Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Research Letter

COVID-19 Prevention Assessments: A Promising Tool for Preventing Outbreaks in Long-Term Care Homes

Infection prevention and control (IPC) audits are a recommended tool for reducing the burden of communicable diseases in long-term care homes (LTCHs).[1,2] IPC audits are most effective when they integrate components of education, monitoring, and feedback.[2,3]

In response to the pandemic, we instituted a COVID-19 prevention assessment tool (Supplementary Material 1) for all LTCH (n = 93) within our region of approximately 1.9 million people in British Columbia, Canada. This 66-item tool incorporates IPC provincial best practices with items relating to pandemic preparedness and linkage to local public health. Items include hand hygiene, personal protective equipment availability and usage, symptom screening processes, as well as LTCH area-specific measures (eg, relating to dining room, laundry, hallways and entrances). Each tool item is weighted either at-risk or high-risk. High-risk items were determined based on those either identified from the literature, or expected to contribute to increased COVID-19 transmission within a home.[4]

A trained assessor (a licensing officer with delegated regulatory authority for care homes) applies the tool in person at all LTCHs in the region every 3 months. The assessor follows up with homes with unmet items based on the number of and risk level of unmet items. For example, homes with high-risk unmet items must develop an action plan within 12 to 24 hours, are assessed again within 72 hours, and then reassessed after 1 week, whereas a home with only at-risk unmet items is reassessed again within 4 weeks' time.[4] In addition to routine assessments, this tool is deployed at the start of every outbreak with the same protocol for addressing unmet items.

We evaluated this tool's association with LTCH outbreak severity using a modeling analysis. We assessed all homes where a COVID-19 exposure (eg, a staff member worked while infectious) or outbreak (eg, where there was suspected or confirmed transmission) occurred from when the assessment tool was created to when it was modified (May 1 to December 14, 2020). In total, we assessed 48 unique homes, which included 5481 residents, approximately 7600 staff, and 1151 COVID-19 cases (681 resident and 470 staff cases).

We used negative binomial regression to compare the assessment tool score (ie, total number of unmet items) to home outbreak severity (calculated as the COVID-19 facility attack rate). We controlled for confounding variables at the facility level known to contribute to larger outbreaks. Confounding variables included facility age, whether the index case was a staff member or resident, the percentage of private single-bed rooms, community COVID-19 case rate, and the month of outbreak.

When all of these factors were controlled for, we found the tool score was still significantly associated with increasing outbreak severity. For every item not met in our assessment tool during facility assessment, we observed an increase of 22% in the COVID-19 attack rate. Noting the median number of unmet items on the assessment tool was 3 items (IQR = 4), these facilities had a 66% higher risk of a severe outbreak than homes with no unmet items.

Of interest, although a higher number of unmet items on the assessment tool was significantly associated with outbreak severity, we found that most items on the tool individually did not vary by severity. However, some item *categories* in the tool were associated with higher outbreak severity. When facilities had at least 1 unmet item in the hallway, dining area, housekeeping, or personal protective equipment categories, facilities were more likely to have larger outbreaks compared with facilities that were fully adherent to items in these categories. Dining area unmet items were most strongly associated with larger outbreaks. In fact, facilities with unmet dining measures were 6 times more likely to have larger outbreaks than facilities that were fully compliant with dining measures.

Several analyses have suggested LTCH factors contributing to outbreaks.[2,5,6] Often, these are less modifiable facility-level factors (eg, public vs private ownership, facility age) or highly resident-specific (eg, residents who wander). Our results indicate that assessment tools assessing LTCH IPC measures and pandemic preparedness may play an important role in preventing large outbreaks from occurring independent of these other risk factors. Such tools appear to be most effective when incorporated into a program including education, regular monitoring, and feedback.[2,3]

Assessment tools need to be adaptable. We modified our tool in both December 2020 and June 2021 to ensure we flagged items in our analysis associated with severe outbreaks. Similarly, our pre-December 2020 tool was modified to include a medium risk category to capture items that were important to address but less urgent.

Widespread vaccination will likely reduce the impact of COVID-19 outbreaks; however, there are opportunities to capitalize on the current renewed interest in IPC within LTCH. Tools such as ours are

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most impactful when used regularly and embedded into LTCH culture, infrastructure decisions, education, and staff evaluation so that staff and leadership are encouraged to build protective practices into their everyday work.[2]

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Supplementary Data

Supplementary data related to this article can be found online at https://doi.org/10.1016/j.jamda.2021.08.008.

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