

Geriatric Educational Interventions for Physicians Training in Non-Geriatric Specialties: A Scoping Review

En Ye Ong, BA/MBBS, FRACP, MCLinEd

Kelly J. Bower, BPhy, PhD

Louisa Ng, MBChB, MD, FAFRM

ABSTRACT

Background Physicians require the expertise to care for an increasingly aging population. A robust understanding of geriatric educational interventions is needed to improve geriatric training for physicians.

Objective To map the breadth of geriatric educational interventions for residents (in non-geriatric specialties).

Methods We used a scoping review methodology. We searched MEDLINE, Embase, EMCare, CENTRAL, ERIC, and Scopus from 2004 to September 2019 for search terms related to “educational approaches” AND “geriatric” AND “residents.” Two authors independently selected eligible studies, extracted data (categorized by educational approaches and Kirkpatrick level outcomes), and critically appraised studies using the Mixed Methods Appraisal Tool.

Results There were 63 included studies, with a total of 6976 participants. Twelve studies had comparators, including 5 randomized controlled trials. Fifty-three studies (84%) described multicomponent interventions, incorporating combinations of didactic or self-directed approaches with interactive, simulation, experiential, and/or group-based learning. Use of curricular process was explicitly reported in 34 studies (59%). Most studies met at least 4 of 5 Mixed Methods Appraisal Tool criteria. Studies commonly measured outcomes at Kirkpatrick levels 1 and 2 (reaction and learning), with 15 studies measuring performance outcomes (Kirkpatrick levels 3 and 4b). All included studies had at least one positive result.

Conclusions All educational interventions had positive outcomes; however, curriculum-informed multicomponent interventions were the most common. This scoping review demonstrates that robust methodology with comparators, longer-term designs, and use of higher-level Kirkpatrick outcome measures is possible but not commonly used. Clear direction for future research is provided.

Introduction

The increasing population of older persons, with disproportionately more complex health needs,¹ accentuates the need for physicians to become competent in the care of the older person.² While medical schools have increasingly targeted geriatric education (United States,³ Europe,⁴ and Australia⁵), research suggests that gaps still exist upon entry into residency training programs.⁶

These gaps prompted the 2010 publication of consensus minimum geriatric competencies aligned to the Accreditation Council for Graduate Medical Education (ACGME) Program Requirements for Internal Medicine.⁷ This led to more extensive development of geriatric education interventions and the incorporation of geriatric training into other specialty programs.⁶ These competencies have been

more recently encapsulated by the Geriatrics 5Ms: mind (eg, dementia, delirium, depression); medication (eg, polypharmacy, aging adverse effects); mobility (eg, falls, function); multi-morbidity (eg, complexity, chronic, age-related illness); and matters most (eg, person-specific care, goals and transitions of care).⁸

Two reviews of geriatric educational interventions specific to residents were published in the past 5 years in internal medicine⁹ (14 studies) and emergency medicine¹⁰ (9 studies) settings. They found a range of mostly multicomponent interventions, consisting of teaching approaches such as lectures, readings, web modules, simulations, clinical experiences, feedback, and group discussion. Outcomes were generally positive, with more studies measuring learner reactions (eg, satisfaction, usefulness) and learning (eg, attitudes, knowledge) than performance (eg, physician behavior, patient outcomes). Given the relatively narrow inclusion criteria of the 2 reviews (internal medicine or emergency medicine only and exclusion of noncomparative studies or those with no baseline assessments, respectively), it is difficult to determine if their findings are transferable to other settings.

DOI: <http://dx.doi.org/10.4300/JGME-D-20-01484.1>

Editor's Note: The online version of this article contains a full list of search strategies used in the study, a critical appraisal of studies using the Mixed Method Appraisal Tool, and a table of study characteristics and summary of outcomes.

As the body of research in this field continues to grow, a comprehensive analysis of current educational approaches in geriatrics is needed. This scoping review therefore aims to describe the range of educational approaches and outcomes for geriatric education for residents in non-geriatric specialties to guide educational practice and future research directions.

Methods

This study used a scoping review approach where the authors worked iteratively as a team,¹¹ using the descriptive analytical method (reinterpreting the retrieved literature under a constructivist framework) proposed by Arksey and O'Malley.¹² We followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews (PRISMA-ScR).¹³

Inclusion and Exclusion Criteria

All study designs published in English, with residents as participants, were included. Residents were defined as those who had completed their medical degree but were still undergoing postgraduate training (not in geriatric training). Acknowledging international variation in terminology, search terms broadly included interns, registrars, foundation/junior/prevocational physicians, and basic and advanced trainees. Mixed learner studies were only included when a minimum of 50% of study participants were residents. In addition, we included studies where single or multicomponent educational interventions targeted geriatric topics with educational approaches that could be classified based on a combination of the John Hopkins Continuing Medical Education conceptual model¹⁴ and the Interactive Constructive Active Passive (ICAP) framework (illustrated in TABLE 1).¹⁵ Furthermore, studies had to report outcomes classifiable by Kirkpatrick levels (TABLE 2).^{16,17}

Opinion letters and conference abstracts were excluded due to limited information. We also excluded interventions targeting topics that were not largely exclusive to geriatrics and those that were not primarily educational in nature.

Search Strategy

The following databases were searched from 2004 to September 2019: MEDLINE, Embase, EMCare, CENTRAL (Cochrane Controlled Register of Trials), ERIC, and Scopus. Related terms (including MeSH) were used to express “educational approaches” and “geriatrics” and “residents” modified for each

database (full search strategies provided as online supplementary data). Two grey literature databases were searched: OpenGrey (<http://www.opengrey.eu>) and APAIS-Health. We also hand searched reference lists.

Two reviewers (E.Y.O., L.N. or K.J.B.) independently screened titles and abstracts for inclusion based on the selection criteria. Full-text articles were then retrieved and reviewed by 2 reviewers independently (E.O., L.N. or K.J.B.) to identify studies for inclusion. Any disagreements between the 2 reviewers were resolved by discussion with the third reviewer. If multiple publications were based on the same study data, they were collated and described as a single study.

Data Charting and Synthesis

One reviewer (E.Y.O.) extracted data from all included studies, and a second reviewer (L.N. or K.J.B.) reviewed the extracted data. An iteratively optimized¹¹ data extraction form based on a Best Evidence Medical Education (BEME) coding sheet¹⁸ was used to collect the following uniform datasets:

- Study design and participants (number and type of specialty training)
- Interventions: description of educational approach(es),^{14,15,19,20} frequency, and duration; geriatric topic(s)
- Outcomes categorized by Kirkpatrick levels,^{16,17} assessment time points

Critical appraisal of each study was independently performed by 2 reviewers (E.Y.O., L.N. or K.J.B.) using the Mixed Methods Appraisal Tool.²¹ This tool can be used to appraise all study designs with criteria tailored to the type of study design (online supplementary data). Discrepancies were resolved through discussion with a third reviewer (L.N. or K.B.).

