

# Nursing Home Education During the COVID-19 Pandemic

Claire C Ferguson<sup>1</sup>, Sean C Figy<sup>2</sup> and Natalie A Manley<sup>1</sup>

<sup>1</sup>Department of Internal Medicine Division of Geriatrics, Gerontology and Palliative Medicine, University of Nebraska, Omaha, NE, USA. <sup>2</sup>Department of Surgery Division of Plastic/Reconstructive Surgery, University of Nebraska, Omaha, NE, USA.

Journal of Medical Education and Curricular Development  
Volume 8: 1–7  
© The Author(s) 2021  
Article reuse guidelines:  
sagepub.com/journals-permissions  
DOI: 10.1177/2382120521997096



## ABSTRACT

**OBJECTIVE:** To help older adults living in nursing homes (NHs) while educating medical and physician assistant (MD/PA) students during the COVID-19 pandemic.

**METHODS:** Using a multicomponent iterative process, we piloted multiple student led service-learning projects in 2 NHs and 1 hospice agency in the Midwest. Pre-post online student surveys were completed to match student interests with facility needs and to assess learning and obtain feedback regarding their experiences.

**RESULTS:** All 12 interested students completed the initial survey; n = 23 ultimately volunteered (word of mouth); n = 11 (48%) completed the follow-up survey. Opportunities were medical record transfer, grounds beautification, resident biographies, window entertainment, and No-One-Dies-Along program. Students averaged 9.2 volunteer hours; stated the opportunities were enjoyable, clinically applicable, and socially distanced; and reported learning about unique experiences of older adults in NHs.

**DISCUSSION:** Despite limitations created by the pandemic, mutually beneficial and safe opportunities remain for education in the NH setting.

**KEYWORDS:** PALTC, nursing home, long term care, medical education, COVID-19

**RECEIVED:** October 17, 2021. **ACCEPTED:** February 2, 2021.

**TYPE:** Original Research

**FUNDING:** The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was done via a larger educational program through the University of Nebraska Medical Center.

**DECLARATION OF CONFLICTING INTERESTS:** The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: NM is a paid medical director for the long-term care facilities and home hospice agency involved in this work.

**CORRESPONDING AUTHOR:** Natalie A Manley, Department of Internal Medicine Division of Geriatrics, Gerontology and Palliative Medicine, University of Nebraska, 986155 Nebraska Medical Center, Omaha, NE 68198-6155, USA. Email: natalie.manley@unmc.edu

## Brief Summary

This research demonstrates valuable, safe, and enjoyable opportunities for students to learn while helping older adults in the nursing home setting during the COVID-19 pandemic.

## Introduction

The unique syndromes of older adults (OAs) manifest in all areas of medical practice. Current geriatrics education centers on neurology, pharmacology, and psychiatry, and most of the geriatric specific learning is passive, through lecture, or indirect, on hospital wards, and general medicine clinics.<sup>1</sup> Students can take geriatric specific clinical rotations, but only parts of those rotations usually take place in the nursing home (NH)/long-term care (LTC) setting.<sup>1</sup> With nursing home residents disproportionately affected by COVID-19,<sup>2,3</sup> it is important for clinical students to have an understanding of the NH environment and the care of frail adults, particularly because the pandemic can serve as a backdrop that exposes many vulnerabilities in NH residents' lives.

In March 2020, medical and physician assistant (PA) schools pulled students from clinical rotations in order to conserve personal protective equipment (PPE) and to limit infection spread through social/physical distancing.<sup>4,5</sup> Similarly, distancing measures were put in place in the NH setting—restricting visitors, stopping communal dining and group activities, and isolating residents to their rooms as much as

possible.<sup>6,7</sup> Despite these and other protective measures, COVID-19 has still severely impacted the geriatric community, both physically and psychologically.<sup>8,9</sup>

The pandemic has worsened pre-existing problems for multiple groups. Nursing home staff burnout and staffing turnover has been a concern for years.<sup>10,11</sup> The additional pandemic related work burdens placed on NH staff lead to even greater burnout and turnover.<sup>12</sup> Social isolation and loneliness, a long-standing problem among NH dwelling elders,<sup>13</sup> has been amplified by the pandemic.<sup>8,9</sup> Finally, student wellness has drawn additional attention during the pandemic as many were forced into uncharted territories of isolating online learning.<sup>14</sup>

The pandemic has also created new opportunities. Clinical students are a valuable resource due to their clinical skills and eagerness to learn and help during times of crisis.<sup>14-16</sup> Because of their sudden cessation of clinical rotations, they also had new-found time to offer. As the pandemic has continued students need opportunities to develop clinical skills outside the normal environments.<sup>4,5</sup> The mutual needs of NH dwelling elders, NH employees, and clinical students presented an opportunity for each to help the other.

