

## Translating evidence into practice during COVID 19: a systematic review of measures used to reduce transmission in nursing homes.

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This paper highlights the evidence of a rapid systematic review of measures in long-term residential care facilities during the Covid-19 pandemic. It presents the evidence base for multiple control measures for reducing transmissions, the implications of current practices and evidence-based policy recommendations, as well as the importance of academic research within public health management to provide access to data and a shared understanding of real-time planning and management.

### Background to the Public Health Challenge

The critical nexus between academia and public health was evidenced in the myriad of research and development during the waves of the pandemic and subsequent impacts and outputs, including the development of vaccines. The COVID-19 pandemic, since January 2020, represents a significant global public health challenge, with [over 6.9 million deaths](#) reported at this time [June 2023].

In Ireland, the number of deaths reported today is 8,935, the majority in people aged [75 years and older](#) living in [residential nursing homes](#). By April 2020, nursing home residents' deaths accounted for 56% of all mortality. At this stage in the pandemic, limited evidence was emerging, and the infectious nature of COVID-19 made it challenging to prevent and control. Public health reporting of data resulted in the National Public Health Emergency Team (NPHE) establishing an Expert Panel on Nursing Homes [formally appointed by the Minister for Health] on 14th May 2020 to examine the complex issues surrounding the management of COVID-19, specifically to report [by 20<sup>th</sup> June 2020] on the measures adopted to safeguard residents, provide an overview of responses from international best practices and make recommendations from real-time learnings ([p.1](#)). Professor Cecily Kelleher, College Principal UCD College Health and Agricultural Sciences, was appointed Chair of the Expert Panel. I led a team

of researchers, established by Professor Kelleher, tasked to complete a rapid systematic review of published evidence [empirical and policies] in six weeks.

### Rapid Systematic Review Method

A systematic [review protocol](#) was developed to investigate measures implemented in long-term residential care facilities to reduce the transmission of morbidity and mortality resulting from SARS-CoV-2. After a preliminary review of one database, a decision was taken to provide a comprehensive inclusion of evidence for the Expert Panel. This ensured all study designs were included and studies reported in any language.

- Participants: adult residents, employees and visitors in long-term residential care facilities.
- Intervention: evidence of any intervention implemented to reduce the transmission of COVID-19 in long-term residential care facilities, including social distancing, personal protective equipment, and hand hygiene.
- Outcome: primary outcomes included morbidity data, case fatality rates, and reductions in reported transmission rates.

Data were stratified, where possible, and reported for different population groups or long-term care facilities in general. Five electronic databases were selected and searched; Pubmed, Embase and CINAHL, an online COVID-19 repository, and Medrxiv, a pre-publishing database. In total, 1,101 titles and abstracts were uploaded into the Covidence software platform and following deduplicating 1,059 titles and abstracts were screened independently by reviewers. Seventy-nine full-text papers were reviewed, and [33 articles](#) were independently assessed for quality and included in the final review of evidence.

### What did the evidence base identify?

Twenty-five papers (75.8%) provide evidence of measures to reduce transmission of COVID-19 in long-term residential care facilities for residents; nineteen articles (57.6%) focus on employee outcomes, and four papers (12.1%) provide evidence for visitor outcomes. Seven studies (21.2%) focused on systems evidence for long-term care facilities. Evidence represented the global perspective from multiple countries: USA, Canada, UK, France, Hong Kong, Ireland, Italy, South Korea, and EU/EEA regions.

Overall, the evidence base presented, in the review, data on managing COVID-19 outbreaks and highlighted the absence of a systems approach. We identified evidence that implementing large-scale surveillance/ testing of residents and employees reduced transmission. When testing was limited to residents who were symptomatic and ignored the risk from pre-symptomatic cases (residents, visitors, and staff), transmission of the virus increased. The availability of testing kits was a hindering factor in the early stages of the pandemic, preventing the broader availability of testing.