Results

Study Characteristics and Critical Appraisal

A total of 9154 citations were identified. Following the selection process (illustrated in the FIGURE), we included 63 studies^{8,22-84} (detailed in online supplementary data) with a total of 6976 participants. Most studies were from the United States (54 studies, 86%). More than half of the studies (60%) reported receiving funding, with 23 studies supported by either the Hartford or Reynolds Foundations, both US-based. There were 16 studies (25%) with > 100 participants (range 6 to 876). The majority of residents were within 3 years postgraduation. There were residents from several disciplines, including

TABLE 1
 Categorization and Description of Educational Approaches

Approaches		Description (Adapted From John Hopkins CME Model) ^a	Examples With Media ^b and ICAP Level of Cognitive Engagement ^c
John Hopkins CME Model Techniques ^a	Didactic	Presents knowledge content. Teacher determines pace.	Media: live/digital Engagement level: Passive ^{c4} Examples: Lectures, demonstrations, presentations, videos, small “group” didactic
	Self-directed	Presents knowledge content. Learner determines pace.	Media: print/digital Engagement level: Passive ^{c4} Examples: Reading written material, handouts, journal articles, reviews, evidence-based medicine, textbooks Engagement level: Constructive ^{c2} Examples: Writing essays, self-reflection
	Interactive	Presents knowledge. Requires active learner participation to answer questions and receive immediate feedback which may alter content.	Media: live/digital Engagement level: Active ^{c3} Examples: Teaching with game or audience response, programmed learning, web module requiring learner participation
	Simulation	Addresses skill, knowledge, and attitude. Provides learner with an opportunity to practically apply, integrate, or construct knowledge in a controlled situation.	Media: live/digital Engagement level: Constructive ^{c2} Examples: Simulation high- and low-fidelity, standardized patients, actor or peer role-play
	Experiential	Addresses skill, knowledge, and attitude. Provides learner with an opportunity to practically apply, integrate, or construct knowledge in a real-life situation.	Media: live/digital Engagement level: Passive ^{c4} Examples: Observership of clinical or life experience Engagement Level: Constructive ^{c2} Examples: Preceptorship, clinical experience with tasks, review, teaching, or output action
	Group-based	Addresses higher order knowledge. Facilitated, but group determines content and learning.	Media: live/digital Engagement level: Inter-constructive ^{c1} Examples: Group discussion, case based, problem-based learning, interprofessional education, mentor or peer feedback, academic detailing, community of practice
Support	System ^d	Systemic or organizational changes that facilitate improvements in patient outcomes such as: (1) physician/patient interface: information at time of clinical need to assist decision making; (2) staff-staff interface; and (3) policies/standards	Point-of-care (integrated into chart or electronic medical record as templates or prompts or direction to pertinent information), faculty development: educating faculty/senior staff to encourage and value new behaviors
	Curriculum	Curriculum is a planned educational experience with articulated (and aligned) educational objectives, educational methods, and evaluations	Curriculum development

Abbreviation: ICAP, Interactive Constructive Active Passive.

^a Approaches—educational approaches based on John Hopkins’ continuing medical education model and technique definitions in Marinopoulos and Baumann.¹⁴

^b Media—medium of delivery condensed from Marinopoulos and Baumann¹⁴: (1) Live—face to face; (2) Digital—online, e-learning, apps, programs, multimedia recordings; and (3) Print—printed material.

^c Level of cognitive engagement—based on the ICAP framework in Chi and Wylie.¹⁵

^{c1} Inter-constructive—indicates that the learner is required to collaborate and mutually build on another’s contribution to further construct knowledge.

The “I” in ICAP stands for “interactive,” but to avoid confusion we have used “inter-constructive.”

^{c2} Constructive—indicates that learner is required to construct (process and infer) new knowledge.

^{c3} Active—learner response is required to manipulate but not develop new knowledge.

^{c4} Passive—learner is not required to produce anything with the knowledge received.

^d “Reinforcing or enabling” approaches²⁰ for practice change often tackle “system or organizational” issues.¹⁹

TABLE 2
Kirkpatrick Outcome Levels

Kirkpatrick Level		Description	Examples of Outcome Tools
Reactions	Level 1a satisfaction reactions	“Liking of training”: covers learners’ views on the learning experience	Likert questionnaires, free text evaluations, essays, participation tracking, focus groups, interviews
	Level 1b utility reactions ^a	Learner’s self-assessment or judgement on usefulness, relevance, change in confidence, or “ability to perform job”	(Similar to above)
Learning	Level 2a attitudes	Change in the learner’s attitudes or perceptions	Likert questionnaires, multiple-choice questions Validated tools (eg, UCLAGAT (University of California Los Angeles’s Geriatric Attitude Test) Maxwell-Sullivan Attitude Survey)
	Level 2bi knowledge	Acquisition of concepts, procedures, and principles	Multiple-choice questions, essays Validated tools (eg, Palmore Facts on Aging, UCLA Geriatric Knowledge Test for Primary Care Residents, Geriatric Knowledge Test, Geriatric Review Syllabus)
	Level 2bii skills	Acquisition of thinking, problem-solving, psychomotor, social, professionalism skills	Objective structure clinical examinations, direct observation tools, portfolios
Performance	Level 3 behavior ^a	Transfer of learning to the workplace, measurable on-the-job performance with learners applying new knowledge and skills	Likert questionnaires (not self-assessments ¹⁷ but assessments by trained observers), clinical audits of patient charts, video recordings
	Level 4a organization results	Change in organizational practice, including wider changes in the organization or delivery of care	Policy or protocol changes
	Level 4b patient results	Benefits to patients: change in the health and well-being of patients	Clinical audits of patient charts, outcome data (length of stay, discharge destination, morbidity, mortality)

Note: Updated from a Best Evidence Medical Education Collaboration article from Yardley and Dornan¹⁶ and a meta-analysis of Kirkpatrick outcomes from Alliger et al.¹⁷

^a Alliger et al¹⁷ specifies and differentiates self-assessments (including self-assessment of improvement in behavior outcomes) as Level 1b separate to actual observations of improvement in behavior (Level 3).

internal medicine (in 30 studies, 48%), family medicine (in 15 studies, 24%), surgery (in 12 studies, 19%), and emergency medicine (in 9 studies, 11%).

Studies were critically appraised using the Mixed Methods Appraisal Tool (online supplementary data); 58 (92% of studies) met at least 4 of the 5 criteria. The most common study design was quantitative (52 studies, 83%). There were 12 studies with controls or comparators,^{8,31,34,41,46,53,54,65,67,71,79,82} including 5 randomized controlled trials (RCTs).^{34,46,53,79,82} For outcome measurements, 22 studies (35%) had response rates of >80%, and 20 studies (32%) had both immediate and longer-term measurements. Validated outcome tool use (see TABLE 2 and online supplementary data) was reported in 21 studies (33%).

