CONCISE REPORT

Pursuit of long-term care certification in infection prevention: A community of practice approach

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ABSTRACT

Pairing lectures with an engaging virtual community of practice can significantly boost the confidence and interest of infection prevention and control (IPAC) leads in long-term care settings to pursue the long-term care certification in infection prevention and control (LTC-CIP). Providing adult learners the opportunity to clarify concepts within a community of practice is an effective supplement to didactic lecture-based learning in supporting their pursuit of LTC-CIP.

INTRODUCTION

In response to the impact of the coronavirus disease 2019 (COVID-19) pandemic in long-term care homes (LTCHs) in Ontario, Canada, the provincial government enacted new requirements for each LTCH's infection prevention and control (IPAC) program (Government of Ontario, 2023 and Estabrooks, C. A., *et al.* 2023).

As part of the new regulation called the *Fixing Long-Term Care Act*, each licensee is required to have an IPAC lead with current Certification in Infection Control (CIC) or Long-Term Care Certification in Infection Prevention (LTC-CIP) from the Certification Board of Infection Control and Epidemiology (CBIC) within three years of the regulation coming into force (Government of Ontario, 2023). An additional provincial program implemented during the same period was the IPAC Hubs (Ministry of Health, n.d.). These are teams of IPAC professionals affiliated with local acute care or public health teams that provide mentorship to those responsible for IPAC in long-term care homes (LTCH) and congregate living settings (CLS).

Prior to the COVID-19 pandemic, organized educational activities were typically directed toward the Certification in Infection Control (CIC), leaving a gap for LTC-specific professional development (Holmes, K., *et al.*, 2024). When education is made available to LTC IPAC leads, employment responsibilities often compete with this professional development activity (Keis, O., *et al.* 2017).

Pairing didactic education with structured peer mentorship, defined here as a community of practice, has been shown to be an effective intervention for achieving CIC certification in healthcare settings outside of LTCHs (Holmes, K., *et al.* 2024). Despite evidence supporting this intervention in acute care

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settings, there is a paucity of data on education and training specifically for the LTC-CIP certification. To address this gap, an intervention was coordinated among five IPAC Hubs forming a Community of Practice (CoP) to establish a lecture series similar to that of Zheng, M. *et al.*, 2021, aiming to facilitate engagement in learning with the specific goal of supporting LTC IPAC Leads in obtaining their LTC-CIP.

METHODS

The didactic education was delivered through nine virtual lectures, structured to reflect the categories covered in the certification exam (Certification Board of Infection Control and Epidemiology, Inc., n.d.). Lecturers were selected based on their expertise and established relationships with local LTCHs. Guidance was given to ensure uniformity in length (under one hour) and to require participation throughout each session (Keis, O., *et al.*, 2017). The lectures were recorded and videos were shared with attendees along with copies of the presentations to allow for repeat viewing and facilitate note-taking.

Education was followed by a Community of Practice (CoP) session within the same week during which the lecturer returned in a peer-mentorship role. Content was reviewed using practical examples alongside multiple-choice questions (Wynter, L., *et al.*, 2019), followed by open discussion of the rationale behind correct and incorrect answers. Learners were encouraged to ask questions through conversation or the chat feature. Study techniques, mnemonics, and other memorization strategies were welcomed for peer sharing. Local context was compared to the content to consolidate learning using relatable examples from recent practice. In total, the education series spanned nine weeks, meeting twice weekly for a total of 18 one-hour sessions – half lectures and half CoP. The combination of the didactic lectures and CoP sessions is hereafter referred to as the education series.

Identical pre- and post-surveys asking participants to describe their demographics, confidence, and intention to challenge the certification exam were provided using a 5-point Likert scale. The pre-survey was distributed at the end of the first lecture, allowing time to explain how to participate. The post-survey was shared at the conclusion of the entire education series. Research ethics approval was obtained from the Institutional Review Board at Michael Garron Hospital in Toronto, Ontario.

Data were analyzed using STATA SE 18.0 (StataCorp, College Station, TX, USA). A *t*-test assessed differences in pre- versus post-intervention confidence items. Differences in time spent engaging with the lecture series and certification status were presented as boxplots. A p-value < 0.05 was considered statistically significant.

