



Commentary

Measuring the outsized impact of COVID-19 in the evolving setting of aged care facilities

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Care of older adults occurs at nursing homes, long-term care facilities (or care homes), assisted living, senior housing and in the community. There has been an evolution of nursing homes since their conception - such that they now house a variety of populations including -short stay with an intent to go home and long-stay for those with pronounced cognitive and functional disabilities. In general, in the US, acuity of care provided in nursing homes has increased. During this time frame infectious diseases pandemics have continued to occur, but care homes and long-term care institutions in general have been spared the brunt of the impact. The epidemiological characteristics of AIDS, for example, or those of other coronaviruses such as SARS CoV (2003) [1], did not preferentially target older adults or long-term care facilities. The last time a pandemic capable of a dramatic global impact occurred was in 1918 (H1N1 influenza pandemic); life expectancy right before the pandemic was 54 years, care homes at that time hosted a very small proportion of the population, and older adults were perhaps less affected in proportion due to partial immunity towards earlier strains [2].

A very different and unprecedented scenario, instead, is playing out presently: care homes, a rapidly growing, critical and integrated segment of modern holistic healthcare, are at the epicenter of the current public health and healthcare crisis unleashed by the current SARS-CoV-2 pandemic [3]. The world is still grappling with the

impact of this pandemic on care homes and in fact the future of long-term care itself. The review article by Hashan and colleagues [4], published in *EClinicalMedicine* fulfills a critical need to clarify and quantify the outsized impact of this pandemic in the frail populations served within this challenging healthcare setting. It highlights how care homes and nursing homes as a whole, including not only residents but also healthcare workers and all affiliated and visiting personnel, must be a primary focus in prevention and containment efforts.

A picture is starting to emerge on the impact of COVID-19 in care homes, and the main aim of this meta-analysis is to establish epidemiological indexes such as attack rates, fatality rates and mortality rates in care homes with reported outbreaks, including all those published until September 2020. In addition, the authors report the prevalence of comorbidities frequently present in older adults affected by COVID-19 including cognitive dysfunction, dementia, hypertension, cardiovascular disease, and diabetes mellitus.

Most relevant to clinical research and practice and perhaps unexpected, the authors found that fatality and attack rates were roughly comparable across geographic areas, and between continents with more generalizable data (higher number of outbreaks described). Care homes are highly diverse within and across countries in terms of architecture, room occupancy, availability, use and extension of common areas, therapy/rehabilitation services offered, staffing levels, patient management practices, visiting policies, and of course resident characteristics, all of which can greatly influence levels of close-contact and droplet transmission. This suggests that, despite the above mentioned differences, the virus consistently enjoys effective

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transmission in these indoor environments, likely with a key role played by aerosols [5].

Among the many pressing issues that emerge with this review, one of the most critical is probably the finding that more than 40% of outbreaks originated from a healthcare worker or visitor. This finding has key practical implications: care homes personnel will need to be better informed about key infection prevention practices even if they view these care homes as homes [6]. Additional precautions may be required but for a select high risk population such as those who are unable to perform adequate personal hygiene or have wounds or uncontrolled secretions. Additionally, leadership and staff turnover should be minimized, staff should be reimbursed well so that they would not need to work multiple shifts at different facilities.

Importantly, Hashan et al. [4] report that no single symptom was present in 50% of the cases or more, posing diagnostic challenges in this population. Also, only five of the studies included considered typical vs. atypical symptoms. It would be extremely useful if future studies focused on frequency of atypical symptoms, since they are expected to be prominent in comorbid and frail older adults, and play a key role in patient management and diagnostic decisions [7,8]. Development of older adult-specific diagnostic algorithms will improve clinical outcomes and containment [9].