Interventions

Interventions with a single educational approach were uncommon (10 studies, 16%). These were a lecture,⁷⁵ video,⁴³ readings,^{36,73} e-learning,^{34,55,79} role-play,⁸⁴ a hiking experience,⁷⁸ and group case discussion.⁶³ The rest (53 studies, 84%) had multicomponent interventions with different combinations of didactic (39 of 53 studies, 62%), self-directed (22 of 53, 35%), interactive (16 of 53, 25%), simulation (10 of 53, 16%), experiential (31 of 53, 49%), and group-based (40 of 53, 63%) educational approaches (provided as online supplementary data). The most common combination included passive (didactic or self-directed), practical constructive (simulation or experiential),

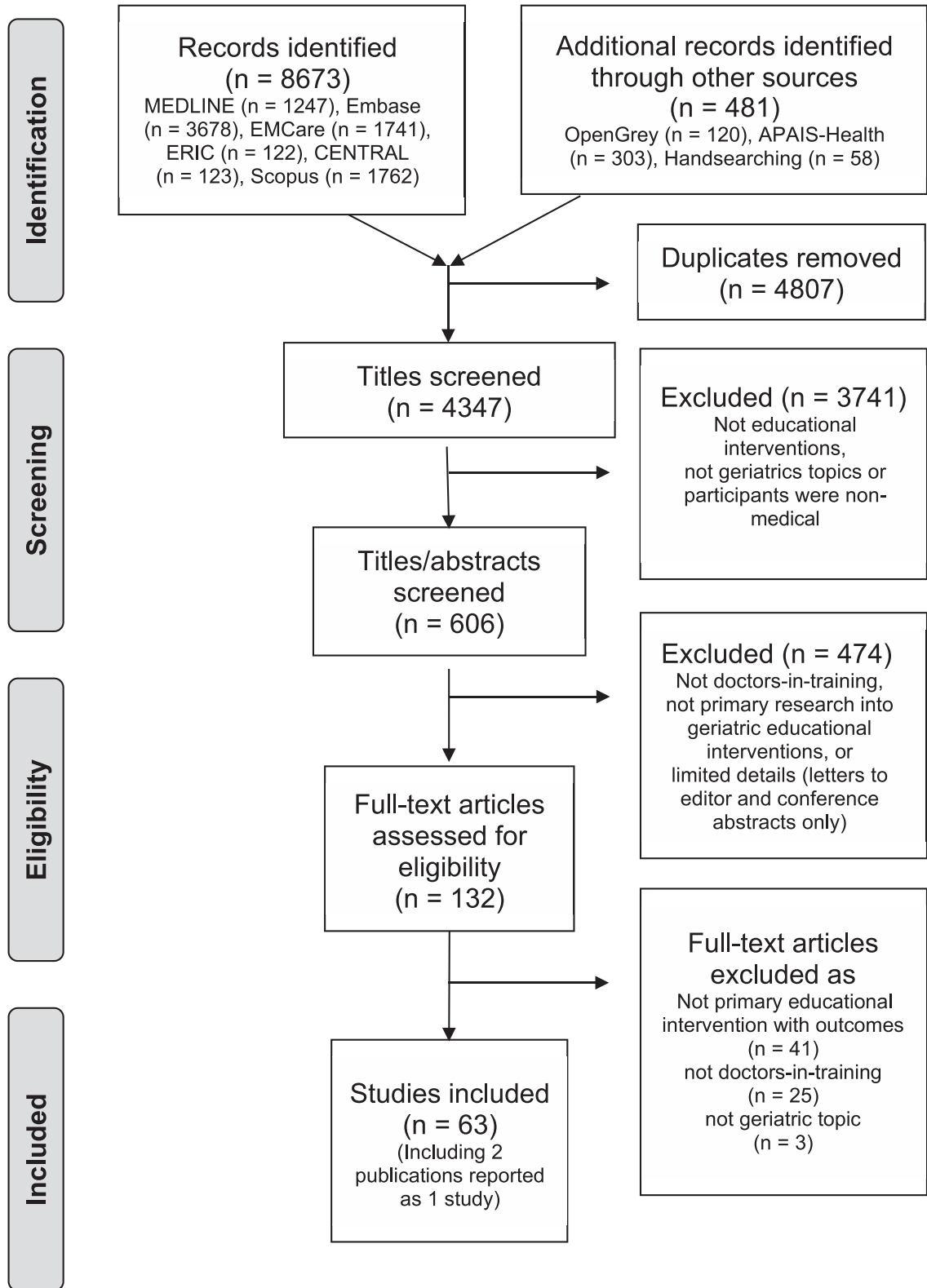


FIGURE
PRISMA Flowchart

and group collaborative learning (14 studies, 23%).^{23,24,28,31,32,37,38,51,57,59,62,65,67,69} One example combined a perioperative ward experience with didactic teaching and group debriefing.⁶⁷ The next most common combinations were passive approaches combined with either group learning (9 studies, 15%)^{22,27,40,42,45,49,50,58,82} or with practical constructive approaches (8 studies, 13%).^{25,26,35,56,66,70,72,81} Use of curriculum was explicitly reported in 37 studies (59%). Four studies included a system approach: one utilized point-of-care,⁶⁸ 2 had faculty development,^{24,52} and 1 had both.²⁸ Of all the educational approaches used, 78% were live (face-to-face), 11% were digital (e-learning, online, mobile app, computer-based recordings), and 11% were print media.

Interventions were block (one-off or clustered), periodic (intermittent engagement spread out once a week/month), or at the learner's discretion (eg, readings,^{36,73} videos⁴³). Block or one-off interventions (37 studies, 59%) included a 30-minute lecture,³³ 2-day workshops,^{42,50} a 30-hour role-play with feedback,⁸⁴ and a 4-week inpatient experience.^{47,80} Periodic interventions (22 studies, 35%) ranged from 24 hours of web-based learning over 6 weeks,⁶¹ to outpatient exposure for 1 hour per month over a year,^{26,27} to a whole day per week for 12 weeks.⁴¹

Forty-four studies (70%) covered more than one geriatric topic (range 1–14) with the most common topics being: cognition, medication management, falls, and functional assessment. The other 19 studies covered a range of single topics, with the most common being medication management (4 studies), cognition (3 studies), and transitions of care (3 studies).

Outcomes

A wide variety of tools were used to measure outcomes across the Kirkpatrick hierarchy, including surveys (Likert questionnaires, free-text evaluations), assessments (multiple-choice questions), essays, objective structured clinical examinations (OSCEs), video recordings, chart audits, interviews, and focus groups. All studies reported at least one positive outcome, and 46 (73%) studies reported positive outcomes across every measure used. Of the 47 studies (75%) that analyzed for statistical significance, 44 had at least one, and 35 had statistically significant improvements across all measures (TABLE provided as online supplementary data).

