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PEDAGOGY: HOW TO BEST TEACH POPULATION HEALTH TO FUTURE HEALTHCARE LEADERS

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ABSTRACT

Our healthcare system is moving from a fee-for-service reimbursement model to one that provides payment for improvements in three areas related to care: quality, coordination, and cost. Healthcare organizations must use a population health approach when delivering care under this new paradigm. Health administration programs play a critical role in training future leaders of healthcare organizations to be adaptable and effective in this dynamic environment. The purpose of this research was to: (1) engage health administration educators in a dialogue about population health and its relevance to healthcare administration education; (2) describe pedagogical methods appropriate for teaching population health skills and abilities needed for successful careers in our healthcare environment; and (3) identify current student learning outcomes that participants can tailor to utilize in their undergraduate and graduate health management courses. Authors conducted focus groups of participants attending this educational session at the 2018 annual AUPHA meeting. Qualitative analysis of the focus group discussions identified themes by a consensus process. Study findings provide validated recommendations for population health in the health administration curriculum. The identification of pedagogical approaches serves to inform educators as they prepare future health administrators to practice in this new era of healthcare delivery.

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INTRODUCTION

The U.S. Centers for Medicare and Medicaid Services is moving from a fee-for-service reimbursement system to one that provides payment for improvements in three areas related to care: quality, coordination, and cost (CMS, 2018). This new paradigm shifts the financial incentive from a focus on volume of care provided to one of value of care provided. How will we educate future healthcare administrators to evaluate the effectiveness of this new method of delivering care?

Population health

A population health approach is critical to the new healthcare delivery system. To understand the significance of managing the health of populations, it is important to discern population health from public health. Public health aims to protect and improve the health of communities by promoting healthy lifestyles, conducting research for disease and injury prevention, and detecting and controlling infectious diseases (CDC Foundation, 2018). Population health delves deeper and refers to “the health of a population as measured by health status indicators and as influenced by social, economic, and physical environments, personal health practices, individual capacity and coping skills, human biology, early childhood development, and health services” (Public Health Agency of Canada, 2013). Importantly, a population health approach “focuses on interrelated conditions and factors that influence the health of populations over the life course, identifies systematic variations in their patterns of occurrence, and applies the resulting knowledge to develop and implement policies and actions to improve health and well-being of those populations” (Public Health Agency of Canada, 2013). Further, Kindig and Stoddart (2003) suggest that population health can be defined as “the health outcomes of a group of individuals, including the distribution of such outcomes within the group” (Kindig & Stoddart, 2003). *Healthy People* (2018) proposes that population health should not be viewed as distinct from public health but rather as a complement by which the physical, cultural, and social environments people are born into, grow up around, and work and play over the course of their lives are factors that are considered with respect to their influence on the health of populations.

As population health focuses more broadly on the role of health determinants for a population, population health management (PHM) emphasizes the delivery of healthcare for populations of the highest quality and lowest cost. PHM requires “the proactive application of strategies and interventions to defined cohorts of individuals across the continuum of healthcare delivery in an effort to maintain and/or improve the health of the individuals within the

cohort at the lowest necessary cost" (Burton, 2013). Thus, PHM must consider not only the management of lifestyle, disease, critical care, and disability; it must also consider community initiatives focused on disease prevention and health promotion (Halfon & Conway, 2013; McAlearney, 2003).

New directions

Research indicates that healthcare accounts for approximately 20% of a population's health; health behaviors account for 30%; socioeconomic factors for 40%, and the physical environment for 10% (Magnan et al., 2012). With most of the contributors to one's health occurring outside of the hospital, it is essential that we prepare today's administrator to consider and manage these external influences so that the delivery of value-based care is positively affected. This approach, grounded in PHM, requires a shift in how we educate our current and future healthcare administrators. Weil (2013) states, "In Europe and in the United States, health management education and the role of health managers are patterned and consistent with how the country's healthcare system is organized, managed, and financed." Regardless of how a country's healthcare system is organized or financed, we argue that PHM should be taught in undergraduate and graduate health administration education programs to prepare current and future health administrators to manage complex health issues for diverse populations by considering those factors that are internal and external to the healthcare organization.

At the spring 2016 meeting of the Association of University Programs in Health Administration (AUPHA), the authors presented the findings from the advisory boards of several graduate and undergraduate programs which identified what should be taught in regards to PHM in health administration curricula (Hooker, Caron, Hewitt, & Carmalt, 2017). At the spring 2017 AUPHA meeting, the authors presented innovative case examples that illustrated a successful integration of the healthcare and public health systems, and models for how population health is addressed in the health administration curricula (Caron, Hewitt, Carmalt, & Hooker, n.d.). The purpose of the current research was to: (1) engage health administration educators in a dialogue about population health and its relevance to healthcare administration education; (2) describe pedagogical methods appropriate for teaching population health skills and abilities needed for successful careers in our healthcare environment; and (3) identify current student learning outcomes that participants can tailor to utilize in their undergraduate and graduate health management courses.