Volunteerism can have positive impacts on mental health, while also providing opportunities for learning and personal growth.<sup>15,17,18</sup> As part of an 8-week "Impact of Infectious Diseases" online course created to maintain academic engagement for MD/PA students during the pandemic, University of



Nebraska Medical Center (UNMC) instituted a service-learning component that required 16 hours of community volunteering. The course ran from April through May 2020. Students received a list of faculty contacts for possible service-learning opportunities. A number of students expressed interest in working with older adults; however there was question about how to create safe, mutually beneficial experiences for both the NH residents as well as the students. To achieve this, we piloted multiple small volunteer projects within 2 NH settings and a community hospice agency that were under the direction of the same geriatrician/medical director (NM). Our focuses were to ease the burden on staff, decrease loneliness and isolation among residents, and educate MD/PA students in the field of Geriatrics, specifically NH medicine.

The intent of this project was 2-fold: 1. to improve the lives of older adults during the pandemic and 2. to continue educating clinical students in a meaningful and safe way. Because of the rapidly changing nature of the pandemic, the program had to be easily adaptable and largely student driven. It was not originally created with the intent of being research. Only after we ensured the safety and wellness of the NH elders and students, did we consider adding a research component to these projects. We hypothesized that tangible and varied learning experiences in the NH setting, such as those explored here, would have a positive impact on learner's knowledge and perceptions of the operations and patient experience in the NH setting. Nursing home education remains limited, due to ongoing NH visitor restrictions. Therefore, there is continued need for creative methods to engage learners in the care of NH dwelling elders. Beyond this unique medical education experience, we believe that involving learners in the NH setting will positively impact the residents and employees of the facility.

## Methods

This project followed a multicomponent iterative process that evolved with the changing needs and capabilities of each involved party as the pandemic progressed in the community. First, the medical director/geriatrician interviewed the director of nursing from each NH and the volunteer coordinator from the hospice agency to gather ideas of needs that could be safely fulfilled by students.

The initial ideas were refined by the authors based on student learning requirements and predicted interests, then narrowed to 10 options (Table 1). Using Microsoft Forms, we formatted the volunteer ideas into an investigator-derived questionnaire to assess student interest in the various learning opportunities. Students could indicate interest for each volunteer option and could also provide other ideas in a free response textbox. The options that received the most interest were presented to the leadership of the partnered NH agencies to determine which could be implemented based on feasibility and organizational need. Because of the rapidly changing nature of the pandemic, some of the original ideas (meal tray delivery, front door triage/

**Table 1.** Initial options for nursing home service learning offered to off-rotation clinical students during the COVID-19 pandemic.

• Meal tray delivery
• Front door triage/screening
• Resident life story/biography phone calls
• Window entertainment
• Medical record transfer
• Hospice No One Dies Alone Program
• Intercom entertainment
• Recording audio/musical performances for residents
• Virtual rounding with the medical director
• Open ended invitation to come up with other ideas

screening) became unnecessary from the perspective of the facility staff by the time the students were available to help.

Both partnered NHs provide primarily long-term care with some post-acute care. One of the facilities is a 63-bed facility and is 20 minutes from campus. The other facility is a 64-bed facility in rural Nebraska, which is 45 minutes from campus. The community-based hospice company has an average daily census of approximately 100 adult patients and serves patients primarily in LTC, Assisted Living (AL), and private residences. The hospice's volunteer services were very limited due to NH/AL visitor policies and so the hospice volunteer student option focused on the No One Dies Alone (NODA) program.

