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Feature Article

An innovative model using telementoring to provide geriatrics education for nurses and social workers at skilled nursing facilities[☆]

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ABSTRACT

Older adults with complex needs reside in skilled nursing facilities (SNFs) and are cared for by nurses and social workers with limited geriatrics education. We describe the pilot phase of an educational model using the Extension for Community Healthcare Outcomes (ECHO) platform to teach geriatrics principles to SNF staff. Twenty-five unique participants from 7 total facilities enrolled, with twenty-two participants completing both the pre/post surveys. Statistically significant improvement was seen in participants' self-efficacy to treat patients with dementia, educate patients about hospice and palliative medicine options, and assess and manage infections in older adults. The two largest barriers participants identified in making changes after the series were the time pressures of caring for complex geriatric patients and staff available to assist with social support needs of older adults. ECHO-Chicago's Geriatrics SNF pilot series is innovative and shows promise to provide geriatrics education for the SNF workforce.

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Introduction

Many older adults with complex needs and multi-morbidity reside in skilled nursing facilities (SNFs). Direct care workers, such as nurses and social workers are responsible for the care of these older adults, many of whom have significant medical complexity and psychosocial needs. Geriatrics-specific continuing education for staff is often limited at nursing facilities. There is limited time for and access to continuing education for these workers who often lack specific training in geriatrics. The need for specialized geriatrics education includes the ability to evaluate older adults, recognize clinical changes, and communicate findings with the care team.^{1,2} Direct care staff may face barriers to ongoing professional training such as high turnover rates and lack of protected time for education.¹ Furthermore, inadequate geriatrics training has been shown to contribute to high nursing staff turnover rate and nursing shortages at SNFs.^{3,4}

One model that has been shown to address some of these challenges in the primary care population and been evaluated as a means of delivering special knowledge is the Project for Extension for Community Healthcare Outcomes (ECHO).^{5–8} ECHO provides education,

mentoring, and consultation through secure, web-based videoconferencing technology which links academic medical experts to community health providers. The ECHO model is based in *Social Cognitive Theory* (advanced by Albert Bandura and others) which posits that several factors influence individual behavior change including behavioral self-efficacy, belief that benefits of the behavior outweigh costs, and reinforcement of behavior change from persons who are seen as important.^{9,10} The ECHO model incorporates each of these components, with a particular focus on self-efficacy.¹¹

Prior SNF-related ECHO series have focused on advanced practice provider education (physicians, physician assistants and advanced practice nurses) with a narrower education focus (dementia, antipsychotics, restraint use, transitions of care)^{12–14} and have been shown to improve patient outcomes such as avoiding rehospitalization or alleviating dementia-related behavioral problems in older adults.^{12–14} However, no prior ECHO series in SNFs in the literature to date have focused on the learning needs of nurses and social workers. Our goal was to develop a novel educational model to implement a geriatrics curriculum for nurses and social workers that can be replicated and extended throughout SNFs on a broad range of geriatrics topics.

The objectives of this report are to present pilot testing of telementoring utilizing ECHO to provide remote case-based, interdisciplinary geriatrics education for nurses and social workers in SNFs in

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an urban center on Chicago's South Side. Additionally, impact on self-efficacy and barriers encountered to making changes in practice were measured and analyzed.

Methods

This study was approved by the University Institutional Review Board and consent was waived as all identifiers were removed. This project was undertaken as part of the Geriatrics Workforce Enhancement Program funded through the Health Resources and Services Administration, focused on improving health care for older adults by enhancing geriatrics workforce education and transforming clinical training environments.¹ Utilizing the model for ECHO programming, we designed and launched the ECHO-Chicago Geriatrics SNF Pilot series in the spring of 2017 to provide geriatrics education to direct care workers at a chain of for-profit SNFs on the South Side of Chicago. Participants were recruited via existing relationships with Chicago area nursing facilities. The South Side of Chicago comprises several of the most medically underserved communities in the US, and the number of older adults living below the poverty line is twice the national average.^{15,16}

Participant selection and series structure

The ECHO-Chicago Geriatrics SNF series consisted of weekly hour-long sessions featuring a 20–30 min didactic followed by participant presentations and discussion of two unique patient cases facilitated by a geriatrics expert team. The Zoom videoconferencing platform was used to connect participants with the team of geriatrics subject matter experts. A conference room with videoconferencing facilities at the academic medical center was used by the subject matter expert team. Participants joined remotely using their own computers, mobile devices, or videoconferencing-enabled conference rooms. There was no cost to participants and participants received continuing education credits for all sessions attended. The facilitator geriatrics expert team consisted of at least one geriatrician from the academic medical center and at least one nurse educator with experience in nursing home care. An ECHO-Chicago Geriatrics SNF project coordinator was present during all sessions to provide technical and logistic support and to assist with facilitation. Cases were drawn from participants' examples of difficult to manage or treat geriatric patients in their SNF. Case studies were submitted by participants to the ECHO Project coordinator using a case form created for the series. The expert geriatrics panel was able to review the case studies in advance of each session.

