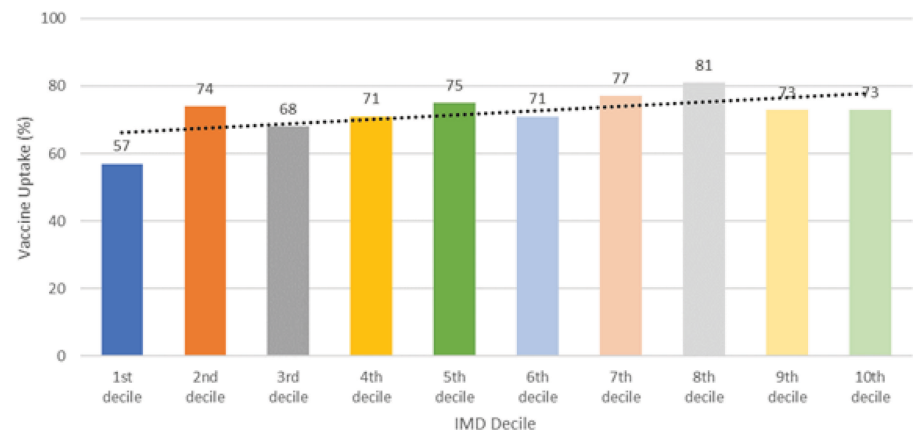
Fir Vale, one of the most deprived districts in Sheffield, has many residents from ethnic minorities such as Roma and Pakistani who display feelings of hesitation and mistrust towards the COVID-19 vaccine. Members of the Muslim community expressed anxiety towards AstraZeneca and Pfizer-BioNTech vaccines as their contents were reportedly haram. However, the British Islamic Medical Association stated both vaccines are halal.<sup>5,6</sup> This highlights issues of poor healthcare knowledge and communication in deprived communities.<sup>7</sup>

Those living in most deprived areas are subject to higher levels of air pollution, significantly lower life expectancy and greater burden of ill physical health, which would lead to a higher risk of severe COVID-19 infection and hospitalisation.<sup>5,7</sup>

## Conclusion

This study indicated that the most deprived areas of Sheffield represent the largest number of highly suspected or confirmed

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**Fig 2. Vaccine uptake (%) based on IMD deciles**

COVID-19-positive inpatients in an acute hospital setting. High hospital admission rates from deprived areas are attributed to poor vaccine uptake, socioeconomic inequalities in housing and occupation, and environmental factors. Misinformation around COVID-19 vaccination has contributed to low uptake. More can be done to reduce rates of transmission and infection in these areas. ■

### Funding statement

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### References

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- 4 Foster R, Jones B, Carey I *et al*. The successful use of volunteers to enhance NHS Test and Trace contact tracing of in-patients with Covid-19: a pilot study. *MedRxiv* 2021.01.28.21250096.
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