METHODS

At the 2018 annual AUPHA meeting, the authors presented an educational session titled *Pedagogy: How to best teach population health to future healthcare leaders*. In all, 44 participants, representing educators in undergraduate and/or graduate health administration programs across the country, attended the session.

Preceding the focus-group sessions, workshop facilitators presented several case examples for teaching population health. Examples included using a hybrid model to teach a graduate population health course in an MBA program with a healthcare concentration where students focus on developing feasible solutions to PHM implementation barriers; using real-world examples to teach population health and epidemiology via a hierarchy of evidence, data manipulation and research methods, and an evaluation of the role for the social determinants of health in the issue; and teaching PHM with data-driven projects, including a community health needs assessment, a hot-spotting approach, and developing a plan to reduce 30-day hospital readmissions.

Following the pre-session presentation, the faculty presenters then divided the participants into four groups of eleven people each. Each participant received a worksheet to discuss and complete which inquired about pedagogical methods utilized (e.g., seminar, active learning, lecture, lab) and the expected student learning outcomes. Three faculty presenters (also lead authors) listened to individual group discussions, which lasted 25 minutes. Each group identified a representative and was allotted five minutes to report out on their respective group's conversation with respect to these discussion points.

The authors transcribed each group's submitted and completed worksheet representing each contributing participant's response. A member in any group could elect not to participate. The use of code-recode and multi-coder procedures helped reduce bias in thematic analysis. Common qualitative processes included recognition of word repetitions, key words in context, metaphors and analogies, and connectors and relationships, all used to identify themes. These strategies represent established social science techniques for theme identification (Ryan & Bernard, n.d.). A second thematic analysis was performed by another lead author who was supplied the transcript of each focus group.

After thematic analyses were completed, the primary author combined them into a single document and then collated similar themes. Each of the other authors, in an iterative fashion, then reviewed the results until all authors reached consensus on the final themes that emerged from the data. The Institutional Review Board at the respective universities of the lead authors who conducted the educational session approved the study.

RESULTS

The four focus groups discussed and reported on the pedagogical methods utilized to teach undergraduate and graduate students about population health in their respective curricula, along with the expected student learning outcomes. Table 1 illustrates a summary of the information reported.

Table 1

Pedagogy and student learning objectives for teaching population health

Description of pedagogical methods utilized in the classroom	Student learning objectives
<ul style="list-style-type: none"> • Active learning • Seminar • Discussion • Data analysis (i.e., work with public use files, claims data) • Case study • In-class exercises • Problem sets • Develop a proposal for funding • Community health needs assessment • Case competition • Statistical analysis of health data • Strategic plan development • On-site learning in a community organization 	<ul style="list-style-type: none"> • Develop communication skills (i.e., written and verbal) • Analyze health data via software (e.g, Excel, SAS, SPSS, Tableau) • Identify health issues in the community that are affecting the at-risk populations • Develop feasible solutions and strategies for the identified issues • Describe limitations of conclusions based on intrinsic data issues

The authors identified six themes that emerged based on the teaching of Population Health by these participants:

1. Pedagogical methods utilized in the learning environment varied significantly; however, the methods identified had their foundation in an active learning approach.
2. Analyzing real-world data using Excel was frequently cited as the best methodology for teaching population health.
3. Participants identified other active learning techniques that they

implemented in their courses for undergraduate and graduate students including assessing community health needs, case studies, and case competitions, and developing a strategic plan to address a population health issue.

4. Course perspectives included population health most often being taught as a module in a course, such as managerial epidemiology, health policy, biostatistics, health law and ethics, as opposed to a standalone course.
5. Students need to understand the difference between population health and population health management, as well as the social determinants of health.
6. Student learning outcomes spanned the hierarchy of Bloom's taxonomy (Anderson et al., 2001). For example, one community health needs assessment assignment required students to identify a county's health outcomes and determinants using the *County Health Rankings & Roadmaps* data (remember), then compare county performance to the county's overall state performance (understand), and finally hypothesize about the associations between county-level health determinants and health factors (analyze). For another assignment, students analyzed original claims data to identify high-cost/high-needs patients (understand), assess the patients' demographics, health, cost, and utilization (analyze), and ultimately design a comprehensive care management plan to improve patients' outcomes while reducing their healthcare costs (create).

Based on these themes, the authors identified four types of skills that instructors should consider as important when teaching population health content and application at the undergraduate and/or graduate level: (a) assessing the health needs of a community; (b) analyzing and interpreting diverse data sets using Excel; (c) developing feasible solutions to complex health issues based on evaluation; and (c) effectively communicating to varied stakeholders.

A general discussion among session participants identified the growing need for our students to be able to utilize data analytics and the emerging related software programs that allow for evidence-based decision making to be conducted in the healthcare and public health organizations that are engaged in a PHM approach.