Participants for our first series were chosen from recruitment through interest in the program and approval from site leadership. During the first series, we presented 10 lectures over 10 weeks (May 1, 2017–July 17, 2017). For the second series, to improve participation and protected time for learning, we met with SNF corporate leadership and gained support for the educational program. As a result, new nurses with less-than 1-year experience as a nurse and/or new to the facility were chosen as participants and ECHO-SNF became a required part of the nurse orientation. Based on feedback and interest from the first series, the second series was expanded to consist of 12 sessions spanning 12 weeks (March 3, 2018–May 25, 2018). Series topics and objectives are listed in [Table 1](#). Additionally, to increase participant comfort and familiarity with the use of the videoconferencing equipment, we held the first session in person at the academic medical center. Lastly, for the second series the case form was revised to highlight nursing communication and reflect the Situation, Background, Assessment, and Recommendation (SBAR) Format.

Surveys and evaluation

Pre- and post-surveys of satisfaction and perceived self-efficacy in geriatrics skills were administered to participants. Additionally, demographic information including: age, gender, race/ethnicity, credentials, and years in current position, was collected. Series participants completed pre- and post-series surveys administered via Research Electronic Data Capture (REDCap).¹⁷ Pre-series surveys were completed prior to the first ECHO session, while post-series surveys were completed within two weeks following the last sessions. Surveys evaluated participant self-efficacy across 15 geriatrics competencies. Self-efficacy was measured across a seven-point Likert scale (1= "none: no skill at all"; 7= "expert: teach others"), with the same questions pre- and post-series in a similar fashion to prior studies using the ECHO model.^{18–21} The post survey included 8 additional questions about barriers participants encountered in implementing change after the series at their center on a five-point Likert scale (1="not a barrier"; 5= "maximum barrier"). As above, these questions were adapted from previously published work.²¹ Post-series surveys also included free text questions about change in practice as a result of the series, and suggestions on how to improve the series: "What are other things that you liked, about the series?"; "How can we improve the series?"; "What changes have you made in your practice based on what you learned in the ECHO-Chicago series?"

Data analysis

Each participant's pre-and post-surveys were paired using a unique study ID assigned at the start of the series. The evaluations were de-identified. Descriptive statistics were used to summarize demographics, attendance, and barriers to change. A Wilcoxon signed-rank test was performed to assess differences in self-efficacy before and after the sessions. Data was analyzed using STATA SE 15.

Results

We had 25 unique participants in our two series, with 22 participants completing both the pre- and post- online-survey and included in the self-efficacy and barriers data analysis. [Table 2](#) shows the demographics of all of the enrolled participants. The average age of participants was 40 (SD 3.9) with 96% female. The first session consisted of 13 participants (2 Registered Nurses (RNs), 7 Licensed Practical Nurses (LPNs), 4 Social Workers). The second session consisted of 12 participants (2 RNs and 10 LPNs). Our attendance rate was 70% for both series combined (60% for first series, 80% for second series), and 13 participants attended $\geq 75\%$ of the sessions. Of those who attended less than 75% of the sessions, average attendance rate was 51%.

Participants' self-efficacy results are shown in [Table 3](#). Mean self-efficacy scores improved across all domains with statistically significant improvement noted in five domains. These included ability to treat patients with dementia (pre-SE 3.6, post-SE 4.5, $p = 0.04$), educate patients about hospice and palliative medicine options (pre-SE 3.6, post-SE 4.5, $p = 0.02$), assess and manage infections in older adults (pre-SE 4.2, post-SE 4.8, $p = 0.03$), assess and manage post-operative patients in the SNF (pre-SE 3.8, post-SE 4.9, $p < 0.01$) and serve as a consultant to others for geriatrics questions and issues (pre-SE 4.8, post-SE 5.5, $p 0.04$).