Across all studies (TABLE provided as online supplementary data), reaction outcomes (Kirkpatrick Level 1) were the most commonly measured (52 studies, 83%), with 26% of studies exclusively

measuring these. Outcomes were generally positive: 35 of 38 studies were positive for satisfaction (Level 1a) and 35 of 36 for utility reactions (Level 1b) such as confidence and self-assessments. Self-assessment (Level 1b) overestimated actual OSCE results (Level 2bii)⁴⁷ and video-recorded behavior (Level 3).⁷² For attitude (Level 2a) outcomes, only 5 of 12 studies showed statistically significant improvements without notable differences in study approaches or duration. For knowledge (Level 2bi), 27 of 31 found statistically significant improvement. For skills (Level 2bii), 6 of 7 reported positive findings. One study found no correlation between knowledge (measured through multiple-choice questions) and skills (measured with standardized patients).³⁶

Performance outcomes (Kirkpatrick levels 3–4) were measured by 15 studies (24%). For behavior outcomes (Level 3), 4 of 6 studies had positive findings: 3 were curriculum-guided clinic experiences complemented by lectures,^{31,72} role-play,⁷² research projects, journal clubs,³¹ or electronic medical record (EMR) prompts,⁶⁸ while librarian-driven geriatric case-based discussions resulted in a 14-fold increase in geriatric consultations.⁶³ For patient outcomes (Level 4b), 8 of 10 studies had positive findings.^{28,39,54,71,75,79,80} They were mostly curriculum-guided,^{28,54,71,75,79,80} investigating either lectures,^{39,75} cue cards,³⁹ e-learning,⁷⁹ or experiential approaches^{28,46,54,71,80} complemented by lectures,⁸⁰ readings,⁴⁶ e-learning,^{46,80} role-plays⁷¹ or academic detailing,²⁸ group discussion,^{54,71,75} or electronic prompting and faculty development.²⁸ Of these, Mecca et al⁵⁴ found that focused interprofessional group discussions prior to clinic resulted in medication reductions in 85% of clinic patients (Level 4b), while Caton et al²⁸ found that academic detailing by geriatricians, lectures, and cue cards, reinforced by electronic prompting and faculty development, was effective in increasing the falls risk screening completion of clinic patients to 92% (Level 4b). The positive findings resulted in electronic prompting being “permanently embedded into EMR.”²⁸ In contrast, a multicomponent clinic experience with lectures and e-learning by Chang et al³⁰ reported improvements in knowledge (Level 2bi) immediately post-intervention but noted a statistically significant decline in documentation audit (Level 4b) 6 months post-intervention, postulated to be due to “training, system, and culture.” Notwithstanding the small number of studies (n = 2),^{28,68} all studies with electronic prompting (point-of-care system approach) were associated with positive changes in performance (Levels 3 and 4b) outcomes.

There were 5 RCTs identified in this review. Three RCTs compared academic detailing (one-on-one teaching on cognition, continence, malnutrition, and capacity),⁸² e-learning (cognition, mental health, falls,

and continence),⁷⁹ and a mobile device app (geriatric tools and scales),⁵³ respectively, with reading material as their control.^{53,79,82} One cluster RCT investigated a clinic performance improvement audit project in falls or goals of care (with e-learning and reading in both arms).⁴⁶ One RCT compared medication e-learning with usual practice.³⁴ All found statistically significant improvement in Level 2bi (knowledge) immediately,^{53,79} at 3³⁴ and 7 months.⁸² Three studies performed documentation audits (Level 4b).^{46,53,79} The geriatric tool app did not find statistically significant improvement (author reported poor uptake of the app),⁵³ while the clinic performance improvement project found a statistical significant improvement.⁴⁶ The e-learning study had a statistical significant improvement compared to printed material control in 1 of the 7 modules; however, a corresponding decline in the knowledge post-test for this same module for the controls suggested possible content issues.⁷⁹

Discussion

This scoping review of geriatric education for residents included 63 studies with a broad range of educational interventions (typically multicomponent) and geriatric topics. Irrespective of study intervention or topic, interventions were found to improve measures of satisfaction and utility reactions (Kirkpatrick levels 1a and 1b) and knowledge (Kirkpatrick Level 2b), but there were mixed findings for attitudes (Kirkpatrick Level 2a) and performance (Kirkpatrick levels 3 and 4). Five studies were RCTs demonstrating that more cognitively engaging interventions¹⁵ that used e-learning, mobile device apps, academic detailing, and performance improvement audit projects were more effective than interventions that used reading materials or other more traditional methods.

These positive results were comparable to previous medical education reviews,^{9,10,85} and there were a number of factors that likely contributed to these findings. Multicomponent interventions were common and typically combined “knowledge transfer” (didactic teaching, self-directed pre-reading) with subsequent opportunities for “practical application” (simulation or experiential approaches) and/or “collaboration” (group-based learning). These interventions therefore were likely to synergistically leverage the inherent theoretical advantages of each approach.^{85,86} In particular, experiential learning allows for application of learning into real-world settings with exposure to role-modeling of good patient care,⁸⁷⁻⁹⁰ and group-based learning allows a collaborative deepening of learning through reflection,

feedback, and social engagement.^{87,88,91} In addition, more than 50% of studies reported utilizing a curricular process, which can optimize interventions by including needs analysis, setting objectives, designing congruent educational approaches, and evaluation following implementation (eg, Kern’s 6-step method).⁹² Finally, around 30% of studies spaced learning over an extended period, potentially aiding retention of knowledge.^{85,93}

Our included studies predominantly measured lower Kirkpatrick levels (reactions and learning). While some may question the usefulness of these, satisfaction reactions (Level 1a) do provide an indication of engagement and enjoyment of learning and can be a useful way for educators to demonstrate value to learners. Self-assessed behavior change was classified as a utility reaction (Level 1b)¹⁷ as it may not reflect prospective behavior change (Level 3). Less than half of the included studies found improvements in attitudes (Level 2a), which may reflect limitations of available measurement tools⁹⁴ and the possible ineffectiveness of hospital-based, short-term, empathically limited educational interventions.^{10,95} Improvements in knowledge (Level 2bi) should be interpreted with caution in terms of reliability given the measurement methods (eg, small numbers of multiple-choice questions or same question sets pre- and post-intervention).^{9,10,85} Similar to prior medical education literature,^{17,85} we found no evidence that lower Kirkpatrick measures predicted higher-level outcomes (behavior and patient results), which are arguably more important yet challenging to evaluate and improve. Prior medical education literature has similarly found that “reinforcing or enabling constructs”^{20,96} utilizing system or organizational change theory⁹⁷ approaches in the workplace improve these performance outcomes.^{19,88} Examples from our review included: (1) developing faculty or supervisors to support new clinical practice^{28,52}; (2) presenting relevant and timely knowledge (even passive lectures alone⁷⁵ or with cue cards³⁹), prompts, and templates (eg, via EMR) at the point-of-care^{28,68}; or (3) new clinical protocols to embed new practice into organizational culture.²⁸

Limitations

Results should be interpreted in the context of common methodological weaknesses across the included studies despite the relatively high Mixed Methods Appraisal Tool ratings (eg, lack of controls or blinding, small sample sizes, short-term durations, non-validated outcome tools, and no effect sizes). Interpretation should also consider publication bias, the Hawthorne effect, and the relationships between learner, teacher, and investigator. Participants were

predominantly internal medicine residents, which may limit transferability of findings. Heterogeneity in study design and the lack of direct comparisons meant we could not determine if one particular approach was most effective. Conversely, the largely positive results and lack of negative studies limited the identification of ineffective approaches.

