Infection prevention and control, lessons from the COVID-19 pandemic and what happens next?

December 2019 was a time of concern as public health officials globally waited with bated breath to see how events would unfold following reports of a flood of severe pneumonia cases with a high mortality rate that were being diagnosed in Wuhan, China, these cases presented clinically as being of viral aetiology and were later attributed to the newly identified Coronavirus Disease (COVID-19).

COVID-19 is not the first coronavirus to have caused concern amongst public health officials and wider international community, as through its ability to infect humans it follows on from both the Middle East respiratory syndrome (MERS) severe acute respiratory syndrome (SARS) epidemics that have happened during the past twenty or so years. It is a highly contagious pathogen and spreads easily in both the community and health care facilities. (Noor et al., 2020)

During the early months of 2020, COVID-19 was responsible for a rapid increase in mortality rates among a naive world population, this was a tragedy that, collectively, global health care systems were ill prepared for even in countries with established infection prevention and control (IPC) in place. Governments globally implemented traditional measures that included effective hand hygiene practices, effective Personal protective equipment (PPE) use and equipping the public with advice regarding cough etiquette and social distancing to contain the outbreak and prevent its onward transmission.

Guidelines were published by the World health organization (WHO) which have been subsequently adapted by health administrations and governments globally. Of course, the success of any measures that were implemented was reliant on the compliance with controls, sufficient knowledge, insight, and attitudes of staff members and the public. However, this was made more difficult in the UK as guidance was often strewn with errors and contradictions or was not published in a timely manner meaning that guidance was established locally by infection prevention teams, advice would then need to be changed once different public health guidance was published leading to increased confusion and distrust among staff.

This resulted in a fragmented approach in the management of the unfolding situation which also highlighted poor pandemic preparedness and a chronic underinvestment in IPC programmes and teams that would have gone some way towards managing the outbreak of a novel human pathogen.

At the onset of the outbreak, Infection control expertise was limited due to chronic underinvestment in IPC teams and programmes internationally over the years, existing teams within health care settings were, prior to the pandemic often made up of small numbers of nursing staff that have undertaken further study to enable them to perform this specialist role effectively, often at masters level, (Hall et al., 2015) however it could be argued that this was often a reactive service due to a resourcing deficit .

During the pandemic's infancy, infection control services existed in almost all secondary and tertiary health care facilities in low to middle income countries. However, these facilities often did not have permanent IPC specialists in full time employment, a budget dedicated to IPC or regular support from local microbiology laboratories, in addition to this, richer countries were experiencing their own issues highlighted by the United States who during 2021 had an estimated 25% vacancy rate for infection prevention nurse specialists, with the recruitment process being lengthy taking on average between three to six months. (Gilmartin et al., 2021)

An aging Infection prevention workforce with few new recruits became stretched and unable to effectively manage the influx of COVID-19 positive cases that were attending the hospital which was often played out in public view by the media. Senior healthcare leaders across the world had to rapidly react and redeploy staff who were often inexperienced to support with the ever-growing workload. Established specialist teams were often required to increase their working hours from a typical 5 day working week to provide cover over seven days while being a part of incident management mechanisms. In addition to this, training and supporting the influx of redeployed staff placed incredible pressure upon existing staff. The Infection Prevention Society in the United Kingdom (UK) have created a suite of competences to support in the development of infection prevention nurse specialists of the future in the hope of swelling numbers locally. The WHO have subsequently reported that IPC staffing, training curriculums and programmes are gradually improving globally.

Due to the unknown nature of COVID-19 and the associated transmission characteristics PPE was in great demand globally with shortages reported to the WHO in 44% of countries, this resulted in disruption to essential frontline services, (WHO,2023) with consideration given to the reuse of some items by the public health departments at points during the pandemic due to these supply concerns. This was often compounded, particularly in the UK by confusing and contradictory guidance and demands that were published by various professional bodies, suggesting that their members should be provided with high level PPE in situations where this was not indicated, this rhetoric created levels of conflict between professional groups, while also placing at risk supply being available for staff with the greatest need and at the greatest risk. In the UK anxiety levels were heightened significantly amongst all staff groups due to the way that guidance changed so frequently and often out of normal working hours regarding the levels of PPE that were required when working in a patient facing role. The timing of the guidance changes could at times have been called into question.