To complete the resident biographies, we designed a "life story" question guide for the students to follow based on web-search for life-story question recommendations<sup>19,20</sup> with geriatrician guided modification to fit the NH audience (Supplemental Figure 2). This included open-ended interview questions to prompt conversation. We worked with 1 NH's social worker to identify appropriate residents and resident family members for interviewing. Students were not required to complete the entire worksheet, and the phone calls were encouraged to be unstructured if the volunteer wished. The student then formatted what they learned about the person into a paragraph narrative, which was then provided to the NH for distribution to the NH resident and family members.

Using descriptive design, we used an investigator-derived questionnaire (via Microsoft Forms) to survey all participating students regarding their experience with the NH service learning projects (Supplemental Figure 3). We emailed the questionnaire to students at course completion. We used the survey to elicit which initiatives they participated in, how many hours they contributed, and free responses about what they liked, what they disliked, and what they learned about Geriatrics/NH through their experiences.<sup>21</sup>

Descriptive statistics of quantitative survey data was performed using Microsoft Excel. Content analysis was conducted

on the open-ended survey questions to identify common themes in the responses. Themes/categorizations were then reviewed by other team members to ensure agreement.

The research was approved by the UNMC Institutional Review board.

## Results

### *Initial student interest survey*

Our initial interest survey was of 12 student volunteers who had emailed the geriatrician expressing interest in helping NH elders. A total of 23 students ultimately participated in the pilots due to word of mouth. All 23 participants were sent a follow up email.

In the initial interest survey, 83% (10/12) of students were interested in delivering meal trays and visitor screening/triage, 75% (9/12) were interested in telephone resident biographies and 67% (8/12) were interested in medical record transfer and virtual rounding. Less than half (5/12) of the survey participants were interested in volunteering for NODA or volunteering at the rural nursing facility. There was very little interest in intercom performances ( $n=1$ ) or recording audio performances ( $n=0$ ) for residents. Student ideas included: small gardens for residents, board games and puzzles, a pen pal program, creating artwork for facility residents, and a virtual book club. The pen pal program became a separate program initiated by first and second year medical students who were not taking the Impact of Infectious Disease course.

### *Educator/facility needs and capabilities*

After taking student survey results to the facility's administration, the volunteer options were honed to the current mutual needs of each party. Virtual rounding was trialed once by CF and the medical director/geriatrician. This option was not expanded to other students due to technology limitations and time constraints perceived by the medical director. Therefore, the final NH volunteer program options included: medical record transfer of NH resident facility data to the university's electronic medical record (EMR), nursing home grounds beautification, telephone resident biographies, window painting/entertainment, and NODA.

### *Volunteer options completed*

The volunteer programs ran for the month of May 2020, while most discussions with the facilities and students began in April. Five resident biographies were completed, 5 students and 2 student family members attended a 2-day gardening clean up, 1 student (CF) volunteered for the hospice program, 6 students participated in medical record transfers, and eleven students participated in painting art on the exterior facility windows (Figure 1a and b).



**Figure 1.** (a) Students gardening at long term care facility during COVID-19 pandemic and (b) students painting windows at long term care facility during COVID-19 pandemic.

### *Follow up survey*

A total of 11 of the 23 (48%) participants filled out the follow up survey (Table 2). Of these students, they averaged 9.2 volunteer hours over the course of our initiatives. Two students participated in 2 volunteer initiatives, while the remaining 9 participated in one. The feedback from the students demonstrated that our opportunities were enjoyable and clinically applicable. They also enjoyed the variety of opportunities and that the activities were socially distanced considering the pandemic. Those who completed resident biographies said they had very pleasant experiences and would be open to completing more than one.

