The Portal of Geriatrics Online Education: A 21st-Century Resource for Teaching Geriatrics

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The way students are taught and evaluated is changing, with greater emphasis on flexible, individualized, learner-centered education, including the use of technology. The goal of assessment is also shifting from what students know to how they perform in practice settings. Developing educational materials for teaching in these ways is time-consuming and can be expensive. The Portal of Geriatrics Online Education (POGOe) was developed to aid educators in meeting these needs and become quicker, better-prepared teachers of geriatrics. POGOe contains more than 950 geriatrics educational materials that faculty at 45% of allopathic and 7% of osteopathic U.S. medical schools and the Centers for Geriatric Nursing Excellence have created. These materials include various instructional and assessment methodologies, including virtual and standardized patients, games, tutorials, case-based teaching, self-directed learning, and traditional lectures. Materials with common goals and resource types are available as selected educational series. Learner assessments comprise approximately 10% of the educational materials. POGOe also includes libraries of videos, images, and questions extracted from its educational materials to encourage educators to repurpose content components to create new resources and to align their teaching better with their learners' needs. Web-Geriatric Education Modules, a peer-reviewed online modular curriculum for medical students, is a prime example of this repurposing. The existence of a robust compendium of instructional and assessment materials allows educators to concentrate more on improving learner performance in practice and not simply on knowledge acquisition. It also makes it easier for nongeriatricians to teach the care of older adults in their respective disciplines. **J Am Geriatr Soc 2015.**

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The 21st century is bringing medical educators new challenges as well as incredible opportunities in preparing the next generation of physicians.[1] The need to train lifelong learners who will be able to practice competently over their 30- to 50-year careers, an understanding that students differ in learning styles and motivation for learning, and the recent explosion of educational technology have combined to spearhead a move away from lecture-based teaching toward more-independent and active learning modalities.[2,3] These opportunities for active learning and independent study are more adaptable to students' learning needs and goals,[4] including their preferences regarding delivery methods and feedback.[5,6] Students today are also adept at using digital media and appreciate the flexibility, interactivity, and immediate feedback they provide.[6,7]

At the same time, medical education is becoming more competency based, with the goal of training shifting from what students learn to how they perform in a practice setting.[8,9] Curricula are being redesigned based on specific competencies that the medical profession and the public expect; certifying bodies are increasingly requiring that trainees demonstrate proficiency in these competencies in addition to performing well in summative tests of knowledge.

For clinician–educators, this shift is occurring in concert with pressure to increase clinical productivity, further decreasing time for teaching.[1] Technology-enhanced instructional methods can be used to allow students to receive and master new knowledge outside the classroom or before clinical sessions. When students do this, their face-to-face time with faculty can be used to foster problem-solving and clinical reasoning skills development. Faculty can also provide direct observation of students with feedback to allow students "deliberate practice" to progress and demonstrate specific competencies.[1,10,11]

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Although educators may want to harness emerging technologies and leverage them to provide powerful experiences and content for their learners, developing these materials takes time, money, and skills unavailable to many faculty members.

The existence of a robust compendium of instructional and assessment materials that can be used off the shelf, modified, or repurposed allows educators to concentrate their teaching more on learner knowledge application than on knowledge acquisition, with the overarching goal of helping their students achieve competency to practice. It also aids nongeriatricians in teaching the care of the older adult in their disciplines. This is the raison d'être of the Portal of Geriatric Online Education (www.POGOe.org).

WHAT IS POGOE?

The mission of POGOe is to encourage the free exchange of teaching and assessment materials to promote geriatrics education. POGOe was developed through funding from the Donald W. Reynolds Foundation (DWRF) to organize and disseminate the educational materials that the 46 medical schools in the United States that receive grants through their Aging and Quality of Life Program have developed. POGOe has registered users from more than 100 countries, including users at 96% of U.S. allopathic and 86% of U.S. osteopathic medical schools. For the year ending June 30, 2014, there were 66,050 unique users and 99,545 unique user sessions, with an average of 5,504 users monthly, 10% of whom were new to the site. Users are a diverse group including medical students, training and attending physicians in multiple specialties and subspecialties, nursing students and nurses, and other allied health trainees and professionals.

