Infection Control & Hospital Epidemiology (2024), **45**, 1478–1481
doi:10.1017/ice.2024.158

SHEA

Concise Communication

The impact of statewide educational webinars on infection prevention and control knowledge and policy updates in acute and long-term care facilities during the COVID-19 pandemic: the Nebraska experience

Daniel M. Brailita MD[1,2], Mounica Soma MHA, MSPM[1], Rebecca Martinez BA, BSN, RN, CIC[1], Laura Tyner BSN, RN, CIC[1], Josette McConville RN, CIC[1], Juan Teran Plasencia MD[1,2], Matthew Donahue MD[3] and Muhammad Salman Ashraf MBBS[1,2,3]

[1]Nebraska Infection Control Assessment and Promotion Program, Nebraska Medicine, Omaha, NE, USA, [2]University of Nebraska Medical Center, Omaha, NE, USA and [3]Department of Health and Human Services, Lincoln, NE, USA

Abstract

A Nebraska statewide webinar series was initiated during the coronavirus disease 2019 (COVID-19) pandemic for long-term care (LTC) and acute care/outpatient (AC) facilities. An impact survey was completed by 48 of 96 AC and 109 of 429 LTC facilities. The majority reported increased regulatory awareness (AC: 65%, LTC: 54%) and updated COVID-19 (AC: 61%, LTC: 69%) and general infection prevention (AC: 61%, LTC: 60%) policies.

(Received 17 June 2024; accepted 25 August 2024; electronically published 23 October 2024)

Introduction

We aimed to assess the effectiveness of a statewide webinar initiative initiated by the Nebraska Infection Control Assessment and Promotion Program (ICAP) during the coronavirus disease 2019 (COVID-19) pandemic in improving infection prevention and control (IPC) knowledge and facilitating policymaking among participants from acute care and long-term care (LTC) facilities in Nebraska.

The COVID-19 pandemic presented healthcare facilities with unique challenges, including a surge in patient admissions and the need for rapid adaptation to evolving guidelines and protocols.[1] Robust IPC programs are critical to support effective healthcare systems.[2] Healthcare workers (HCWs) faced multiple challenges during the pandemic, including a lack of knowledge regarding appropriate IPC practices and a lack of awareness regarding appropriate preventive measures for patient care.[3,4] For IPC program leaders, the task of staying abreast of the ever-changing guidelines and requirements was challenging.[5] Continuous learning became fundamental in encouraging healthcare professionals to implement evidence-based practices and adapt swiftly.[4] Facing pandemic challenges, educational initiatives such as webinars are needed to disseminate information and promote best IPC practices.[6,7]

Corresponding author: Daniel M. Brailita; Email: dabrailita@unmc.edu

Cite this article: Brailita DM, Soma M, Martinez R, *et al.* The impact of statewide educational webinars on infection prevention and control knowledge and policy updates in acute and long-term care facilities during the COVID-19 pandemic: the Nebraska experience. *Infect Control Hosp Epidemiol* 2024. 45: 1478–1481, doi: 10.1017/ice.2024.158

Methods

In March 2020, the Nebraska ICAP funded by the Nebraska Department of Health and Human Services (DHHS) launched a statewide initiative providing IPC education and guidance through hour-long weekly webinars to LTC facilities, subsequently expanding in March 2021 to include bi-monthly acute care (AC) and outpatient facilities. ICAP infection preventionists (IPs) and medical directors developed the content of webinars in collaboration with DHHS. Attendance was recorded for each webinar separately for LTC and AC distribution groups. Webinar recordings and slides were made available on the ICAP website.

In early 2023, we distributed a Research Electronic Data Capture tool survey to our contacts in 96 AC and 429 LTC facilities in Nebraska via email. The survey included 11 questions about attendance frequency, participation format, drivers, perceived benefits, learning outcomes, and policy implementation. Descriptive statistics and frequency analysis were performed to evaluate differences in learning outcomes and policy implementation between AC and LTC groups. In addition to the overall comparative analysis between participants from AC and LTC facilities, a detailed subgroup analysis was performed within the LTC cohort. Microsoft Excel facilitated calculations of percentages and frequencies, allowing for a comprehensive assessment of participant responses across various survey items. The subgroup analysis aimed to highlight nuanced differences in engagement levels, preferences, and perceived benefits among different participant groups within the LTC setting that include administrators, IPs, and nursing leadership. Responses from IPs alone

Table 1. Comparison of responses between acute care and long-term care participants