There were a great many issues that impacted on the overall response to the COVID-19 pandemic, going forward infection prevention nurses can play a major role to play in the preparedness for inevitable pandemics by ensuring that the international workforce have received adequate support and education regarding IPC practices in line with their country specific requirements and advice provided by the WHO. The landscape of infection prevention and surveillance have changed throughout the pandemic, and the roles and responsibilities of those working in the field have expanded significantly. Infection control specialists are ever more expected not only to monitor rates of infection and the activities of healthcare workers but also to be a visible leader to other staff members in the application of practices aimed at lowering rates of infection and improving patient safety.

Due to the collective efforts during the pandemic, there has been marked improvements in the relationships between infection prevention and clinical staff. Infection prevention were the focal point of the response in most facilities, working early on to get a clear understanding of the new guidance each time it was published, disseminating pertinent information to the wider health care and operational teams. Infection prevention nurses have the opportunity to engage with staff at all levels and are able to supply research updates, as well as offer support towards staff who were facing the fear of the unknown.

In this role, functioning as part of the clinical team under such stressful circumstances, infection prevention nurses have acquired greater levels of trust and developed connections with clinical staff that will hopefully endure.

As a result of the close working relationships that have developed, healthcare workers attitudes towards IPC teams appear to have changed during COVID-19 and there is now greater importance placed upon joint working towards improved Infection prevention strategies and practices. The historical resistance of staff to modify their behaviours relating to Infection control may be in part, due to the opinion that antibiotics are able to solve problems associated with infections, which should be a cause for concern considering the increasing risk of antimicrobial resistance. Staff often also point to a lack of convincing evidence that supports the interventions used to prevent healthcare associated infections (HCAIs) due to ethical considerations. In addition to this there has often been an absence of ownership that healthcare staff feel in relation to infection prevention and control practice. (Gardam et al., 2009)

The WHO director general has suggested that the pandemic has highlighted many challenges and gaps in IPC in all regions and countries, including those which have the most progressive IPC programmes," however "It has also provided an unparalleled chance to take stock of the situation and hastily improve outbreak readiness and response through IPC practices as well as reinforcing IPC programmes across the global health system. (WHO, 2023) Now is the time to reflect on how the revisions to IPC practices that occurred due to and during the pandemic, along with the change in awareness, and how this may be continued in the longer term. (Toccafondi et al., 2020)

Priority now needs to be given in the planning for the future pandemics with expert advice sought at the earliest opportunity when drafting guidance for healthcare staff and policy makers to ensure immediate and appropriate action can be taken. Workforce planning needs to be given a great deal of thought to ensure that it is fit for purpose and able to adapt quickly to new challenges with confidence and understanding of prevention and containment measures, this includes maintaining expanded teams, and services that are more capable of providing a preventative service and no longer being reactive. There must also be greater emphasis on improved IPC education for nurses, medical staff, and allied health professionals, both postgraduate and during their student years with a view to increasing the numbers working within infection prevention and control.

References:

Gardam, M. *et al.* (2009) “Healthcare-associated infections as patient safety indicators,” *Healthcare Papers*, 9(3), pp. 8–24. Available at: https://doi.org/10.12927/hcpap.2009.20922.

Gilmartin, H., Reese, S.M. and Smathers, S. (2021) “Recruitment and hiring practices in United States Infection Prevention and Control Departments: Results of a national survey,” *American Journal of Infection Control*, 49(1), pp. 70–74. Available at: https://doi.org/10.1016/j.ajic.2020.07.024.

Hall, L. *et al.* (2015) “Roles, responsibilities, and scope of practice: Describing the ‘state of play’ for infection control professionals in Australia and New Zealand,” *Healthcare infection*, 20(1), pp. 29–35. Available at: https://doi.org/10.1071/hi14037.

Noor, A.U. *et al.* (2020) “Epidemiology of covid-19 pandemic: Recovery and mortality ratio around the globe,” *Pakistan Journal of Medical Sciences*, 36(COVID19-S4). Available at: https://doi.org/10.12669/pjms.36.covid19-s4.2660.

Toccafondi, G. *et al.* (2020) “Will the COVID-19 pandemic transform infection prevention and control in surgery? seeking leverage points for organizational learning,” *International Journal for Quality in Health Care*, 33(Supplement_1), pp. 51–55. Available at: https://doi.org/10.1093/intqhc/mzaa137.

World Health Organization. *Who launches first ever global report on infection prevention and control* (2022) *World Health Organization*. Available at: https://www.who.int/news/item/06-05-2022-who-launches-first-ever-global-report-on-infection-prevention-and-control (Accessed: March 20, 2023).