More than 950 educational materials are posted on POGOe. Before being posted, submitted educational materials are classified and organized using the current standard vocabulary as described by MedBiquitous and the Association of American Medical Colleges with regard to the instructional methods, assessment methods, and resource types involved in education.[12] Materials are then subject to rigorous editorial review for clarity of objectives, appropriateness of instructional method, medical accuracy, and appropriateness and relevance to geriatrics education. To keep materials current, authors are required to update them every 3 years. All materials are free and subject to Creative Commons licensing (http://creativecommons.org/licenses), which provides each author or contributor a simple, standardized way to grant copyright permissions to their creative work. Most materials on POGOe can be downloaded, modified, and repurposed, as long as credit is given to the original author.

POGOe has grown to be more than just a repository of educational materials for the grantee schools. Early on, educational materials from the John A. Hartford Foundation (JAHF) Geriatrics Resources on the Web site were added. Currently, 22% of educational materials come from nongrantee institutions; the National Hartford Centers of Gerontological Nursing Excellence have created 7%; and Geriatrics Education for Specialty Residents grantees, funded by the JAHF and American Geriatrics Society (AGS), have developed eight discipline-specific toolkits for teaching in their residency programs. POGOe continues to expand its collection by soliciting educational materials from other professional and specialty organizations and collaborating with educators attending the annual meeting of Reynolds' grantees and AGS scientific meetings.

WHAT'S IN POGOE?

The core of POGOe is the collection of educational materials created by clinician–educators at 45% of allopathic and 7% of osteopathic U.S. medical schools that cover the essence of geriatric medicine for different levels of learners, including preclinical students. Users can search for specific topics or browse through sections on caring for older adults, geriatric syndromes, diseases, patient safety, care settings and models, and geriatric palliative care. POGOe contains a variety of learning resources, including games, virtual homes and virtual patients, curriculum guides, case studies, independent and self-directed learning modules, and simple cases in document and presentation formats. Learner assessments comprise approximately 10% of the educational materials—Objective Structured Clinical Examination, standardized patients, mini-Clinical Evaluation Exercises (CEXs), and other assessment tools. In addition to individual educational materials, components of some materials have been extracted to develop a video library, an image library, and a question bank (Table 1).

Some educational materials developed with common goals and objectives, generally by the same authors or institution, are grouped together for the convenience of users under "Selected Educational Series" (Table 2). The materials in each series are similar in format, cover a range of topics, and can be easily integrated in the curriculum.

HOW TO USE POGOE

Some of the ways in which educators can use POGOe are described below.

Teaching a New Topic

When asked to give a presentation or facilitate a small-group session on a geriatrics topic, educators can use ready-to-use educational materials including slide presentations, educational games, pocket cards, and summary handouts available on POGOe. These materials can be used as is, or educators can edit them, repurpose some of these materials, or mix and match to suit their audience and session objectives. For example, the University of Texas Southwestern module on urinary incontinence is a comprehensive web-based sequence of audiovisual educational material on anatomy and physiology with case studies to teach about urinary incontinence in the older adult. These modules can be used in different courses (anatomy, physiology, pharmacology) and for different levels of learners (clinical cases for third- and fourth-year students). Modules also work as clinical correlations in basic science courses.

Teaching at the Point of Care

Educators on walk rounds in the inpatient or ambulatory settings can teach important geriatrics-specific concepts "on the fly" by using some of the many quick reference or pocket card materials available on POGOe, including the

Table 1. The Portal of Geriatrics Online Education (POGOe) Resources for Educators