The two top barriers identified in making changes after the series were the time pressures of caring for complex geriatric patients, and staff available to assist with social support needs of older adults ([Table 4](#)). Our participants identified working with older adults as being, "more complicated," and often that "older adults present differently." They also stated that working with older adults was "hard work and overwhelming."

Table 1
ECHO SNF Series Topics.

Series 1	Series 2
<p>Introduction to ECHO-Chicago & Common Changes in Clinical Conditions</p> <ul style="list-style-type: none"> • Identify signs and symptoms of common changes in clinical condition • List the differential of common changes in clinical conditions • Recall what information should be obtained prior to contacting patient's provider <p>Transitions of Care</p> <ul style="list-style-type: none"> • Discuss definition of transition of care • Understand barriers in effective transitions of care • Review effective strategies with transitions of care of nursing home residents <p>Advanced Dementia</p> <ul style="list-style-type: none"> • List the stages of dementia • Describe hospice criteria for patients with dementia • Explain how to care for patients with advanced dementia with feeding problems <p>Surgical Recovery and Rehab</p> <ul style="list-style-type: none"> • Understand the goals of postoperative rehabilitation • Review common issues in postoperative care <p>Anticoagulation</p> <ul style="list-style-type: none"> • List common indications for anticoagulation • Describe medications and foods that can interact with warfarin • List the information required in order to • Properly dose warfarin • Describe the basic properties and use of low molecular weight heparins and novel oral anticoagulants <p>Infections in the Nursing Home</p> <ul style="list-style-type: none"> • Review clinical practice guidelines for evaluation of fevers and infection in older adults • Discuss infections defined by McGeer criteria <p>Polypharmacy and medication Management, Part I</p> <ul style="list-style-type: none"> • Name common "potentially inappropriate medications" (PIMs) for older adults • List common side effects of select PIMs <p>Polypharmacy and Medication Management, Part II</p> <ul style="list-style-type: none"> • Name common "potentially inappropriate medications" (PIMs) for older adults • List common side effects of select PIMs <p>Advance Care Planning & Communication, Part I</p> <ul style="list-style-type: none"> • Review definitions of advance care planning • Discuss advance directives and documentation <p>Advance Care Planning & Communication, Part II</p> <ul style="list-style-type: none"> • Identify goals of care and how they are interrelated and change • Discuss fundamentals of communicating when caring for patients with serious illness • Identify practices to avoid when talking with patients and families 	<p>Introduction to ECHO-Chicago & Common Changes in Clinical Conditions</p> <ul style="list-style-type: none"> • Identify signs and symptoms of common changes in clinical condition • List the differential of common changes in clinical conditions • Recall what information should be obtained prior to contacting patient's provider <p>Effective Communication & Documentation</p> <ul style="list-style-type: none"> • Define effective communication and documentation • Review INTERACT, SBAR Forms • Explain the importance of effective communication and documentation • State criteria for communicating with physicians <p>Transitions of Care</p> <ul style="list-style-type: none"> • Discuss definition of transition of care • Understand barriers in effective transitions of care • Review effective strategies with transitions of care of nursing home residents <p>Surgical Recovery and Rehab</p> <ul style="list-style-type: none"> • Understand the goals of postoperative rehabilitation • Review common issues in postoperative care <p>Advanced Dementia</p> <ul style="list-style-type: none"> • List the stages of dementia • Describe hospice criteria for patients with dementia • Explain how to care for patients with advanced dementia with feeding problems <p>Managing Difficult Behaviors</p> <ul style="list-style-type: none"> • Define difficult and challenging behavior • Identify conditions that may contribute to difficult behaviors • Describe interventions that can be utilized in managing difficult and challenging behaviors <p>Geriatric Substance Abuse</p> <ul style="list-style-type: none"> • Define geriatric substance abuse • Review signs and symptoms of substance abuse • Explain the importance of identifying patients with potential substance abuse and reporting procedures • State criteria for communicating with supervisors and physicians <p>Polypharmacy & Medication Management</p> <ul style="list-style-type: none"> • Name common "potentially inappropriate medications" (PIMs) for older adults • List common side effects of select PIMs <p>Advance Care Planning</p> <ul style="list-style-type: none"> • Review definitions of advance care planning and advance directives and documentation • Discuss fundamentals of communicating when caring for patients with serious illness <p>Infections in the Nursing Home</p> <ul style="list-style-type: none"> • Review clinical practice guidelines for evaluation of fevers and infection in older adults • Discuss infections defined by McGeer criteria • Identify common types of Isolation Precautions <p>Management of Renal Disease & Nutrition & Hydration</p> <ul style="list-style-type: none"> • Name the common causes of renal disease and identify treatments for common related issues • List common causes of dehydration and appropriate hydration strategies • Identify common nutritional issues and how they are addressed <p>Anticoagulation & Lab Interpretation: When to Contact Doctor</p> <ul style="list-style-type: none"> • List common indications for anticoagulation • Describe medications and foods that can interact with warfarin • List the information required in order to properly dose warfarin • Describe the basic properties and use of low molecular weight heparins and novel oral anticoagulants

