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Supporting the public health response to COVID-19 in Ireland: the role of HIQA

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Introduction

In December 2019 the Wuhan Municipal Health Commission in China reported a cluster of cases of pneumonia in Wuhan, Hubei Province (World Health Organization, 2020b). The cluster was ultimately linked to a novel coronavirus. Although initially limited to China, the virus began to spread into neighbouring Asian countries in January 2020. By the end of January, cases had been detected in 22 countries, including five in Europe. By the end of February, infections were reported in 59 countries and the first case in Ireland was reported on 29 February 2020 (Health Protection Surveillance Centre, 2020).

The response to the virus was limited at first, prompting the WHO to declare on 11 March that COVID-19 could be characterized as a pandemic (World Health Organization, 2020a). Many countries adopted a range of control measures to reduce transmission of the virus. Measures included increased hand washing, social distancing and temporary closure of businesses. In Ireland, the National Public Health Emergency Team (NPHET) was established in January 2020 to oversee and provide direction and expert advice across the health service and the wider public service, on the national response to COVID-19.

The Health Information and Quality Authority (HIQA) is an independent authority established to drive high-quality and safe care for people using our health and social care services in Ireland. HIQA has a wide-ranging mandate to develop standards, inspect and review health and social care services and support informed decisions on how services are delivered. In relation to the COVID-19 epidemic, HIQA has provided evidence synthesis to support the NPHET and its associated groups.

Evidence synthesis

Evidence synthesis is the process of combining information from multiple sources that have investigated the same issue, with a view to developing a comprehensive understanding of that issue (Gough *et al.*, 2020). For example, an evidence synthesis of an intervention

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might investigate the published trials of safety and efficacy involving that intervention and seek data from registries of patients that have undergone the intervention. By combining the available data and appraising the quantity and quality of evidence, it is possible to draw conclusions about the benefits and harms of that intervention.

The Health Technology Assessment (HTA) Directorate in HIQA has a mandate to carry out HTAs of health interventions, a cornerstone of which is evidence synthesis of clinical effectiveness and safety. In March 2020 the HTA Directorate, supplemented by other staff from HIQA, began carrying out evidence syntheses of health interventions as requested by the expert advisory group (EAG) of the NPHET.

Under normal circumstances, evidence synthesis involves systematic review and the process of study identification, data extraction, quality appraisal, analysis and interpretation can take many months. In the context of COVID-19, it was necessary to complete synthesis within extremely short timelines, often in less than a week. Protocols were developed to reduce the process down to the minimum necessary to provide accurate and relevant information.

Since March 2020, HIQA has provided a wide range of evidence syntheses to the EAG/NPHET, such as evidence summaries including: asymptomatic transmission, viral load over the course of infection, transmission of SARS-CoV-2 by children, natural history of COVID-19 in children, average length of stay in the intensive care unit for COVID-19, clinical samples and collection sites suitable for SARS-CoV-2 testing, face mask use in the community, face mask use by healthcare workers in all healthcare settings, immune response following infection with SARS-CoV-2, infectiousness of individuals re-infected with SARS-CoV-2, placental transfer of anti-SARS-Cov-2 antibodies, transmission from asymptomatic patients to healthcare workers, and accuracy of salivary samples for the detection of SARS-CoV-2. In addition, HIQA published care pathway evidence summaries, including review of pathways for the resumption of acute care, effectiveness of pathways, surgical outcomes in COVID-19 patients, and ambulance services. HIQA published daily a database summarising international public health guidance related to COVID-19. HIQA also published a series of reviews of public health guidance in other countries on specific topics: residential care facilities, protective measures for vulnerable people, use of masks by healthcare workers in all care settings, and workers working in close proximity to one another. HIQA published a rapid HTA of alternative diagnostic approaches to detection of SARS-CoV-2. HIQA was also involved in analyses of mortality both in relation to designated centres for older persons (nursing homes) and from all causes. Almost all of the evidence syntheses were published on the HIQA website to make them publicly available (Health Information and Quality Authority, 2020).