POGOe Resource	Description
Educational Materials Library www.pogoe.org	More than 950 educational materials for independent learning, interactive group and bedside learning with faculty guides, as well as PowerPoint presentations that can be used off the shelf or mixed and matched. Materials are tagged in six categories: Caring for the older adult Geriatric syndromes Diseases Patient safety Care settings and models Geriatric palliative care
Geriatrics competencies www.pogoe.org/geriatrics-competencies	Minimum geriatrics competencies for medical students Minimum geriatrics competencies for emergency medicine residents Minimum geriatrics competencies for internal medicine and family medicine residents Proposed geriatrics competencies for surgical specialists Geriatrics fellowship curricular milestones Geriatrics end-of-training entrustable professional activities Geropsychiatric nursing competency enhancements Multidisciplinary competencies for individuals earning entry-level health professional degrees
Geriatrics wizard www.pogoe.org/gwiz	Easy-to-use drop-down tool that matches the best POGOe educational materials to the 26 minimum geriatrics competencies for medical students. Allows educators to incorporate materials in formats best suited to a particular learner audience and maximize parity of learner experiences across sites
web-GEMs www.pogoe.org/webgems	Case-based, peer-reviewed, evidence-based interactive modules developed by faculty at 27 institutions to teach medical students the geriatrics competencies and that can be assigned in a geriatrics, internal medicine, or family medicine clerkship or to emphasize "core topics" in medicine, neurology, psychology, emergency medicine, surgery, and obstetrics and gynecology. web-GEMs cases are designed to develop learners' understanding of geriatric medicine and to integrate that understanding with their developing competence in other specialties. Each case includes a summary document with important take-home points and a PubMed-linked reference page
Nursing educational materials www.pogoe.org/nursing/search	Materials created by nursing educators to improve geriatrics education of nursing students and clinicians. Many can also be used in interprofessional education
GSR www.pogoe.org/geriatrics-education-for-specialty-residents	Toolkits created by the GSR project[a] to improve care of elderly patients in that specialty. For example, the General Surgery toolkit has resources on topics including geriatric preoperative evaluation, goal setting with patients and families, discharge transitions, postoperative delirium, teaching tools, and tools for implementing a geriatric curriculum in General Surgery. GSR disciplines include: Anesthesiology Emergency medicine General surgery Gynecology and urology Ophthalmology Orthopedic surgery Otolaryngology Physical medicine and rehabilitation
McMaster evidence updates www.pogoe.org/recap/articles/view	Quality- and relevance-rated citations from McMaster University, Canada to the latest journal articles in the field of geriatrics from more than 120 premier clinical journals. Some articles are designated as "stellar" based on high ratings for clinical relevance and newsworthiness. Evidence updates can be used to help keep up with the literature or to identify articles for review at journal club
POGOe Video Library www.pogoe.org/video-library	Videos extracted from POGOe materials available for use in teaching and as trigger tapes. For example, videos on components of geriatric assessments, screening osteopathic examination, focused neurological examination in a patient with falls, or communication in a geriatric medical encounter can be used to illustrate specific teaching points effectively
POGOe Image Library www.pogoe.org/image-library	Images (photographs, X-rays, and other radiographic images, histopathology slides, electrocardiograms, diagrams) extracted from POGOe materials available to enhance teaching presentations
POGOe question bank www.pogoe.org/qbank	Geriatric quizzes, questions, and cases extracted from POGOe materials or developed by POGOe users. Faculty can create quizzes from existing questions or use their own questions to assess their learners

[a] A project of the American Geriatrics Society and the John A. Hartford Foundation to increase awareness of geriatrics and improve the care of older adults by specialty physicians.

GSR = Geriatrics Education for Specialty Residents; web-GEMs = web-Geriatric Education Modules.

Table 2. Selected Educational Series on the Portal of Geriatrics Online Education