## Discussion

MD/PA student formal education in the NH setting is limited.<sup>1</sup> Despite the multiple negative impacts of the COVID-19 pandemic, it has led to new opportunities to educate students about the unique needs of those who have been impacted the most.<sup>22</sup> The time off from clinical rotations and flexibility of online classes allowed students to participate in volunteer programs that they may not have prioritized previously. The volunteer initiatives presented here encouraged students to think holistically about NH residents, to consider the unique impact of isolation on the elderly and allowed them to give back to the geriatric community in tangible ways. Although students have resumed



**Table 2.** Results of follow-up student survey on post-acute and long term care service learning activities.

ID	VOLUNTEER INITIATIVES COMPLETED	ESTIMATED VOLUNTEER HOURS	LIKES (L) AND DISLIKES (D) ABOUT VOLUNTEER ACTIVITIES.	WHAT IS SOMETHING YOU LEARNED ABOUT GERIATRICS?
1	Gardening; Record Transfer	8	L: There was a wide variety of opportunities that allowed me to choose which one suited me best. (Variety)	How vulnerable older adults who are living in facilities are during a time of pandemic.
2	Gardening	10	L: I liked that it allowed us to keep up social distancing practices (spread out around the garden) while also helping others. (Socially distanced) D: There was nothing that I didn't like. It was pretty hot outside, but there's nothing that could've been done about that.	I was able to observe the day-to-day life of an individual in a nursing home, which was quite interesting. I didn't understand how close of a relationship nurses/health care staff had with the patients of the nursing homes. <sup>a</sup>
3	Record Transfer	6	L: They were virtual. The medical record transfer also allowed me to become more comfortable navigating Epic. (Socially distanced; Clinically applicable)	
4	Resident Biography	2	L: I liked talking to the resident about their life. (Enjoyable)	
5	Record Transfer	5	L: I enjoyed going up to the nursing home before COVID got real bad. I got more proficient working in Epic when I helped with the medical record transfer. (Clinically applicable) D: It was difficult talking to the residents because they had a hard time hearing me with the mask on (not your fault!). <sup>a</sup>	The geriatric population sleep a lot during the day, but it's because they don't have anything to do (especially with COVID). Then they can't sleep at night. I didn't realize how interrupted their sleep schedules can become. <sup>b</sup>
6	Gardening; Record Transfer	9	L: It was pretty fun working in the gardens. (Enjoyable) D: There were not enough tools (gardening) provided in the nursing home.	
7	Window Entertainment	10	L: I loved painting!! And I'm so glad that the resident's enjoyed it. (Enjoyable) D: I loved everything!	I learned how the COVID-19 pandemic is affecting the geriatric population - how they are depressed, losing weight, and all the consequences that result.
8	Window Entertainment	20	L: It was a great way to get outside and do something. It was fun. Especially when we were able to interact with the residents through the window. (Enjoyable)	I did not think about how Geri patients physical health would be so impacted by the deterioration in mental health during COVID
9	Window Entertainment	5	L: Creative way to lift their spirits. (Enjoyable) D: Nothing	Did not get to interact with them much due to COVID restrictions. The few that I briefly saw were extremely grateful.
10	Window Entertainment	4	L: It was really nice to give back and to have a community of students that wanted to do the same. (Enjoyable) D: Nothing	Simple things can mean a lot.
11	Window Entertainment	30	L: It was a great way to get out of the house and doing something of value during covid. It was also so fun to do something creative. (Enjoyable)	It brought attention to the challenges that older adults were facing during the pandemic
		Average volunteer hours: 9.2 (total 109)	Categories: Enjoyable (7); Clinically applicable (2); Socially Distanced (2); Variety (1)	

<sup>a</sup>Two student volunteers were able to do in-person volunteering (one at each of the nursing facilities) in early April prior to caregiver/visitor restrictions being further tightened.

<sup>b</sup>One person left comment in "other" section, stating "I appreciate that you created these opportunities, and I wish my schedule allowed me to participate in more activities."

their clinical rotations, the pandemic continues to limit access for learners in the NH setting. Therefore, the ideas explored in this paper remain relevant and can be expanded to improve NH education in years to come.

The expressed needs of the NH evolved as the pandemic played out in our state. Initially, facilities expressed great interest in extra hands, such as taking front door triage and meal delivery out of the hands of busy NH staff. These initiatives never followed to implementation as the needs of the NHs changed as the pandemic progressed. Ultimately, resident socialization and entertainment became the main priority for the NHs and was the easiest for the students to participate in from a distance.