Recommendations for Best Practice

Our recommendations are based on approaches that have been most used and findings from higher quality trials. Implications for educators include: (1) using curricular processes in developing educational programs, incorporating needs analysis, aligned objectives, and program evaluation (including learner reactions) in the local context; (2) multicomponent programs to harness the synergies of the different approaches for maximizing learning, especially including experiential and/or group approaches; (3) intentionally targeting change in behavior and clinical practice (eg, incorporating system or organizational change approaches), considering relevance and timeliness in the workplace context; and (4) advocacy for policy and resourcing to broaden research and implementation of postgraduate geriatric education.

Future Research

This scoping review highlighted significant gaps in the current literature that can be researched in the future: (1) using robust methodology with adequately powered controlled trials, use of validated outcome measures, and statistical analysis for significant differences and the inclusion of effect sizes; (2) comparing different educational approaches; (3) using common frameworks to understand, define, and classify educational approaches and outcomes; (4) exploring longer-term retention of learning; (5) investigating approaches and collecting data targeting behavior and patient outcomes: considering system or organizational change theory approaches and workplace or situated learning; and (6) collecting clarification (“Why does it work?”) data to test theories underpinning learning, including confirming the findings of previous studies in different contexts.

Conclusions

All studies in this review reported positive outcomes for their interventions, with curriculum-informed multicomponent interventions being the most common. This scoping review has described a range of studies, including those which are robust, have comparators, longer-term designs, and/or positive higher-level Kirkpatrick outcomes.

References

1. United Nations. Report of the second world assembly on ageing. <https://undocs.org/A/CONF.197/9>. Accessed June 18, 2021.
2. Institute of Medicine. *Retooling for an Aging America: Building the Health Care Workforce*. Washington, DC: National Academies Press; 2008.
3. Leipzig RM, Granville L, Simpson D, Anderson MB, Sauvigné K, Soriano RP. Keeping granny safe on July 1: a consensus on minimum geriatrics competencies for graduating medical students. *Acad Med*. 2009;84(5):604–610. doi:10.1097/ACM.0b013e31819fab70
4. Masud T, Blundell A, Gordon AL, et al. European undergraduate curriculum in geriatric medicine developed using an international modified Delphi technique. *Age Ageing*. 2014;43(5):695–702. doi:10.1093/ageing/afx133
5. Naganathan V. Education and training in geriatrics for medical students. *Australasian J Ageing*. 2006;25(4):218–222.
6. Miller M, Rosenthal RA. Meeting the need for training in geriatrics: the geriatrics education for specialty residents program. *J Am Geriatr Soc*. 2017;65(10):e142–e145. doi:10.1111/jgs.14966
7. Williams BC, Warshaw G, Fabiny AR, et al. Medicine in the 21st century: recommended essential geriatrics competencies for internal medicine and family medicine residents. *J Grad Med Educ*. 2010;2(3):373–383. doi:10.4300/JGME-D-10-00065.1
8. Phillips SC, Hawley CE, Triantafylidis LK, Schwartz AW. Geriatrics 5Ms for primary care workshop. *MedEdPORTAL*. 2019;15:10814. doi:10.15766/mep_2374-8265.10814
9. Cheng HY, Davis M. Geriatrics curricula for internal and family medicine residents: assessing study quality and learning outcomes. *J Grad Med Educ*. 2017;9(1):33–45. doi:10.4300/JGME-D-16-00037.1
10. Hesselink G, Demirbas M, Rikkert MO, Schoon Y. Geriatric education programs for emergency department professionals: a systematic review. *J Am Geriatr Soc*. 2019;67(11):2402–2409. doi:10.1111/jgs.16067
11. Thomas A, Lubarsky S, Varpio L, Durning SJ, Young ME. Scoping reviews in health professions education: challenges, considerations and lessons learned about epistemology and methodology. *Adv Health Sci Educ Theory Pract*. 2020;25(4):989–1002. doi:10.1007/s10459-019-09932-2
12. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Method*. 2005;8(1):19–32. doi:10.1080/1364557032000119616
13. Tricco AC, Lillie E, Zarin W, et al. PRISMA extension for scoping reviews (PRISMA-ScR): checklist and