Evidence in the review identified a higher likelihood of viral transmission in long-term care facilities with increased movement of residents, workers, and visitors. Reductions in transmission were noted in studies that reported introducing *cohorting* and lockdown procedures, thus limiting staff movements between and within residential care homes and pausing access by visitors. Furthermore, reductions in transmission were linked to rapid isolation of cases, prohibiting entry of staff and visitors presenting with symptoms or recent overseas travel, and restricting staff movement between wards.

Using Personal Protective Equipment (PPE) is an essential strategy for reducing transmission, e.g. gloves, masks, gowns, and eye protection were investigated. The evidence base identified increased transmission in the absence of supplying eye protection and face masks. Reduction in transmission was reported when good hand hygiene processes were in place and creating specific zones to remove contaminated PPE.

The evidence base highlighted higher transmission rates of COVID-19 when routine screening and testing of residents was not systematically in place, if the COVID-19 status of residents transferred into long-term residential units was unknown, or when staff returned to work while awaiting results of tests.

From a facilities perspective, higher transmission rates were noted when precarious employment contracts existed, no sickness payments existed for employees, when there was reliance on agency staff for staffing within the sector. US studies identified higher rates of transmission in larger facilities and in those [that were for-profit status](#).

### What were the outcome and recommendations for policy and practice?

From the evidence review, using PPE and other infection control measures [droplet and contact precautions, hand hygiene] are essential, regardless of whether a case is reported in a facility.

Widescale testing of residents and staff should be implemented, and staff should isolate at home until the results of tests are confirmed and cohorting measures introduced for residents.

Surveillance data of residents should include an assessment of frailty and delirium, and close surveillance of residents with dementia should be implemented, especially if their walking patterns changes.

Staff training and education programmes on PPE and infection control should be developed and implemented with regular updates and assessments of staff practices.

Financial support for staff on sick leave should be considered, and workforce planning should be implemented nationally due to the increased reliance on agency staff in this sector.

Overall, the evidence base highlighted that closing nursing homes to visitors and delaying transfers until a negative test is known reduces transmission. However, residents' mental health and well-being in the absence of visitors must be assessed and impact considered. The mental burden on family and friends who cannot visit their family members and are unsure when visiting will recommence is a concern in communicating public health information.

The implications from the review of evidence included that the impact on the health and well-being of all staff employed in long-term residential care facilities should be considered, given the implications for the sector. Finally, while no studies reported evidence from older people themselves, we noted that voices of residents, families, and all involved in the care and management should be at the heart of practice developments.

### What next?

The rapid review was submitted as part of the [National Expert Panel report](#), and 86 recommendations were made. An updated systematic review of empirical studies was subsequently [published in 2021](#). The implications arising from the Expert Panel Report's recommendations resulted in Professor Kelleher leading a Progress Implementation Oversight team for another 18 months and publishing four progress reports. The final report was published [in July 2022](#). Many recommendations from the Expert Panel Report have been implemented in practice, including:

- Free PPE for all nursing homes
- Access to expert advice and support via COVID-19 Support Teams
- Serial testing programmes
- Financial supports mechanisms for staff on sickness leave
- Introduction of training and guidance for infection prevention and control.

The fourth [progress report](#) identifies medium to longer-term recommendations and reforms, including budgetary provision, workforce planning through the Staff Staffing Framework, establishing Community Support Teams, Patient Advocacy Service, End of Life Training and Supports Programme.

### Final reflection

[Morris et al.](#) note that investigating the complexity of why it takes 17 years to translate research evidence into practice is necessary to identify '*research that is both slow and fast in its translation... could help identify actionable policy interventions that could speed up the translation process*' (p.519). The evidence included in the [systematic review](#) reported real-time reporting of COVID-19 outbreaks, highlighting the available data limitations. The availability of published studies provided immediate access to data and a shared understanding of real-time planning and management as the [Institute of Medicine](#) advocated after the 2002 Severe Acute Respiratory Syndrome [SARS] pandemic. For Ireland, the evidence from the [National Expert Panel Report](#) is translating into policy and practice through the ongoing implementation of recommendations and publication of progress reports.