Of course, many important questions remain: for example, we do not currently know the overall risk for the prototypical care home resident, and we are only beginning to understand the impact of COVID-19 in other congregate settings [10]. Government-reported data might uncover more outbreaks beyond the published literature, although epidemiological analyses would be challenging due to absent or dishomogeneous clinical data, which raises the opportunity to create uniform standards for infection prevention research in special populations across countries with the intent to create uniform policy. Furthermore, origin of admission for index cases were largely unknown (acute care, home, another long-term care facility, etc.). This information could help contain the source. Finally, knowledge of viral variants causing the outbreaks would be useful, and is starting to become available in the more recent literature.

The meta-analysis by Hashan et al. [4] is an excellent start to understanding the impact on and response to the pandemic by care homes and other settings that house vulnerable populations. A combination of vaccines distribution and the transmission dynamics of variant strains, will define future epidemiology and impact of COVID-19.

Declaration of Competing Interest

The authors declare no conflict of interest.

References

- [1] LeDuc JW, Barry MA. SARS, the first pandemic of the 21st century. *Emerg Infect Dis* 2004;10(11):e26. Nov. doi: [10.3201/eid1011.040797_02](https://doi.org/10.3201/eid1011.040797_02).
- [2] Luk J, Gross P, Thompson WW. Observations on mortality during the 1918 influenza pandemic. *Clin Infect Dis* 2001;33(8):1375–8 Oct 15. doi: [10.1086/322662](https://doi.org/10.1086/322662).
- [3] Grabowski DC, Mor V. Nursing home care in crisis in the wake of COVID-19. *JAMA* 2020;324(1):23–4. doi: [10.1001/jama.2020.8524](https://doi.org/10.1001/jama.2020.8524).
- [4] Hashan MR, Smoll N, King C, Ockenden-Muldoon A, Walker J, Wattiaux A, Graham J, Booy R, Khandaker G. Epidemiology and clinical features of COVID-19 outbreaks in aged care facilities: a systematic review and meta-analysis. *EclinicalMedicine* 2021 Doi:<https://doi.org/10.1016/j.eclinm.2021.100771>.
- [5] Coronavirus is in the air - there's too much focus on surfaces. *Nature* 2021;590(7844):7. Feb. doi: [10.1038/d41586-021-00277-8](https://doi.org/10.1038/d41586-021-00277-8).
- [6] Mody L, Bradley SF, Huang SS. Keeping the "home" in nursing home: implications for infection prevention. *JAMA Intern Med* 2013;173(10):853–4 May 27. doi: [10.1001/jamainternmed.2013.330](https://doi.org/10.1001/jamainternmed.2013.330).
- [7] Eke-Usim AC, Rogers MA, Gibson KE, Crnich C, Mody L. Targeted infection prevention study team. Constitutional symptoms trigger diagnostic testing before antibiotic prescribing in high-risk nursing home residents. *J Am Geriatr Soc* 2016;64(10):1975–80 Oct. doi: [10.1111/jgs.14286](https://doi.org/10.1111/jgs.14286).
- [8] Rowe TA, Jump RLP, Andersen BM, Banach DB, Bryant KA, Doernberg SB, Loeb M, Morgan DJ, Morris AM, Murthy RK, Nace DA, Crnich CJ. Reliability of nonlocalizing signs and symptoms as indicators of the presence of infection in nursing-home residents. *Infect Control Hosp Epidemiol* 2020;1–10 Dec 9. doi: [10.1017/ice.2020.1282](https://doi.org/10.1017/ice.2020.1282).
- [9] Mody L, Juthani-Mehta M. Urinary tract infections in older women: a clinical review. *JAMA* 2014;311(8):844–54 Feb 26. doi: [10.1001/jama.2014.303](https://doi.org/10.1001/jama.2014.303).
- [10] Barnett ML, Hu L, Martin T, Grabowski DC. Mortality, admissions, and patient census at SNFs in 3 US cities during the COVID-19 pandemic. *JAMA* 2020;324(5):507–9 Aug 4. doi: [10.1001/jama.2020.11642](https://doi.org/10.1001/jama.2020.11642).