- explanation. *Ann Intern Med.* 2018;169(7):467–473. doi:10.7326/M18-0850
14. Marinopoulos SS, Baumann MH. Methods and definition of terms: effectiveness of continuing medical education: American College of Chest Physicians evidence-based educational guidelines. *Chest.* 2009;135(suppl 3):17–28. doi:10.1378/chest.08-2514
 15. Chi MTH, Wylie R. The ICAP framework: linking cognitive engagement to active learning outcomes. *Educ Psychol.* 2014;49(4):219–243. doi:10.1080/00461520.2014.965823
 16. Yardley S, Dornan T. Kirkpatrick's levels and education "evidence". *Med Educ.* 2012;46(1):97–106. doi:10.1111/j.1365-2923.2011.04076.x
 17. Alliger GM, Tannenbaum SI, Bennett Jr W, Traver H, Shotland A. A meta-analysis of the relations among training criteria. *Pers Psychol.* 1997;50(2):341–358. doi:10.1111/j.1744-6570.1997.tb00911.x
 18. Reinders ME, Ryan BL, Blankenstein AH, Van Der Horst HE, Stewart MA, Van Marwijk HWJ. The effect of patient feedback on physicians' consultation skills: a systematic review. *Acad Med.* 2011;86(11):1426–1436. doi:10.1097/ACM.0b013e3182312162
 19. Price DW, Miller EK, Rahm AK, Brace NE, Larson SR. Assessment of barriers to changing practice as CME outcomes. *J Contin Educ Health Prof.* 2010;30(4):237–245. doi:10.1002/chp.20088
 20. Davis DA, Thomson MA, Oxman AD, Haynes RB. Evidence for the effectiveness of CME: a review of 50 randomized controlled trials. *JAMA.* 1992;268(9):1111–1117.
 21. Hong QN, Pluye P, Fàbregues S, et al. Mixed Methods Appraisal Tool (MMAT), version 2018. http://mixedmethodsappraisaltoolpublic.pbworks.com/w/file/fetch/127916259/MMAT_2018_criteria-manual_2018-08-01_ENG.pdf. Accessed June 24, 2021.
 22. Abdulla A. Journal clubs as teaching tools for geriatric medicine: an investigative study. *Gerontol Geriatr Med.* 2016;2:2333721416653036. doi:10.1177/2333721416653036
 23. Ahmed NN, Farnie M, Dyer CB. The effect of geriatric and palliative medicine education on the knowledge and attitudes of internal medicine residents. *J Am Geriatr Soc.* 2011;59(1):143–147. doi:10.1111/j.1532-5415.2010.03235.x
 24. Allen SL, Davis KS, Rousseau PC, Iverson PJ, Mauldin PD, Moran WP. Advanced care directives: overcoming the obstacles. *J Grad Med Educ.* 2015;7(1):91–94. doi:10.4300/JGME-D-14-00145.1
 25. Barbas AS, Haney JC, Henry BV, Heflin MT, Lagoo SA. Development and implementation of a formalized geriatric surgery curriculum for general surgery residents. *Gerontol Geriatr Educ.* 2014;35(4):380–394. doi:10.1080/02701960.2013.879444
 26. Baum EE, Nelson KM. The effect of a 12-month longitudinal long-term care rotation on knowledge and attitudes of internal medicine residents about geriatrics. *J Am Med Dir Assoc.* 2007;8(2):105–109. doi:10.1016/j.jamda.2006.05.009
 27. Bennett KA, Ong T, Verrall AM, Vitiello MV, Marcum ZA, Phelan EA. Project ECHO-geriatrics: training future primary care providers to meet the needs of older adults. *J Grad Med Educ.* 2018;10(3):311–315. doi:10.4300/JGME-D-17-01022.1
 28. Caton C, Wiley MK, Zhao Y, Moran WP, Zapka J. Improving internal medicine residents' falls assessment and evaluation: an interdisciplinary, multistrategy program. *J Am Geriatr Soc.* 2011;59(10):1941–1946. doi:10.1111/j.1532-5415.2011.03555.x
 29. Chang C, Callahan EH, Hung WW, Thomas DC, Leipzig RM, DeCherrie LV. A model for integrating the assessment and management of geriatric syndromes into internal medicine continuity practice: 5-year report. *Gerontol Geriatr Educ.* 2017;38(3):271–282. doi:10.1080/02701960.2015.1031897
 30. Chang C, Hung WW, Bhatia S, et al. Teaching geriatric concepts in internal medicine residency continuity clinic did not affect practice. *J Am Geriatr Soc.* 2018;66(2):420–421. doi:10.1111/jgs.15152
 31. Charles L, Triscott J, Dobbs B, Parmar J, Tian PG, Babenko O. Effectiveness of a core-competency-based program on residents' learning and experience. *Can Geriatr J.* 2016;19(2):50–57. doi:10.5770/cgj.19.213
 32. Cook S, Brauner D, Baron A, Sachs G. Improving medical care of persons with Alzheimer's disease through clinical teaching: the IMPACT program. *Gerontol Geriatr Educ.* 2004;24(3):9–21. doi:10.1300/J021v24n03_02
 33. Cooper C, Huzzey L, Livingston G. The effect of an educational intervention on junior doctors' knowledge and practice in detecting and managing elder abuse. *Int Psychogeriatr.* 2012;24(9):1447–1453. doi:10.1017/S1041610212000403
 34. Cullinan S, O'Mahony D, Byrne S. Use of an e-learning educational module to better equip doctors to prescribe for older patients: a randomised controlled trial. *Drugs Aging.* 2017;34(5):367–374. doi:10.1007/s40266-017-0451-0
 35. DeCaporale-Ryan LN, Cornell A, McCann RM, McCormick K, Speice J. Hospital to home: a geriatric educational program on effective discharge planning. *Gerontol Geriatr Educ.* 2014;35(4):369–379. doi:10.1080/02701960.2013.858332
 36. Duane TM, Fan L, Bohannon A, et al. Geriatric education for surgical residents: identifying a major need. *Am Surg.* 2011;77(7):826–831.
 37. Duckett A, Cuoco T, Pride P, et al. Academic detailing to teach aging and geriatrics. *Gerontol Geriatr Educ.*