Aspect	Acute care—all n (%)	Long-term care—all n (%)
Total survey respondents	**51**	**170**
Participant role	**n = 51**	**n = 170**
Infection preventionist	44 (86%)	42 (25%)
Administrator	0 (0%)	67 (39%)
Nursing leadership	1 (2%)	44 (26%)
Medical provider	1 (2%)	0 (0%)
Other	5 (10%)	17 (10%)
Participation frequency	**n = 51**	**n = 170**
Almost all webinars	26 (51%)	100 (59%)
About half the webinars	20 (39%)	49 (29%)
Rarely (less than half)	3 (6%)	19 (11%)
Never	2 (4%)	2 (1%)
Participation format	**n = 49**	**n = 167**
Live webinar	27 (55%)	106 (63%)
Listen to the recording	2 (4%)	7 (4%)
Both live webinar and recording	20 (41%)	54 (32%)
Download posted webinar slides	**n = 49**	**n = 167**
Yes	35 (71%)	112 (67%)
No	14 (29%)	55 (33%)
Participation drivers	**n = 49**	**n = 167**
To increase my general knowledge related to IPC	46 (94%)	127 (76%)
Changes or updates in IPC guidance	43 (88%)	140 (84%)
Changes or updates in regulatory requirements	39 (80%)	131 (78%)
TMF presentation related to quality and NHSN updates	NA	68 (41%)
Nebraska COVID-19 statistics or Nebraska DHHS updates	36 (73%)	106 (63%)
Receiving peer-reviewed CE hours	26 (53%)	86 (51%)
Perceived benefits—very useful	**n = 49**	**n = 167**
Overall webinar content	33 (67%)	86 (51%)
Changes or updates in IPC guidance	35 (71%)	104 (62%)
Nebraska COVID-19 statistics or DHHS updates	29 (59%)	85 (51%)
SME topics on IPC	35 (71%)	86 (51%)
Learning outcomes—very useful	**n = 49**	**n = 167**
Increased general knowledge on IPC	30 (61%)	87 (52%)
Increased knowledge on IPC response to COVID-19	28 (57%)	97 (58%)
Increased regulatory awareness	32 (65%)	90 (54%)
Improved ability to locate IPC resources	28 (57%)	79 (47%)
Increased awareness of COVID-19 hospitalization data	29 (59%)	80 (48%)
Policy implementation	**n = 49**	**n = 167**
Updated general IPC policies	30 (61%)	101 (60%)
Updated COVID-19 policies	30 (61%)	116 (69%)
No updates	7 (14%)	27 (16%)

Note. IPC, infection prevention and control; NHSN, National Healthcare Safety Network; CE, continuing education; COVID-19, coronavirus disease 2019; DHHS, Department of Health and Human Services; SME, subject matter expert.

https://doi.org/10.1017/ice.2024.158 Published online by Cambridge University Press

Table 2. Subgroup comparison analysis of long-term care participants

Aspect	Administrators n (%)	Infection preventionists n (%)	Nursing leadership n (%)
Participation rates	67 (39 %)	42 (25%)	44 (26%)
Participation frequency	**n = 67**	**n = 42**	**n = 44**
Almost all webinars	31 (46%)	35 (83%)	21 (48%)
About half the webinars	27 (40%)	4 (10%)	15 (34%)
Rarely (less than half)	9 (13%)	2 (5%)	7 (16%)
Never	0 (0%)	1 (2%)	1 (2%)
Participation format	**n = 66**	**n = 41**	**n = 43**
Live webinar	42 (64%)	26 (63%)	27 (63%)
Listen to the recording	6 (9%)	0 (0%)	1 (2%)
Both live webinar and recording	18 (27%)	15 (37%)	15 (35%)
Participation drivers	**n = 66**	**n = 41**	**n = 43**
To increase my general knowledge related to IPC	47 (71%)	36 (88%)	31 (72%)
Changes or updates in IPC guidance	52 (79%)	40 (98%)	35 (81%)
Changes or updates in regulatory requirements	50 (76%)	37 (90%)	29 (67%)
TMF presentation related to quality and NHSN updates	24 (36%)	22 (54%)	13 (30%)
Nebraska COVID-19 statistics or Nebraska DHHS updates	39 (59%)	30 (73%)	24 (56%)
Receiving peer-reviewed CE hours	38 (58%)	22 (54%)	18 (42%)
Perceived benefits—very useful	**n = 66**	**n = 41**	**n = 43**
Overall content	28 (42%)	28 (68%)	19 (44%)
Changes or updates in IPC guidance	39 (59%)	29 (71%)	24 (56%)
Nebraska COVID-19 statistics or DHHS updates	33 (50%)	22 (54%)	19 (44%)
SME topics on IPC	29 (44%)	28 (68%)	17 (40%)
Learning outcomes—very useful	**n = 66**	**n = 41**	**n = 43**
Increased general knowledge on IPC	29 (44%)	25 (61%)	22 (51%)
Increased knowledge on IPC response to COVID-19	34 (52%)	27 (66%)	24 (56%)
Increased regulatory awareness	29 (44%)	27 (66%)	23 (53%)
Improved ability to locate IPC resources	27 (41%)	24 (59%)	19 (44%)
Increased awareness of COVID-19 hospitalization data	25 (38%)	25 (61%)	21 (49%)
Policy Implementation	**n = 66**	**n = 41**	**n = 43**
Updated general IPC policies	44 (67%)	27 (66%)	21 (49%)
Updated COVID-19 policies	54 (82%)	30 (73%)	21 (49%)
No updates	4 (6%)	4 (10%)	13 (30%)