Responses to open-ended survey questions (What are other things that you liked, about the series? How can we improve the series? What changes have you made in your practice based on what you learned in the ECHO-Chicago series?) provided further insight in to participant experiences. One representative quote: "This series has made me grow more attentive towards things that I used to overlook or not pay too much attention to. For example, when my patient goes out to an appointment, I am always looking for follow-up information, and calling the doctor's office from which they had just returned. I feel more comfortable interpreting PT/INR results and starting to anticipate what the next Coumadin dose will be from the provider.

I also feel like my communication has improved with the doctor's [sic] and nurse practitioners at the facility. I also more diligently assess patient's [sic] for any changes from their baseline; symptoms of sepsis, dementia, substance abuse. Overall, I feel like I am more confident when I work with the geriatric population." Another participant stated, "It was nice to hear like the physician's feedback too, so you kind of know what they're thinking and what they're looking for when you're calling them." And another stated she enjoyed "learning how similar our experiences were." Another stated, "I've become more comfortable and confident when talking to doctors and other providers."

Table 2
Demographics of Participants.

	Mean (SD)
Age	40 (3.9)
Years in current position	8.8 (5.7)
	N (%)
Female:	24 (96)
Race:	
Hispanic	2 (8)
Non-Hispanic African American	21 (84)
Non-Hispanic White	1 (4)
Non-Hispanic Biracial	1 (4)
Credentials:	
Registered Nurse (RN)	4 (16)
Licensed Practical Nurses (LPN)	17 (68)
Social Worker	4 (16)

SD = Standard Deviation.

Discussion

Geriatrics knowledge and expertise is critical to the care of older adults in skilled nursing facilities. Our pilot program showed that ECHO-Chicago's Geriatrics SNF is an effective way to engage and educate nurses and social workers on geriatrics topics. Our SNF-ECHO model successfully improved provider self-efficacy in specific geriatrics competency areas. Improvements in self-efficacy were seen in participants rated ability to treat patients with dementia, educate patients about hospice and palliative medicine options, assess and manage infections in older adults, assess and manage post-operative patients in the SNF and ability to serve as a consultant to others for geriatrics questions and issues. Additionally, the top barriers identified in implementing change were system based rather than knowledge based including the staff available and time pressures for caring for complex patients. Improvement in self-efficacy is important as this is considered a prerequisite to behavior change.¹⁰

Our series differs from previously described ECHO-SNF series in that we targeted nurses and social workers as our learner group as opposed to physicians and other advanced practice providers.^{12,13} For our second series, we targeted nurses with less than 1–2 years of SNF experience or new to the facility in efforts to redesign the models of care to assist with their ability to provide care for older adults.

By utilizing videoconferencing technology, we were also able to bring together nurses and social workers across the same SNF network from different facilities to engage in shared learning

with geriatrics experts. The opportunity for interprofessional engagement and interaction across facilities was appreciated by participants as demonstrated in the free text responses to open-ended questions above.

ECHO Geriatrics SNF is an innovative program and novel model using telementoring to engage and educate the direct-care workforce on geriatrics topics. Our model successfully improved provider self-efficacy and inter-professional communication through geriatrics training using the ECHO model. Lack of training and poor inter-professional communication is linked to nursing shortages and high staff turnovers in nursing facilities.^{1,8,9}

Overall, ECHO-Chicago's Geriatrics SNF training was well received by participants. A challenge we faced in organizing the series was participant attendance, given that direct-care workers often needed to break away from their daily responsibilities to participate. After our first series, we sought "buy-in" from corporate leadership, which increased our series attendance from 60% to 80% for all sessions. Leadership awareness and support of the educational program led to direct supervisor support for participants to attend all sessions. Previous literature has shown that implementing an educational program within a SNF requires a strategic plan to generate buy-in from stakeholders as well as engagement from the staff and leadership to transform the healthcare environment.¹ In for-profit SNFs, financial pressures may be at odds with the time commitment needed for continuing education training.⁷ Offering sessions weekly and utilizing videoconferencing eliminated the time needed for travel and this model is a feasible approach for direct-care workers who have limited time for continuing education. Our overall attendance was 70% for the duration of each series, and this is larger than one prior similar in-person educational initiative in the nursing home in which only 55% of the staff was able to attend three or more in-services.¹⁰