An important aspect of the epidemic has been the dynamic nature of the evidence base and near-simultaneous progression of the epidemic in each country. Evidence synthesis is undertaken with a view to establishing the cumulative state of knowledge on a given topic. For Covid-19, that knowledge has been changing by the day, with the first published studies only appearing in late January 2020. The simultaneous nature has meant that looking ahead translates into analysing countries that are maybe two weeks

further into the epidemic. Due to the delays in data being analysed and published, focus on evidence has widened from peer-reviewed literature to encompass pre-publication studies and bulletins from health agencies. This shift in source has created challenges in both identifying and appraising the evidence.

The issue with applicable evidence is reflected in the distinction between the best available evidence and the available best evidence. We sometimes have the luxury of seeking the available best evidence – such as randomized controlled trials – to answer our research question. Here, however, we have been restricted to the best available evidence, which may be expert opinion. In relation to COVID-19, the quality of evidence has often been poor (Pundi *et al.*, 2020). The critical aspect is that at all times we must be clear about the quality and quantity of evidence, and ensure that where that evidence is used to inform policy, the policy maker understands what the data do and do not show (Schünemann *et al.*, 2020).

Role of geography

Of particular interest in this journal is, of course, the impact of geography. The pandemic status of Covid-19 has meant that data and information are being generated across countries, often with populations, cultures and healthcare systems that are completely different to our own. An obvious question is: how can those data be of use to us? How can we appraise that evidence for relevance or applicability? A standard element of any evidence synthesis is to determine the applicability of the data found, and often we look for evidence from settings that might be considered similar to our own.

Geography does not matter

The virus affecting people in Ireland in 2020 is largely the same as the virus circulating in December 2019 in the Wuhan province of China. With the exception of minor genetic drift, the key features of the virus – such as mode of transmission, incubation period, and serial interval – are the same across the globe. Due of this consistency in characteristics, we can potentially use information from any country to inform our understanding of how the virus behaves and how it will impact on health. Much of the early literature used to inform understanding was published as short case-series from China (Mendes and Carvalho, 2020). Under normal circumstances we might be reluctant to read too much into such data because of the high risk of bias; but these have not been normal circumstances.

Geography does matter

Some of the critical aspects of how the virus moves through a population and the consequent outcomes vary by area, not necessarily because of geographic features but due to differences in demography and cultures (Kapitány-Fövény and Sulyok, 2020; Jarynowski *et al.*, 2020). The most severe morbidity and mortality is in older people,

especially those older than 80 years. Across countries and within countries, how people live, work and travel vary immensely, and these features have a major impact on disease transmission. Countries across the world have also introduced similar control measures, and yet adherence to those measures varies, as does the apparent success of those measures (Clark *et al.*, 2020). We also know that outcomes from COVID-19 are poorer for those with certain comorbidities (e.g., heart disease, COPD, obesity), and naturally this gives rise to socio-economic gradients that have a geographic component.

The response to the pandemic and the associated reporting of data differs across countries in sometimes subtle but critical ways (Fitzpatrick, 2020). The most obvious differences are in the volume of testing and the classification of mortality. Lower rates of testing are associated with lower detection of disease, under-estimating the true incidence. Hospitalisation and ICU admission tend to be reported more accurately and may be considered the most reliable variables for cross-country comparisons. However, in the absence of a reliable denominator, the figures may have little use in cross-country comparisons. Mortality reporting has also been problematic, with some countries only reporting in-hospital mortality even when it may only contribute half of all COVID-19 related mortality. In Ireland, due to the lag of up to three months for deaths to be registered, alternative data sources have been used to assess the real-time impact of COVID-19 on mortality. The lack of routinely geo-referenced morbidity and mortality data in Ireland is an area that needs to be addressed for the benefit of public health responses.

Conclusions

From the outset, the response to the COVID-19 epidemic in Ireland has used an evidence-based approach. HIQA, with specific expertise in evidence synthesis, has supported the NPHET through the rapid synthesis of data. The rapid and near simultaneous progression of the virus across the globe has created enormous challenges in acquiring data to support decision making. The pandemic nature of COVID-19 has meant that it has cut across all cultures and geographic divides, but not all peoples have been affected equally.

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