- 2015;36(4):331–342. doi:10.1080/02701960.2014.918037
38. Dull Baird A, Wickie S, MacNeill S, Friedman SR, Smith JF. Introducing residents to geroneuropsychology in one day: an enriched curriculum. *Neuropsychiatr Dis Treat.* 2006;2(1):101–104.
 39. Dwivedi S, Edukulla J, Rajendra S, et al. Educational intervention can improve appropriateness of acid suppression therapy in hospitalized geriatric patients. *J Community Hosp Intern Med Perspect.* 2019;9(1):5–8. doi:10.1080/20009666.2019.1571881
 40. Famakinwa A, Fabiny A. Assessing and managing caregiver stress: development of a teaching tool for medical residents. *Gerontol Geriatr Educ.* 2008;29(1):52–65. doi:10.1080/02701960802074289
 41. Faulk CE, Lee TJ, Musick D. Implementing a multidimensional geriatric curriculum in a physical medicine and rehabilitation residency program. *Am J Phys Med Rehabil.* 2012;91(10):883–889. doi:10.1097/PHM.0b013e318264408f
 42. Ford CR, Loyd C, Rothrock AG, Johnson Li TM, Allman RM, Brown CJ. Development and evolution of a two-day intensive resident experience in geriatric medicine. *Gerontol Geriatr Educ.* 2021;42(1):24–37. doi:10.1080/02701960.2019.1587753
 43. Garside MJ, Fisher JM, Blundell AG, Gordon AL. The development and evaluation of mini-gems—short, focused, online e-learning videos in geriatric medicine. *Gerontol Geriatr Educ.* 2018;39(2):132–143. doi:10.1080/02701960.2016.1165217
 44. Hayashi J, Christmas C, Durso SC. Educational outcomes from a novel house call curriculum for internal medicine residents: report of a 3-year experience. *J Am Geriatr Soc.* 2011;59(7):1340–1349. doi:10.1111/j.1532-5415.2011.03471.x
 45. Hogan TM, Hansoti B, Chan SB. Assessing knowledge base on geriatric competencies for emergency medicine residents. *West J Emerg Med.* 2014;15(4):409–413. doi:10.5811/westjem.2014.2.18896
 46. Holmboe ES, Hess BJ, Conforti LN, Lynn LA. Comparative trial of a web-based tool to improve the quality of care provided to older adults in residency clinics: modest success and a tough road ahead. *Acad Med.* 2012;87(5):627–634. doi:10.1097/ACM.0b013e31824cecb3
 47. Karani R, Leipzig RM, Callahan EH, Thomas DC. An unfolding case with a linked objective structured clinical examination (OSCE): a curriculum in inpatient geriatric medicine. *J Am Geriatr Soc.* 2004;52(7):1191–1198. doi:10.1111/j.1532-5415.2004.52321.x
 48. Kostas T, Zimmerman K, Salow M, et al. Improving medication management competency of clinical trainees in geriatrics. *J Am Geriatr Soc.* 2014;62(8):1568–1574. doi:10.1111/jgs.12933
 49. Levine SA, Chao SH, Brett B, et al. Chief resident immersion training in the care of older adults: an innovative interspecialty education and leadership intervention. *J Am Geriatr Soc.* 2008;56(6):1140–1145. doi:10.1111/j.1532-5415.2008.01710.x
 50. Levine SA, Chao SH, Caruso LB, et al. Chief resident immersion training in the care of older adults: a successful national replication of an interspecialty educational intervention. *Acad Med.* 2018;93(9):1341–1347. doi:10.1097/ACM.0000000000002311
 51. Maurer MS, Costley AW, Miller PA, et al. The Columbia cooperative aging program: an interdisciplinary and interdepartmental approach to geriatric education for medical interns. *J Am Geriatr Soc.* 2006;54(3):520–526. doi:10.1111/j.1532-5415.2005.00616.x
 52. McCrystle SW, Murray LM, Pinheiro SO. Designing a learner-centered geriatrics curriculum for multilevel medical learners. *J Am Geriatr Soc.* 2010;58(1):142–151. doi:10.1111/j.1532-5415.2009.02663.x
 53. McLeod TG, McNaughton DA, Hanson GJ, Cha SS. Educational effectiveness of a personal digital assistant-based geriatric assessment tool. *Med Teach.* 2009;31(5):409–414. doi:10.1080/01421590802216241
 54. Mecca MC, Thomas JM, Niehoff KM, et al. Assessing an interprofessional polypharmacy and deprescribing educational intervention for primary care post-graduate trainees: a quantitative and qualitative evaluation. *J Gen Intern Med.* 2019;34(7):1220–1227. doi:10.1007/s11606-019-04932-9
 55. Meuser TM, Carr DB, Berg-Weger M, Irmeter C, Peters KE, Schwartzberg JG. The instructional impact of the American Medical Association’s older drivers project online curriculum. *Gerontol Geriatr Educ.* 2014;35(1):64–85. doi:10.1080/02701960.2013.823603
 56. Miller RK, Michener J, Yang P, et al. Effect of a community-based service learning experience in geriatrics on internal medicine residents and community participants. *J Am Geriatr Soc.* 2017;65(9):e130–e134. doi:10.1111/jgs.14968
 57. Miller RK, Keddem S, Katz S, et al. Intern transitions of care curriculum through posthospital home and skilled nursing facility visits. *J Grad Med Educ.* 2018;10(4):442–448. doi:10.4300/JGME-17-00499.1
 58. Mohler MJ, O’Neill L, D’Huyvetter K, et al. Supporting the triple aim: interprofessional chief resident in training program. *J Am Geriatr Soc.* 2013;61(10):1839–1840. doi:10.1111/jgs.12460
 59. Moriarty JP, Wu BJ, Blake E, et al. Assessing resident attitudes and confidence after integrating geriatric education into a primary care resident clinic. *Am J Med.*

- 2018;131(6):709–713. doi:10.1016/j.amjmed.2018.03.001
60. Oliver D, Emili A, Chan D, Taniguchi A. Education in long-term care for family medicine residents: description of an integrated program. *Can Fam Physician*. 2011;57(8):e288–e291.
 61. Ozturk E, van Iersel M, van Loon K, et al. Interactive online learning on perioperative management of elderly patients. *Am J Surg*. 2018;216(3):624–629. doi:10.1016/j.amjsurg.2018.01.071
 62. Pavon JM, Pinheiro SO, Buhr GT. Resident learning across the full range of core competencies through a transitions of care curriculum. *Gerontol Geriatr Educ*. 2018;39(2):144–159. doi:10.1080/02701960.2016.1247066
 63. Powers JS, Cahall M, Epelbaum M, Habermann R, Rosenstiel D, Giuse N. Incorporating evidence into clinical teaching: enhanced geriatrics specialty case-based residency presentations. *J Grad Med Educ*. 2012;4(1):83–86. doi:10.4300/JGME-D-11-00056.1
 64. Prendergast HM, Jurivich D, Edison M, Bunney EB, Williams J, Schlichting A. Preparing the front line for the increase in the aging population: geriatric curriculum development for an emergency medicine residency program. *J Emerg Med*. 2010;38(3):386–392. doi:10.1016/j.jemermed.2008.05.003
 65. Prorok JC, Stolee P, Cooke M, McAiney CA, Lee L. Evaluation of a dementia education program for family medicine residents. *Can Geriatr J*. 2015;18(2):57–64. doi:10.5770/cgi.18.148
 66. Roberts L, Cornell C, Bostrom M, et al. Communication skills training for surgical residents: learning to relate to the needs of older adults. *J Surg Educ*. 2018;75(5):1180–1187. doi:10.1016/j.jsurg.2018.02.005
 67. Rogerson A, Partridge JSL, Dhesei JK. A foundation programme educational placement in peri-operative medicine for older people: mixed methods evaluation. *Anaesthesia*. 2018;73(11):1392–1399. doi:10.1111/anae.14410
 68. Saffel-Shrier S, Gunning K, van Hala S, et al. Residency redesign to accommodate trends in geriatrics: an RC-FM variance to establish a patient-centered medical home in an assisted living facility. *Fam Med*. 2012;44(2):128–131.
 69. Schlaudecker JD, Lewis TJ, Moore I, et al. Teaching resident physicians chronic disease management: simulating a 10-year longitudinal clinical experience with a standardized dementia patient and caregiver. *J Grad Med Educ*. 2013;5(3):468–475. doi:10.4300/JGME-D-12-00247.1
 70. Schoenborn NL, Christmas C. Getting out of silos: an innovative transitional care curriculum for internal medicine residents through experiential interdisciplinary learning. *J Grad Med Educ*. 2013;5(4):681–685. doi:10.4300/JGME-D-12-00316.1
 71. Schoenborn NL, Boyd C, Cayea D, et al. Incorporating prognosis in the care of older adults with multimorbidity: description and evaluation of a novel curriculum. *BMC Med Educ*. 2015;15:215. doi:10.1186/s12909-015-0488-x
 72. Schoenborn NL, Cayea D, McNabney M, Ray A, Boyd C. Prognosis communication with older patients with multimorbidity: assessment after an educational intervention. *Gerontol Geriatr Educ*. 2017;38(4):471–481. doi:10.1080/02701960.2015.1115983
 73. Siebens H, Tucker J, Leander K. Use of geriatrics at your fingertips, a pocket guide, to educate psychiatrists in geriatric care. *Arch Phys Med Rehabil*. 2004;85(9):1552–1554. doi:10.1016/j.apmr.2003.09.015
 74. Thomas NA, Van Enkevort E, Garrett RK, Camp MME. Geriatric psychiatry inpatient primer for residents. *Acad Psychiatry*. 2019;43(6):585–589. doi:10.1007/s40596-019-01080-4
 75. Wadman MC, Lyons WL, Hoffman LH, Muelleman RL. Assessment of a chief complaint-based curriculum for resident education in geriatric emergency medicine. *West J Emerg Med*. 2011;12(4):484–488. doi:10.5811/westjem.2010.10.1722
 76. Webb TP, Duthie Jr E. Geriatrics for surgeons: infusing life into an aging subject. *J Surg Educ*. 2008;65(2):91–94. doi:10.1016/j.jsurg.2007.12.004
 77. Webb TP, Simpson D, Denson S, Duthie Jr E. Gaming used as an informal instructional technique: effects on learner knowledge and satisfaction. *J Surg Educ*. 2012;69(3):330–334. doi:10.1016/j.jsurg.2011.10.002
 78. Weiss BD, Tomasa L. Hiking on the geriatrics rotation. *Fam Med*. 2010;42(7):473–475.
 79. Westmoreland GR, Counsell SR, Tu W, Wu J, Litzelman DK. Web-based training in geriatrics for medical residents: a randomized controlled trial using standardized patients to assess outcomes. *J Am Geriatr Soc*. 2010;58(6):1163–1169. doi:10.1111/j.1532-5415.2010.02869.x
 80. Wilkerson LM, Iwata I, Wilkerson MD, Heflin MT. An educational intervention to improve internal medicine interns' awareness of hazards of hospitalization in acutely ill older adults. *J Am Geriatr Soc*. 2014;62(4):727–733. doi:10.1111/jgs.12733
 81. Williams BC, Hall KE, Supiano MA, Fitzgerald JT, Halter JB. Development of a standardized patient instructor to teach functional assessment and communication skills to medical students and house officers. *J Am Geriatr Soc*. 2006;54(9):1447–1452. doi:10.1111/j.1532-5415.2006.00857.x
 82. Wong RY, Lee PE. Teaching physicians geriatric principles: a randomized control trial on academic