Note. IPC, infection prevention and control; NHSN, National Healthcare Safety Network; CE, continuing education; COVID-19, coronavirus disease 2019; DHHS, Department of Health and Human Services; SME, subject matter expert.

were compared across AC and LTC settings using an independent 2-sample *t* test with Pooled and Satterthwaite distribution in SAS (Statistical Analysis System, SAS Institute www.sas.com). The results provided insights into the drivers of webinar attendance, perceived benefits, learning outcomes, and policy implementation efforts among IPs from both settings.

Results

A total of 51 AC and 170 LTC webinar participants from 48 AC and 109 LTC unique facilities responded to the survey. The overall facility response rate was 50% and 25%, respectively. IPs constituted most of the participants in AC (86%, n = 44), while administrators constituted the majority in LTC (39%, n = 67). More LTC participants reported participation in almost all webinars and preferred the live webinar format compared with AC participants (Table 1). The top 3 participation drivers for both AC and LTC participants were the desire to increase their general knowledge related to IPC, stay updated on IPC guidance, and receive updates on regulatory requirements (Table 1).

Regarding learning outcomes, AC participants reported higher rates of increased regulatory awareness (65% vs 54%). Policy implementation efforts were similar between the 2 groups, with a majority of 61% in AC and 60% in LTC updating general IPC policies and 61% in AC and 69% in LTC updating COVID-19 policies. In the LTC subgroup analysis, IPs consistently

https://doi.org/10.1017/ice.2024.158 Published online by Cambridge University Press

demonstrated strong participation (83% IPs vs 46% administrators and 48% nursing leadership), perceived benefits, and positive learning outcomes (Table 2). Administrators showed high engagement in policy implementation efforts, particularly related to COVID-19 (82% vs 73% IPs and 49% nursing leadership) (Table 2). Among the significant findings between AC (n = 44) and LTC IPs (n = 42), LTC IPs showed a notably higher inclination toward attending webinars for updates in IPC guidance (98% LTC IPs vs 86% AC IPs; $P < .0001$) and regulatory requirements compared with AC IPs (90% LTC IPs vs 77% AC IPs; $P = .03$). Although both groups perceived similar overall content and changes in IPC guidance, AC IPs rated subject matter expert (SME) topics related to IPC significantly higher than LTC IPs (68% LTC IPs vs 70% AC IPs; $P = .0455$).

Discussion

Studies have demonstrated that well-designed educational programs contribute to improved IPC practices, reducing the infection risk among HCWs and patients.[8] Other studies show that learning occurs better in an interactive environment.[9] Particular to the COVID-19 pandemic, interactive webinars can reach a broader audience than many in-person events, and the webinar series can be rapidly scaled and reactivated as needed.[10] The findings from our study highlight the success of the statewide IPC education initiative in garnering a highly positive response from Nebraska facilities. The differing reasons for attending webinars, with LTC IPs focusing on regulatory changes, emphasize the diverse needs of healthcare settings. IPs' strong participation, perceived benefits, and learning outcomes emphasize their crucial role in IPC education and active role in policymaking. The significant implementation of new policies indicates the practical impact of the timely webinars on facility practices. The increased participation of administrators in LTC webinars reflects growing awareness of the importance of continuous learning, and engagement in staying up to date on best practices and regulations within the LTC sector. Furthermore, their high engagement in policy implementation suggests active involvement in ensuring compliance and safety measures within LTC facilities.