Educational Series	Overall Purpose and Description	Educational Components	Examples of Topics Covered
Aging Q3 (Quality of Education, Quality of Care, and Quality of Life) Medical University of South Carolina College of Medicine	QI modules using academic detailing and based on the Assessing Care of Vulnerable Elders program designed to improve resident clinical competencies in geriatrics and the quality of care for older adults. Multiple interventions are used to create culture and practice change and to assess new skills in practice. Could be used to direct QI interventions in the geriatrics clinical setting or materials such as tests, pocket cards, lectures could be used for teaching the geriatrics content in other settings	Resident lecture Pre- and posttests Facilitator guide Academic detailing triggers Poster with academic detailing Staff questions for patient "screening" Direct observation skill Mobile App	Continuity of care Falls and mobility Vision and aging Medication use and safety Screening and prevention Communicating about end-of-life care Improve discharge summary quality Dementia and aging Pressure ulcers and malnutrition Pain management Osteoarthritis and aging
CHAMP University of Chicago, Pritzker School of Medicine	"Teach the teacher" faculty development program for clinicians mainly in the inpatient setting. Consists of 15 modules based on 4 core topic areas: frailty, hazards of hospitalization, palliative and end-of-life care, and transitions of care. CHAMP is targeted to teaching and attending physicians, clinical medical students, residents, and geriatrics fellows and best suited for use in teaching at bedside rounds	4-station geriatrics Observed Structured Teaching Exercise module Slide presentations Case-based bedside teaching triggers Pocket teaching cards Evaluation instruments Bibliography	Pain control, treatment of neuropathic pain Drugs and aging Foley catheter use Ideal hospital discharge, transitions of care, wound care Dementia, depression, delirium Deconditioning, falls Palliative care and changing goals of care Advance directives and do-not-resuscitate orders
Continuing Mobile Education for EMS Providers University of Rochester School of Medicine and Dentistry	A series of video podcasts to address the need for instant educational opportunities for EMS providers. Each of the eight modules contains a group of four 10-minute vodcasts and includes interviews from physicians, emergency medical technicians, paramedics, and patients	Vodcasts with summary slides	Communication (hearing loss, aphasia, ageism) End-of-life issues Polypharmacy Psychosocial issues Assessment (altered mental status, stroke, falls)
EPaD GEC Web Modules Eastern Pennsylvania–Delaware Geriatric Education Center, Thomas Jefferson University	The interprofessional management of older adults with chronic conditions is the basis of these 11 Web-based modules. The material is directed at all learner levels in the health professions and could be used in training and continuing education of new and established interprofessional care teams	Independent learning Virtual patient Pre- and posttest	Self-management in chronic conditions Evidence-based practice in managing chronic conditions Social issues related to chronic conditions Caregiver and family support in managing chronic conditions
Geropsychiatric Nursing Curriculum Materials National Hartford Centers of Gerontological Nursing Excellence	Based on the Geropsychiatric Nursing Competency Enhancements, 26 key concepts were identified under four domains: assessment, management, approach to older adults, and role, and materials developed to train nurses in mental health in older persons. Each key concept contains an easy-to-use, organized listing of educational materials (from a variety of non-POGOe sources), which can serve as a framework to infuse the geropsychiatric nursing competency enhancements into teaching	Curriculum and syllabus Resource guide	Normal aging: biopsychosocial theories Atypical presentations Stressors affecting mental health Care transitions Influence: Decisional capacity, health literacy Patient, family, peer education: Mental and physical health interactions Geriatric mental health and illness Ethical, legal, socioeconomic factors

(Continued)

Table 2 (Contd.)

Educational Series	Overall Purpose and Description	Educational Components	Examples of Topics Covered
Southwestern Aging and Geriatric Education University of Texas Southwestern Medical Center	Audiovisual interactive modules lasting 30–60 minutes providing comprehensive information on specific topics in geriatrics in an engaging format and applicable to all learner levels in the health professions. Can be used as an adjunct to classroom-based teaching or as prior independent learning assignment	Independent learning Video and presentation	Managing back pain in the older adult Shared decision-making Urinary incontinence in the elderly Transitions of dare Systems-based approach to delirium Peripheral neuropathy
Texas Tech Medcast Texas Tech University Health Sciences Center School of Medicine	Collection of 5- to 10-minute podcasts based on U.S. Medical Licensing Examination Step 2 Clinical Knowledge sample questions on geriatrics topics, created by and for medical students, but also pertinent to residents and practicing physicians. Information is packaged as an episode of patient–physician interaction with role-play	Podcasts Role-play demonstration Multiple Choice Question Fact Sheet	Rhabdomyolysis clinical presentation Hyperthyroidism in elderly adults Adverse drug events in elderly adults Risks of alcohol use in elderly adults Pelvic prolapse

QI = Quality improvement; CHAMP = Curriculum for the Hospitalized Aging Medical Patient; EMS = emergency medical services.

University of Chicago's Curriculum for the Hospitalized Aging Medical Patient series of bedside teaching triggers, which focus on inpatient geriatric topics.

Increasing Teaching Versatility

POGOe can help with varying instructional methods to include more-interactive and -engaging formats. For example, a video clip from the POGOe video library used as a trigger tape can initiate a discussion on a selected topic. POGOe materials can be searched according to instructional method, and POGOe hosts many independent learning materials that may be assigned to students before classroom teaching as part of a "flipped classroom" session,[1] allowing face-to-face time with the student to be spent on knowledge application and deliberate practice.