- detailing plus printed materials versus printed materials only. *J Gerontol A Biol Sci Med Sci*. 2004;59(10):1036–1040. doi:10.1093/gerona/59.10.m1036
83. Young ME, Demers LB, Parker V, Day H, Chao S. Posthospital home visit as teaching tool for internal medicine residents. *Gerontol Geriatr Educ*. 2020;41(4):514–521. doi:10.1080/02701960.2018.1490736
 84. Yuasa M, Bell CL, Inaba M, et al. “You’re being paged!” Outcomes of a nursing home on-call role-playing and longitudinal curriculum. *J Am Geriatr Soc*. 2013;61(11):1976–1982. doi:10.1111/jgs.12515
 85. Steinert Y, Mann K, Centeno A, et al. A systematic review of faculty development initiatives designed to improve teaching effectiveness in medical education: BEME guide no. 8. *Med Teach*. 2006;28(6):497–526. doi:10.1080/0142159X.2016.1181851
 86. Singh I, Hubbard RE. Teaching and learning geriatric medicine. *Rev Clin Gerontol*. 2011;21(2):180–192. doi:10.1017/S0959259810000432
 87. Bandura A. *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice-Hall, Inc; 1986:94.
 88. Mann KV. Theoretical perspectives in medical education: past experience and future possibilities. *Med Educ*. 2011;45(1):60–68. doi:10.1111/j.1365-2923.2010.03757.x
 89. Kolb DA. *Experiential Learning: Experience as the Source of Learning and Development*. Englewood Cliffs, NJ: Prentice-Hall, Inc; 1984.
 90. Reeves S, Fletcher S, Barr H, et al. A BEME systematic review of the effects of interprofessional education: BEME guide no. 39. *Med Teach*. 2016;38(7):656–668. doi:10.3109/0142159X.2016.1173663
 91. Chi MT, Wylie R. The ICAP framework: linking cognitive engagement to active learning outcomes. *Educ Psychol*. 2014;49(4):219–243. doi:10.1080/00461520.2014.965823
 92. Thomas PA, Kern DE, Hughes MT, Chen BY. *Curriculum Development for Medical Education: A Six-Step Approach*. Baltimore, MA: The Johns Hopkins University Press; 2016.
 93. Custers EJ. Long-term retention of basic science knowledge: a review study. *Adv Health Sci Educ Theory Pract*. 2010;15(1):109–128. doi:10.1007/s10459-008-9101-y
 94. Wilson MAG, Kurrle S, Wilson I. Medical student attitudes towards older people: a critical review of quantitative measures. *BMC Res Notes*. 2018;11(1):71. doi:10.1186/s13104-018-3186-z
 95. Samra R, Griffiths A, Cox T, Conroy S, Knight A. Changes in medical student and doctor attitudes toward older adults after an intervention: a systematic review. *J Am Geriatr Soc*. 2013;61(7):1188–1196. doi:10.1111/jgs.12312
 96. Yanamadala M, Wieland D, Heflin MT. Educational interventions to improve recognition of delirium: a systematic review. *J Am Geriatr Soc*. 2013;61(11):1983–1993. doi:10.1111/jgs.12522
 97. Kotter J. The 8-step process for leading change. <https://www.kotterinc.com/8-steps-process-for-leading-change/>. Accessed June 25, 2021.



En Ye Ong, BA/MBBS, FRACP, MClInEd, is a Master's Student, Melbourne Medical School, University of Melbourne, and Consultant Geriatrician and Student Geriatric Education Lead, Department of Geriatric Medicine, Eastern Health, VIC, Australia; **Kelly J. Bower, BPhy, PhD**, is a Lecturer, Department of Physiotherapy, University of Melbourne, VIC, Australia; and **Louisa Ng, MBChB, MD, FAFRM**, is Deputy Director, Royal Melbourne Hospital Clinical School, Melbourne Medical School, University of Melbourne, and Supervisor, Intern Training and Rehabilitation Physicians, Department of Rehabilitation Medicine, Royal Melbourne Hospital, VIC, Australia.

Funding: The authors report no external funding source for this study.

Conflict of interest: The authors declare they have no competing interests.

This work was previously presented in poster format at the OTTAWA Conference, Lumpur, Malaysia, February 29–March 4, 2020, and the virtual Australian and New Zealand Association for Health Professional Educators Conference, July 12–15, 2020.

Corresponding author: En Ye Ong, BA/MBBS, FRACP, MClInEd, Melbourne Medical School, enye.ong@easternhealth.org.au

Received December 8, 2020; revisions received April 28, 2021, and May 31, 2021; accepted June 1, 2021.