Many students expressed specific interest in having additional options for “at home” volunteer opportunities. The “at home” opportunities offered during this project were the medical record transfer and the resident biography project. The students and the medical director considered the medical record transfer project mutually beneficial. Barriers for establishing the project included ensuring HIPAA compliance while bridging information from the NH EMR to the university EMR since students did not have NH EMR access. Ultimately, students gleaned NH information from the geriatrician’s patient encounter notes in the university EMR. Students voiced being happy to have an opportunity to gain familiarity with the EMR while also reviewing clinical information in the patient’s chart.

Resident biographies, while one of the most well received programs, did present several unique challenges. Technological problems and NH resident recruitment secondary to facility staffing shortages were 2 early challenges. As such, fewer biography interviews could be completed despite continued interest from the volunteers. Overall, those who participated in the resident biographies had a positive experience. Due to the positive feedback, this particular experience will be used for future clinical learners in the NH setting and could be expanded for research evaluation.

The outdoor activities of grounds beautification and window painting were well received by participants. It gave students an opportunity to learn while also being physically active and with classmates in a distanced setting. It also provided the chance for social encounters with LTC elders via window interactions. The NH staff and residents anecdotally were very pleased with the work the students completed and there was no negative feedback.

Aside from COVID-19 exposure related concerns for students considering the NODA program, another possible barrier for their involvement in NODA was the requirement of a formal volunteer application through the hospice company.

Similar work explored a medical student telephone intervention to enhance medical student training during the pandemic while helping older adults at risk for social isolation.<sup>23</sup> Similar to our project, they recruited 14 medical students by

email and then gathered student feedback via online survey regarding their experience speaking with vulnerable elders by phone. Our study differed from theirs in that ours specifically focused on the NH environment, offered multiple volunteer options including activities on the NH grounds, included PA students, and was largely student led. Another telephone based medical student intervention paired student volunteers with 30 nursing home residents at the onset of the pandemic with similar positive findings for both the NH residents and medical students.<sup>24</sup> Our work adds to established publications by offering a wider array of student volunteer options and allowing students to be physically present on the nursing home grounds if desired.

Limitations of this project included the ever-changing recommendations occurring during the pandemic regarding nursing home care. Additionally, we did not have the ability to systematically obtain feedback/perspectives from the nursing home residents regarding the student program due to the overarching need for maintaining physical distance from nursing home residents and staff. Other limitations were small sample size; focus on a single university in the Midwest; and limited survey response rate. Despite those limitations as an initial pilot project, the feedback obtained from students was both positive and rich in valuable information. This information can inform larger NH education projects in the future.

Strengths of this project included the organic nature of the volunteer initiative development, and the fact that we were able to address specific concerns the facilities had and change as the facilities adapted to the pandemic. Additionally, the initiatives such as resident biographies, NODA, and grounds beautification can be expanded and continued outside of the pandemic environment, as they were to be enjoyable to students and helpful to facilities. The project also provided multiple options for students to choose from thus allowing students to volunteer based on their interests and needs. This project also demonstrated that MD/PA students are a willing and untapped volunteer force for NH settings, and that they had positive experiences and new insight into the experience of NH dwelling older adults after their volunteer experiences. This project was largely student driven and could supply a template for interested students to start up their own volunteer projects at NHs in the future. In fact, after this project was completed, the window painting initiative that began with this project continued and expanded to include additional community members, non-clinical students, and physicians for 3 other local nursing homes.

This research also highlights opportunities for intergenerational and interprofessional partnership.<sup>25-27</sup> The outdoor activities we offered provided a chance for people of varied ages and backgrounds to work together while remaining socially distanced. Stemming from this project, a local youth mentorship program and a college student art club have

expressed interest in painting nursing home windows. There have been many psychosocial implications, both positive and negative, for children during the pandemic.<sup>28</sup> Projects such as these could be expanded to younger age groups so as to provide the mutual benefits of volunteerism and mentorship.<sup>26-28</sup>

## Conclusions and Implications

It is important to constantly explore ways to positively impact the lives of vulnerable populations. When the opportunity arises, it is equally important to look back at what we have done to see if it had the intended positive impact and can serve as a template for responding to similar situations in the future. Those living in NHs have been some of the most impacted people during the COVID-19 pandemic with about 40% of the COVID-19 related deaths connected to nursing home residents.<sup>3</sup>

