Nosocomial COVID: the moral and clinical imperative for worldwide data collection and action

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Abstract

There is a wide disparity worldwide in data collection and sharing of rates of hospital-acquired coronavirus disease (COVID). There is an ethical imperative that such information is systematically gathered, distributed and acted on to reduce rates of this form of preventable and devastating transmission during a pandemic.

Key words: nosocomial COVID, healthcare-acquired infection, data collection, data sharing

First do no harm, a popular dictum that summarizes part of the Hippocratic Oath. It is this ethical basis that makes hospital-acquired, or nosocomial, infections so problematic and a long-described marker of healthcare quality \cite{1}. Patients who have caught SARS-CoV-2 during hospital admission and develop coronavirus disease (COVID) have a higher mortality rate than those admitted with community-acquired COVID, 41.3\% compared to 25.9\% in one UK study \cite{2}. This is likely due to differing case-mix as hospital admissions tend to be comprised of older co-morbid people in an already weakened state. However, the disparity and paucity of data worldwide make quantifying, understanding and addressing the issue of nosocomial COVID difficult. Here, we highlight the importance of and call for the international collection and publication of nosocomial COVID data, as well as sharing best practices in reducing rates, to ensure that this devastating method of transmission is halted.

Hospital-acquired COVID has been detected worldwide with rates from 0.1\% to 52.6\% (Table 1). However, comparisons between different countries are difficult due to gaps and differences in data quality, collection, publica-

A prospective, observational, multicentre study of nosocomial COVID based in France that has recruited hospitals worldwide \cite{6}. Indeed, the COVID pandemic has revealed how well countries are able to work together in data-sharing, taking for example the global tracking of gene mutations by the regular uploading of genomic sequencing on public databases like GISAID or Nextstrain. Such platforms may well be rapidly adapted both for collecting nosocomial data and disseminating best practices.

Longer-term, data-gathering and -sharing have emerged as one of the WHO’s focuses in trying to achieve its Sustainable Development Goals, for which they have set up the Division for Data, Analytics and Delivery for Impact. As part of this, they developed the SCORE package that countries can use to identify gaps in data collection and how to address these according to local circumstances. They advocate the use of the Family of International Classification so that there is a common language to enable data comparison, for example, when defining nosocomial COVID. The World Health Data Hub is under development as a place to collect and compare these data. These steps can be utilized as a pathway for countries during this COVID and in future pandemics to collate data like rates of nosocomial infection in a rapid, systematic and effective manner.

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Crucially, these data must then be acted on appropriately and promptly. What we can learn and implement must be specific to the economic, physical and cultural environment. For example, a 2009 WHO report advocated the use of natural ventilation in infection control, particularly to address ‘pandemic-prone acute respiratory diseases in healthcare’. While a small hospital in Niger may not have the testing capacity of a large centre in the UK, it may have superior natural ventilation that significantly reduces the risk of airborne transmission. There are multiple published approaches institutions and countries can take to reduce nosocomial infections, from new technologies for cleaning hospitals to multi-disciplinary simulation within healthcare teams, as well as various methodologies that can be adapted for use such as Six Sigma DMAIC or the WHO’s Infection Prevention and Control Assessment Framework [7–10].

There are lessons each country, healthcare setting or economy can take now from this pandemic. Places like Singapore and South Korea took heed from the last coronavirus epidemic, severe acute respiratory syndrome (SARS), and have fared well this time, with low nosocomial transmission. There is a moral imperative to our patients, families and communities that we act immediately to stem further nosocomial infection and prevent outbreaks. The problem must be understood, and the solution shared. Healthcare systems, their leaders and medical staff are duty-bound to put this into action.

**Supplementary material**

**Supplementary material** is available at *INTQHC Journal* online.

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**References**

1. Larson E, Oram LF, Hedrick E. Nosocomial infection rates as an indicator of quality. *Med Care* 1988;26:676–84.
2. Bhattacharya A, Collin SM, Stimson J et al. Healthcare-associated COVID-19 in England: a national data linkage study. *J Infect* 2021;83:565–572.
3. Discombe M. Major Spikes in Hospital-Acquired Covid Infections at Two Trusts. Health Service Journal. 2021. https://www.hsj.co.uk/patient-safety/major-spikes-in-hospital-acquired-covid-infections-at-two-trusts/7030782.article (25 August 2021, date last accessed).
4. Keenner J, Horton LE, Binkin NJ et al. Resurgence of SARS-CoV-2 infection in a highly vaccinated health system workforce. *N Engl J Med* 2021;385:1330–32.
5. World Health Organization. Report on the burden of endemic severe acute respiratory syndrome (SARS) in the Middle East. *J Infect Med Care* 2011;5:56–60.
6. Saadatian-Elahi M, Picot V, Hénaff L et al. Protocol for a prospective, observational, hospital-based multicentre study of nosocomial SARS-CoV-2 transmission: NOSO-COR project. *BMJ Open* 2020;10:e039088.
7. Dancer SJ. Controlling hospital-acquired infection: focus on the role of the environment and new technologies for decontamination. *Clin Microbiol Rev* 2014;27:665–90.
8. Saraswathy T, Nalliah S, Rosliza AM et al. Applying interprofessional simulation to improve knowledge, attitude and practice in hospital-acquired infection control among health professionals. *BMC Med Educ* 2021;21:482.
9. Kuwaitai AA, Subbarayalu AV. Reducing hospital-acquired infection rate using the six sigma DMAIC approach. *Saudi J Med Sci* 2017;5:260–6.
10. Aghdassi SJ, Grisold A, Wechsler-Fördös A et al. Evaluating infection prevention and control programs in Austrian acute care hospitals using the WHO infection prevention and control assessment framework. *Antimicrob Resist Infect Control* 2020;9:92.