One year after the education series ended, an assessment was conducted to identify those who achieved certification. Email addresses from the attendance list were tallied and cross-referenced with the publicly available CBIC database (CBIC, n.d.). The authors note that some participants may have chosen not to be listed despite achieving certification. The platform hosting the series provided the duration each individual spent logged into the lectures and CoP sessions. Cumulative attendance time was totalled for each email address. Participants who achieved certification during this period were compared to those who did not, based on their cumulative time spent engaging with the didactic lectures and CoP (Figure 1).

RESULTS

A total of 720 distinct participants attended either the lectures or CoP sessions. Of these, 104 were excluded from the engagement analysis for spending less than one hour total in both lectures and CoP, as it was assumed they joined out of curiosity without intent to fully participate. The remaining 616 attendees met the threshold for earnest engagement.

Table 1: Participants' (N = 181) self-ratings of confidence, pre- vs post-intervention

Self-rating confidence in exam content 1 (Not strongly confident) to 5 (Strongly confident)	Mean ± SD*		p-value**
	Pre-score	Post-score	
1. Long-term care settings	3.8±1.0	4.2±0.7	< 0.001
2. Management of the IPAC program	3.5±0.9	4.1±0.7	
3. Identification of infectious diseases	3.4±1.0	4.0±0.7	
4. Surveillance and epidemiology	3.3±1.0	3.8±0.8	
5. Prevention and control of infectious diseases	3.6±0.8	4.1±0.6	
6. Environment of care	3.4±1.0	3.9±0.7	
7. Cleaning, disinfection and sterilization of medical devices	3.1±1.0	3.7±0.8	
8. Antimicrobial stewardship	3.0±0.9	3.7±0.8	
9. Employee and occupational health	3.2±0.9	3.8±0.8	
Self-rating confidence item			
The application process for LTC-CIP	3.1±1.0	3.8±0.8	< 0.001
Successfully pass the LTC-CIP exam	3.1±0.9	3.7±0.8	

*Data are presented as mean ± standard deviation (SD) and paired *t*-test was used to compare pre- and post-intervention scores.
** All P – values were less than 0.001.