Medical learners and older adults both lost a sense of community during the COVID-19 pandemic. Learners were cut off from their hospital rotations and in person academic supports, while older adults in facilities lost visitation and social mealtimes or activities. Therefore, the pandemic created a unique opportunity for these 2 groups to support each other in ways that had not been explored previously. This was the natural conclusion of multiple student and community groups around the country who created small initiatives such as regular telephone calls or greeting cards to isolated seniors.<sup>16,23,29</sup> Beyond the mutual social benefit of these programs, the students also were exposed to the unique and critical learning opportunities that geriatric patients present especially as it relates to the importance of the bio-psycho-social aspects of health care.<sup>30,31</sup> These patients are medically complex, have extensive social influences, and unique living situations that are vital considerations in geriatric care, yet not explored as thoroughly in routine medical education.

MD/PA trainees yearn to continue to learn and to help. The combined needs of students and nursing home residents and staff during the pandemic have led to unique new opportunities for NH education that will remain valuable methods for education in the years to come. Future efforts in NH medical education at our institution will include components of the service-learning opportunities that came out of this pandemic. Additionally, expansions of some of the piloted projects presented here have already begun.

## Acknowledgements

Our immense gratitude goes to the students who volunteered to help nursing home residents. We also are so thankful for the caregivers and facility staff who worked with us to make these volunteer efforts possible. Many thanks to Dr. Alfred Fisher for his support and for reviewing the manuscript.

## Author Contributions

NM and CF were involved in development of volunteer programs, volunteer recruitment and coordination, distribution of surveys, and drafting the article and final approval. SF was involved in seeking out service-learning opportunities for students, drafting the article, and administrative oversight.

## Supplemental Material

Supplemental material for this article is available online.

## REFERENCES

1. Meiboom AA, de Vries H, Scheele F, Hertogh CMPM. Raising enthusiasm for the medical care of elderly patients: a concept mapping study to find elements for an elderly friendly medical curriculum. *BMC Med Educ.* 2018;18:238.
2. Abrams HR, Loomer L, Gandhi A, Grabowski DC. Characteristics of U. S. nursing homes with COVID-19 cases. *J Am Geriatr Soc.* 2020;68:1653-1656.
3. Panagiotou OA, Kosar CM, White EM, et al. Risk factors associated with all-cause 30-day mortality in nursing home residents with COVID-19. *JAMA Intern Med.* Published online January 4, 2021. doi:10.1001/jamainternmed.2020.7968
4. Kalet AL, Jotterand F, Muntz M, Thapa B, Campbell B. Hearing the call of duty: what we must do to allow medical students to respond to the COVID-19 pandemic. *WMJ.* 2020;119:6-7.
5. Miller DG, Pierson L, Doernberg S. The role of medical students during the COVID-19 pandemic. *Ann Intern Med.* 2020;173:145-146.
6. D'Adamo H, Yoshikawa T, Ouslander JG. Coronavirus disease 2019 in geriatrics and long-term care: the ABCDs of COVID-19. *J Am Geriatr Soc.* 2020;68:912-917.
7. Iaboni A, Cockburn A, Marcil M, et al. Achieving safe, effective, and compassionate quarantine or isolation of older adults with dementia in nursing homes. *Am J Geriatr Psychiatry.* 2020;28:835-838.
8. Simard J, Volicer L. Loneliness and isolation in long-term care and the COVID-19 pandemic. *J Am Med Dir Assoc.* 2020;21:966-967.
9. Brooke J, Jackson D. Older people and COVID-19: isolation, risk and ageism. *J Clin Nurs.* 2020;29:2044-2046.
10. Rajamohan S, Porock D, Chang YP. Understanding the relationship between staff and job satisfaction, stress, turnover, and staff outcomes in the person-centered care nursing home arena. *J Nurs Scholarsh.* 2019;51:560-568.
11. Cohen-Mansfield J. Turnover among nursing home staff. A review. *Nurs Manage.* 1997;28:59-62, 64.
12. Denny-Brown N, Stone D, Hays B, Gallagher D. *Covid-19 intensifies nursing home workforce challenges.* U.S. Department of Health and Human Services Assistant Secretary for Planning and Evaluation Behavioral Health, Disability, and Aging Policy; 2020.
13. Gerst-Emerson K, Jayawardhana J. Loneliness as a public health issue: the impact of loneliness on health care utilization among older adults. *Am J Public Health.* 2015;105:1013-1019.
14. Chandratte S. Medical students and COVID-19: challenges and supportive strategies. *J Med Educ Curric Dev.* 2020;7:1-2.
15. Anderson D, Prioleau P, Taku K, et al. Post-traumatic stress and growth among medical student volunteers after the march 2011 disaster in Fukushima, Japan: implications for student involvement with future disasters. *Psychiatr Q.* 2016;87:241-251.
16. Balch B, Zelaya L. *WATCH: medical students rally to connect with isolated seniors during the pandemic.* Community Engagement, Wellness, AAMC. Published December 22, 2020. Updated 2020. Accessed January 24, 2021. <https://www.aamc.org/news-insights/watch-medical-students-rally-connect-isolated-seniors-during-pandemic>
17. Beck J, Chretien K, Kind T. Professional identity development through service learning: a qualitative study of first-year medical students volunteering at a medical specialty camp. *Clin Pediatr (Phila).* 2015;54:1276-1282.
18. Patel J, Robbins T, Randeve H, et al. Rising to the challenge: qualitative assessment of medical student perceptions responding to the COVID-19 pandemic. *Clin Med (Lond).* 2020;20:e244-e247.
19. Institute on Aging. 8 memoir writing prompts for older adults: how to write your life story. Updated 2020. <https://blog.ioaging.org/activities-wellness/8-memoir-writing-prompts-for-older-adults-how-to-write-your-life-story/>