Study limitations

Limitations of this pilot study include that the educational intervention was measured in a small sample size with slightly different length and content between the two series. Surveys were subject to both response and nonresponse bias, although response rates overall were high. Additionally, our model also was piloted at SNFs caring for a highly underserved, poor, and largely minority community in the city of Chicago, primarily on the south side, and may not be applicable to other areas.

Table 3
Participant Pre- and Post-Series Self-Efficacy*.

Competency: Ability to...	Pre-Self Efficacy Mean (SD)	Post-Survey Mean (SD)	p-value
Identify and treat common changes in clinical condition	3.6 (2.0)	3.6 (2.0)	0.69
Communicate with other team members about a change in clinical condition of a resident	3.8 (2.1)	4.5 (2.0)	0.14
Identify and avoid common errors during care transitions	4.6 (1.8)	5.1 (1.6)	0.52
Treat patients with dementia	3.6 (2.3)	4.5 (1.9)	0.04
Perform a complete medication review/reconciliation	4.9 (1.5)	5.4 (1.6)	0.18
Identify high risk medications for older adults	4.3 (2.0)	4.7 (1.9)	0.14
Discuss and complete health care power of attorney documentation	4.3 (1.8)	4.9 (1.6)	0.08
Discuss and complete living will documentation/POLST	3.9 (1.9)	4.5 (2.0)	0.13
Educate patients about hospice and palliative medicine options	3.6 (1.7)	4.5 (1.9)	0.02
Recommend community-based resources for older adults	4.1 (1.7)	4.8 (1.7)	0.06
Educate other providers/staff about older adults	4.2 (1.9)	4.8 (1.6)	0.21
Assess and manage infections in older adults	4.2 (2.0)	4.8 (1.8)	0.03
Assess and manage anticoagulation in older adults	4.1 (2.0)	4.6 (1.9)	0.07
Assess and manage post-operative patients in the SNF	3.8 (2.0)	4.9 (1.9)	<0.01
Serve as a consultant to others for geriatric questions and issues	4.8 (1.6)	5.5 (1.4)	0.04

SD = Standard Deviation.

* Likert Scale: 1=None or no skill at all; 2=vague knowledge, skills, or competence; 3=slight knowledge, skills, or competence; 4=average among my peers; 5=competent; 6=Very competent; 7=Expert, teach others.

Table 4
Barriers in Implementing Change after Series Completion.

Barrier Type	Barrier Level N (%)				
	Not a Barrier	Minor	Moderate	Major	Maximum
Lack of support management	12 (54%)	4 (18%)	4 (18%)	1 (5%)	1 (5%)
Staff available to assist with social support needs of older adults	8 (36%)	2 (9%)	3 (14%)	6 (27%)	3 (14%)
Time pressures of caring for complex geriatric patients	9 (41%)	2 (9%)	4 (18%)	4 (18%)	3 (14%)
Lack of staff training in geriatrics	9 (41%)	3 (14%)	6 (27%)	2 (9%)	2 (9%)
Lack of confidence in ability to manage dementia	12 (54%)	3 (14%)	4 (18%)	3 (14%)	0 (0%)
Lack of confidence in ability to diagnose dementia	12 (54%)	3 (14%)	4 (18%)	3 (14%)	0 (0%)
Lack of training on palliative medicine & hospice	11 (50%)	5 (23%)	4 (18%)	2 (9%)	0 (0%)
Lack of training on geriatrics-specific management & treatment issues	10 (45%)	5 (23%)	4 (18%)	2 (9%)	1 (5%)

Conclusions

This innovative ECHO-Chicago Geriatrics SNF pilot shows promise as a model to use telementoring to provide geriatrics education for the direct care workforce in SNFs, and could help overcome limitations of time, cost, and access to geriatrics knowledge. Future work is needed to study this model's impact on patient care and medical outcomes.

Supplementary materials

Supplementary material associated with this article can be found in the online version at doi:[10.1016/j.gerinurse.2019.03.018](https://doi.org/10.1016/j.gerinurse.2019.03.018).

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