Designing Curricula

POGOe provides ready access to minimum geriatrics competencies for medical students, internal and family medicine residents, emergency medicine and surgical residents, geriatrics fellows, and nurses,[13–16] which can be used to develop curricula. The POGOe team has created two valuable tools to aid educators and learners in finding materials targeted to specific geriatrics competencies for medical students: Geriatrics Wizard and web-Geriatric Education Modules (web-GEMs). The Geriatrics Wizard matches "best" products to the medical student competencies, and the web-GEMs are a series of self-directed interactive learning modules that teach one or more competencies.

Teaching Evidence-Based Medicine/Journal Club

LitLinks and McMaster Evidence Updates are resources that identify high-quality articles on a variety of geriatrics topics. LitLinks provides an automatically renewing bibliography on certain topics such as delirium or elder abuse, and McMaster Evidence Updates provides a listing of the latest relevant articles that have the potential to change practice in geriatrics.

Assessing Proficiency in Geriatrics

Educators may evaluate the effect of current programs and curricula and document their assessment of trainees in specific geriatrics competencies by using built-in and independent learner assessment tools (e.g., Mini-CEXs). Quizzes from the Question Bank may be used to assess trainees at the end of a specific teaching session or a rotation. POGOe-verified teaching faculty and educators can also access certain learner-restricted assessment materials.

DISCUSSION

POGOe is home to more than 950 geriatrics educational materials that clinicians at most U.S. medical schools and many others around the world have created and use. POGOe differs from a conventional repository of educational materials by encouraging the repurposing of its content components to create new resources (e.g., web-GEMs, trigger tapes, quizzes) and to encourage educators to align their educational methodology better with their learners' needs by mixing and matching content and curricula. It provides clinician–educators with resources to address current concerns of the Liaison Committee on Medical Education and academic medical centers: competency-based education, decreasing lecture hours and increasing interactive learning, and finding time to prepare materials and teach in the midst of mandates to increase clinical productivity.

POGOe and the Association of American Medical Colleges–sponsored MedEdPORTAL Publications (MEP) were among the first large online repositories of educational products in medicine. Both promote educational scholarship and collaboration by facilitating the open

exchange of health education teaching and assessment resources.[17] Although POGOe is designed to include geriatrics-related content only, MEP covers all topics in medicine. The two repositories differ specifically in two ways. First, POGOe, unlike MEP, explicitly encourages repurposing of individual components to create new materials. Second, educational materials submitted to MEP are peer reviewed, mirroring the model used for research publications. Although all POGOe materials are subject to rigorous editorial screening, most materials posted to POGOe are not formally peer reviewed, with the exception of the web-GEMs and materials also in MEP. It is not known whether peer review provides another layer of quality control to these online educational materials. It may be that a better measure of quality of educational materials published online is the "wisdom of crowds," which may be gauged from the number of reuses and comments from users of these materials. Moreover, promotion committees are increasingly considering such authorship of innovative educational materials as compelling scholarly contributions outside of the typical peer-reviewed journal publication.[18]

Over the past decade, philanthropic organizations such as the DWRF and JAHF have provided significant funding to academic institutions with a goal of infusing geriatrics into every level of medical education. This has been shown to influence undergraduate, graduate, and practicing physician education substantially at the funded schools.[19] POGOe has successfully disseminated innovative teaching materials by educators at these funded schools to faculty and students at nonfunded institutions in the United States and around the world and has increasingly affected specialty physicians, nurses, and other health professionals. In addition, the emphasis that POGOe places on the repurposing of educational materials in multiple contexts echoes the missions of the foundations that have made POGOe possible.

POGOe allows educators to teach geriatrics without having to reinvent the wheel and instead use their imaginative energy to assure that their teaching meets their learners' needs and to create new content and formats that can themselves expand and can be used in new ways. There may never be enough skilled geriatricians to care for the rapidly expanding population of older adults. Geriatrics resources—human and virtual—need to go a long way and have a wide reach. The numbers of educational materials, contributors, and worldwide users demonstrate that POGOe is filling this need in geriatric medical education.

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