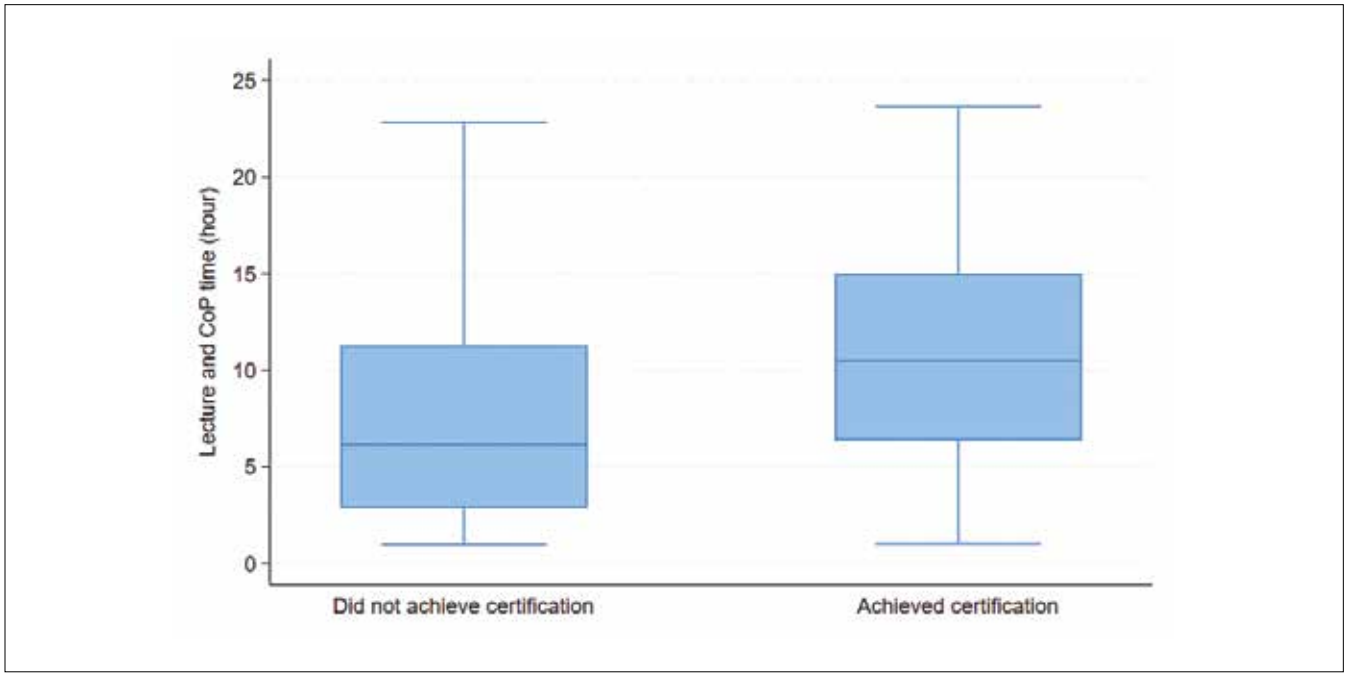

Figure 1: Certification status by cumulative lecture and community of practice time.

Average attendance was 311 for lectures and 297 for CoP sessions over the nine-week period.

Out of the 720 participants invited to the education series and survey, 185 responded. Four of these surveys were excluded for being incomplete, leaving 181 completed surveys, representing 25.1% of attendees.

Respondents primarily worked in LTCHs (94.5%, 171/181), acute care facilities (3.9%, 7/181), retirement homes (1.1%, 2/181), and rehabilitation centres (0.6%, 1/181). Most were nurses (80.7%, 150/181), and 55% (101/181) reported that their primary responsibility was IPAC. Half of the participants had more than 24 months of IPAC experience (50.3%, 91/181). Nearly 80% (79.5%, 144/181) reported that their employer legally required LTC-CIP certification as part of their employment (per The Act), and over 85% (154/181) intended to challenge the exam within 12 months.The pre- and post-education series survey scores are shown in Table 1.

Statistically significant improvements in self-reported confidence were observed across all topics of the education series. Additionally, in the post-survey, participants reported a significant increase in confidence regarding the LTC-CIP exam application process (mean score 3.1 vs. 3.8, $p < 0.001$) and their ability to successfully pass the exam (mean score 3.1 vs. 3.7, $p < 0.001$).

Regarding participants' satisfaction with the LTC-CIP education series, the majority (95.0%, 172/181) felt that the CoP approach was fundamental to their success. The live lecture was rated most valuable by 54.1% of participants (98/181), followed by CoP practice questions (31.5%, 57/181) and repeated viewing of recorded lectures (14.4%, 26/181).

At 12 months, 33.0% (203/616) of participants had achieved certification following the education series. Figure 1 shows the differences in time spent engaged in the lectures and CoP relative to certification status. The median time spent by participants who did not achieve certification within one year was 6.2 hours, compared to 10.5 hours for those who did ($p < 0.001$).

DISCUSSION

The results of this study reveal increased confidence among IPAC Leads in pursuing certification when didactic education is paired with a CoP. It should be noted that CoPs facilitate the formation of trusted relationships (Koh, J., *et al.*, 2022), provide local context to required practices, and offer opportunities for concept clarification. Memory recall improves when knowledge acquisition is paired with episodic memory, highlighting the value of repetition within a CoP (Thieu, M. K., *et al.*, 2024). The intentional support of IPAC professionals, providing a supportive and non-judgmental environment, was a key part of the mentorship and is known to influence the intention to pursue certification (Holmes, K., *et al.*, 2024).

A CoP offers advantages to IPAC Leads that didactic lecturing alone is less likely to achieve. Learners reported that addressing comprehension gaps with experienced IPAC professionals while receiving encouragement positively influenced their confidence. The addition of a CoP also increased the cumulative protected time learners spent engaging with the content – time being a scarce resource for adult learners.

Although this study provides new insights on strategies to support LTC IPAC Leads in obtaining their LTC-CIP, it has some limitations. First, the Government of Ontario's mandate requiring all IPAC leads to be certified may have influenced participants'

personal motivation for professional development. Additionally, measuring participant attentiveness based on in-meeting duration is subjective and may not accurately reflect true engagement.

IPAC Leads employed in LTCHs and CLS, though solely responsible for their programs, can lack access to professional mentorship. While virtual lectures can effectively support knowledge acquisition, education alone may be insufficient. Our study suggests that a CoP, which is a valuable professional development forum, can complement education and enhance the intention to pursue long-term care certification in infection prevention.

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