20. Sollitto M. Conversation starters: 20 questions to ask your elderly parents. Updated 2019. <https://www.agingcare.com/articles/questions-to-ask-elderly-parents-147907.htm>
21. Kogan JR, Shea JA. Course evaluation in medical education. *Teach Teach Educ.* 2007;23:251-264.
22. Caspi G, Chen J, Liverant-Taub S, Shina A, Caspi O. Heat maps for surveillance and prevention of COVID-19 spread in nursing homes and assisted living facilities. *J Am Med Dir Assoc.* 2020;21:986-988.e1.
23. Office EE, Rodenstein MS, Merchant TS, Pendergrast TR, Lindquist LA. Reducing social isolation of seniors during COVID-19 through medical student telephone contact. *J Am Med Dir Assoc.* 2020;21:948-950.
24. van Dyck LI, Wilkins KM, Ouellet J, Ouellet GM, Conroy ML. Combating heightened social isolation of nursing home elders: the telephone outreach in the COVID-19 outbreak program. *Am J Geriatr Psychiatry.* 2020;28:989-992.
25. Ivey JB. Somebody's grandma and grandpa. Children's responses to contacts with elders. *MCN Am J Matern Child Nurs.* 2001;26:23-27.
26. Kim J, Lee J. Intergenerational program for nursing home residents and adolescents in Korea. *J Gerontol Nurs.* 2018;44:32-41.
27. Santini S, Tombolesi V, Baschiera B, Lamura G. Intergenerational programs involving adolescents, institutionalized elderly, and older volunteers: results from a pilot research-action in Italy. *Biomed Res Int.* 2018;2018:4360305.
28. Serlachius A, Badawy SM, Thabrew H. Psychosocial challenges and opportunities for youth with chronic health conditions during the COVID-19 pandemic. *JMIR Pediatr Parent.* 2020;3:e23057.
29. Michener A, Fessler E, Gonzalez M, Miller RK. The 5 M's and more: a new geriatric medical student virtual curriculum during the COVID-19 pandemic. *J Am Geriatr Soc.* 2020;68:E61-E63.
30. Jaini PA, Lee JS. A review of 21st century utility of a biopsychosocial model in United States medical school education. *J Lifestyle Med.* 2015;5:49-59.
31. Teo N, Yeo PS, Gao Q, et al. A bio-psycho-social approach for frailty amongst Singaporean Chinese community-dwelling older adults – evidence from the Singapore longitudinal aging study. *BMC Geriatr.* 2019;19:350.