A number of sources of freely available real-world data were compiled and are illustrated in Table 2.

Table 2

Sources of data for student project to teach population health and population health management.

Data source	URL
California Health and Human Services Open Data Portal	https://data.chhs.ca.gov/
Medicare claims synthetic Public Use Files	https://www.cms.gov/Research-Statistics-Data-and-Systems/Downloadable-Public-Use-Files/SynPUFs/index.html
British Emergency Care Data Set	https://www.england.nhs.uk/ourwork/tsd/ec-data-set/
National Center for Health Statistics: Ambulatory Health Care Data	https://www.cdc.gov/nchs/ahcd/index.htm
County Health Rankings	http://www.countyhealthrankings.org/

DISCUSSION

Health management education programs in the U.S. are beginning to cover population health content in their undergraduate and graduate curricula via standalone courses or by covering population health content via existing courses. Our study demonstrated a similar finding among participants at an educational session dedicated to teaching population health at the 2018 annual AUPHA meeting.

While many participants indicated that students should analyze real healthcare data, there was no agreement that there is one best statistical program that students should utilize when performing their analysis. Many of the participants indicated that they used Excel because it is commonly used by practicing healthcare executives. A minority of programs used more sophisticated statistical programs like R, Stata, SPSS, and SAS. Requiring students to utilize real data uses higher order methods of instruction according to Bloom’s Taxonomy. Students are applying data to solve problems.

Previous authors have emphasized the importance of data mining in healthcare management (Bates, 2014; Koh, 2011). Sources of healthcare data varied by participant. Some participants indicated that they utilized local healthcare organizations for data, while others recommended freely available data from a multitude of sources (Table 2). Students are required to download the data, manage the data, and then analyze the data.

Our study results consistently emphasize the need for active learning models in teaching population health to both undergraduates and graduate cohorts. Each of the six themes synthesized from participant contributions aligns with underlying active learning concepts intended to involve students in “doing things and thinking about the things they are doing” (Bonwell & Eison, 1991, p. 2). All of these themes fit in the highest-level category of active learning that focuses on strengthening student motivation and metacognition via the use of case studies and expanded experiential learning (Yale Center for Teaching and Learning, n.d.). Table 1 also supports the need for interactive student engagements that include discovery, analysis, synthesis, evaluation, and communication to enhance population health learning outcomes.

Even with the recent popularity of the flipped classroom model, which encourages integration of case studies and other activities in addition to mini-lectures, teaching population health concepts may require additional use of project-centered learning (Merrill, 2013; Hoffman, 2017). Project-centered learning encompasses problem-based teaching skills: activation, integration, demonstration, and application, which are appropriate and often required for completing population health case studies, database analyses, and evaluating real-world scenarios. Clearly, many of the effective techniques for teaching population health solutions, as outlined in Table 1, suggest the use of project-centered and problem-based instructional design strategies. As health management faculty continue to explore and enhance current pedagogical techniques (Walker & Gelmon, 2018; Bonica, Judge, Bernard & Murphy, 2018; Dishman, 2018; Abad-Jorge, Kronenburg, & Biggs, 2017) and population health teaching (King & Cloonan, 2018; Green, et al., 2017), consideration of alternative action learning models should include both project-centered and problem-based instructional design teaching strategies.

How should we prepare health administrators to be able to measure how well they are managing the health of their population? The Health and Medicine Division, formerly known as the Institute of Medicine, identified a “core measure set” of indicators the public health and healthcare systems should track to determine progress in keeping their populations healthy. Representative measures include the following: life expectancy, well-being, overweight and obesity, addictive behavior, unintended pregnancies, access to care, care that matches patient goals, community engagement, etc. (IOM, 2015). These measures aimed to ensure, “systemic reach, are outcomes-oriented, [and] are meaningful at the personal level” (IOM, 2015). We contend that these core measures for population health are representative of the health issues affecting populations around the globe. Our study findings highlight that the active learning approaches identified herein are aimed at being able to provide the

next generation of healthcare administrators with the skills necessary to not only assess but also evaluate and assure the health of the populations they serve both within and external to their hospital environment.

CONCLUSION

Regardless of the nature of a country's healthcare system (e.g., value-based care, universal access), the need exists for a competent, accomplished health administration workforce to manage the health of the populations their respective healthcare organizations serve. Healthcare is a dynamic field in the U.S. and abroad due to economic, policy, and demographic variations that occur over time. The nature of PHM forces the healthcare administrator to look beyond the walls of their organization into the communities in which their patients live, work, and play. While our former research in this area identifies important population health topics that should be covered (Caron, Hewitt, Carmalt, & Hooker, n.d.), our current study assists today's health administration educator with identifying pedagogical approaches that lead to higher-order, skill-based student learning outcomes that will contribute to making the new healthcare administrator adept at managing the health of their diverse populations.

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