The strengths of this study lie in its comprehensive analysis of factors that are driving IPC program leaders to attend these educational webinars, along with assessing learning outcomes and its translation into facility policymaking. However, a single-state study with a lower response rate from LTC facilities introduces a potential limitation, and caution should be exercised in generalizing the findings. The self-reported nature of survey responses may also introduce bias. Although our survey indirectly reflects essential improvement in practice through policy implementation, the study was not designed to validate practice changes. The positive response to the webinar trainings suggests a continued need for ongoing IPC education initiatives. Healthcare practitioners, policymakers, and educators can leverage our study findings to tailor future trainings, considering the specific needs and preferences of different healthcare settings. Future research could explore the long-term impact of IPC education on sustained improvements in facility-wide practices and patient outcomes.

In summary, this initiative has proven instrumental in facilitating timely policy and procedural adaptations amidst the challenges of the COVID-19 pandemic. The positive response from Nebraska facilities highlights the importance of continuous education in navigating evolving public health emergencies. With participant feedback guiding future training topics, the opportunity exists to further contribute to the enhancement of IPC practices in healthcare settings.

Financial support. This study was performed by the Nebraska DHHS healthcare-associated infections and antimicrobial resistance program and the Nebraska ICAP, which are funded through the Centers for Disease Control and Prevention Epidemiology and Laboratory Capacity Grant.

Competing interests. M.S.A. has received an investigator-initiated research grant from Merck & Co., unrelated to this study. All other authors report no conflicts of interest relevant to this article.

References

1. Birkmeyer JD, Barnato A, Birkmeyer N, Bessler R, Skinner J. The impact of The COVID-19 pandemic on hospital admissions in the United States. *Health Aff (Millwood)* 2020;39:2010–2017. doi: 10.1377/hlthaff.2020.00980.
2. Yaffee AQ, Peacock E, Seitz R, Hughes G, Haun P, Ross M, Moran TP, Pendley A, Terry N, Wright DW. Preparedness, adaptation, and innovation: approach to the COVID-19 pandemic at a decentralized, quaternary care department of emergency medicine. *West J Emerg Med* 2020;21:63–70. doi: 10.5811/westjem.2020.8.48624.
3. Giri S, Chenn LM, Romero-Ortuno R. Nursing homes during the COVID-19 pandemic: a scoping review of challenges and responses. *Eur Geriatr Med* 2021;12:1127–1136. doi: 10.1007/s41999-021-00531-2.
4. Lowe H, Woodd S, Lange IL, *et al.* Challenges and opportunities for infection prevention and control in hospitals in conflict-affected settings: a qualitative study. *Confl Health* 2021;15:94. doi: 10.1186/s13031-021-00428-8. Erratum in: Confl Health. 2022 Jan 7;16(1):2.
5. Houghton C, Meskell P, Delaney H, *et al.* Barriers and facilitators to healthcare workers' adherence with infection prevention and control (IPC) guidelines for respiratory infectious diseases: a rapid qualitative evidence synthesis. *Cochrane Database Syst Rev* 2020;4:CD013582. doi: 10.1002/14651858.CD013582
6. Alhumaid S, Al Mutair A, Al Alawi Z, *et al.* Knowledge of infection prevention and control among healthcare workers and factors influencing compliance: a systematic review. *Antimicrob Resist Infect Control* 2021;10:86. doi: 10.1186/s13756-021-00957-0.
7. Abalkhail A, Alslamah T. Institutional factors associated with infection prevention and control practices globally during the infectious pandemics in resource-limited settings. *Vaccines (Basel)* 2022;10:1811. doi: 10.3390/vaccines10111811.
8. Deryabina A, Lyman M, Yee D, *et al.* Core components of infection prevention and control programs at the facility level in Georgia: key challenges and opportunities. *Antimicrob Resist Infect Control* 2021;10:1–20.
9. Abdel Meguid E, Collins M. Students' perceptions of lecturing approaches: traditional versus interactive teaching. *Adv Med Educ Pract* 2017;8:229–241. doi: 10.2147/AMEP.S131851.
10. Wilson K, Dennison C, Struminger B, *et al.* Building a virtual global knowledge network during the Coronavirus disease 2019 pandemic: the infection prevention and control global webinar Series, *Clin Infect Dis* 2021;73:S98–S105, doi: 10.1093/cid/ciab320