Developing a Pharmacy Professional Elective Course: Underserved Populations

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Courtney Ann Hedrick
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Developing A Pharmacy Professional Elective Course: Underserved Populations

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Abstract

INSTRUCTIONAL DESIGN AND ASSESSMENT

Developing A Pharmacy Professional Elective Course: Underserved Populations
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Objectives. To ascertain the current curriculum exposure, knowledge, and interest in medically underserved populations of 3rd (P3) and 4th (P4) year professional pharmacy students enrolled at Butler University.

Methods. An eleven item survey was designed, involving multiple choice, Likert response scale, and open response questions. The survey was administered through the web-based survey software company, Survey Monkey, utilizing the Butler College of Pharmacy and Health Sciences email listserv to all P3 and P4 students.

Results. P3 and P4 students showed a high degree of interest in taking a professional elective focusing on medically underserved populations. Many of these students also felt the current information presented in the curriculum on these populations was not adequate.

Conclusions. Current interest in a professional pharmacy elective focusing on medically underserved populations is present, but further training is needed to prepare students for employment within these settings. The data collected during this study through surveys, reinforces the importance of focusing on the needs of medically underserved populations from the P1 through P4 year of pharmacy education.
BACKGROUND

In 2003, there were over 36 million United States residents without access to a primary care provider, and over 800,000 of those were Indiana residents. These residents are often referred to as the medically underserved and their inability to access health care services is influenced by many different variables. The U.S. Department of Health and Human Services (HHS) defines medically underserved populations based on cultural, linguistic, economic, or other barriers to primary medical care services. The National Health Service Corps (NHSC), The National Association of Community Health Centers (NACHC), and other groups have worked to improve the access to health care for millions of U.S. citizens. There were 5,703 service delivery sites affiliated with the NACHC in 2005, and 35% of those sites were presently providing pharmacy services. Indiana only accounted for 73 of those 5,703 sites, and a minimal 15% had a pharmacy present onsite. Unfortunately, one of the most overlooked components of comprehensive health care for the medically underserved is pharmaceutical care. Access to affordable medications and pharmacists ready to perform cost-effective clinical services are essential in improving the health care of the medically underserved.

Even pharmacists not primarily practicing in a medically underserved population need to be ready to provide competent care to the underserved. In many settings the pharmacist is the first health care professional a patient asks for help when seeking medical services. Pharmacists are the most accessible health care providers, especially for the underserved, due to their locations throughout the community, often 24 hours a day. In a study by Gifford and colleagues, hospitals in Long Island, NY were anonymously surveyed about access to free care. The surveyors posed as medically
underserved patients and called the hospitals looking for assistance in receiving free or
discounted medical care. Many of these hospitals consistently were unable to advise
patients of the existence of free care. Health care providers often do not realize they
could be putting their community in economic jeopardy in these situations. Many states,
such as California, are facing the financial burdens created by inadequate medical
services for the underserved and uninsured. The medically underserved are often the
population least likely to carry health insurance. In the 2004, 16% of the United States
population was uninsured, and 12% of the United States population was without access to
a primary care provider in 2004. In a study published in the Journal of The American
Medical Association (JAMA), Jack Hadley, Ph.D. found that "among new individuals
who experiences a health shock cause by an unintentional injury or a new chronic
condition, uninsured individuals reported receiving less medical care and poorer short-
term changes in health than those with insurance." When patients are unable to receive
medical care early in the disease process, they have more missed days at work, and the
treatment they receive later is often more extensive and expensive.

The barriers the medically underserved face are often not just economic. Many
patients are unable to receive the care they need due to language, cultural, or racial
barriers. The HHS formed the Racial and Ethnic Approaches to Community Health 2010
(REACH 2010) in an effort to respond to the health disparities facing minorities.
REACH 2010 focuses especially on "six areas: cardiovascular disease, immunizations,
breast and cervical cancer screening, diabetes, HIV/AIDS, and infant mortality." Pharmacists and pharmacy students have the ability to positively impact the community
in every one of these six areas, if not through direct patient care, through patient
education. The American Society of Health System-Pharmacists (ASHP) has also taken a stance on eliminating these health disparities. ASHP suggests fostering discussion and awareness to "ensure that patients, regardless of their race or ethnicity, receive equitable high-quality care." Cultural, ethnic, and racial barriers are often the primary cause of health disparities in minority populations, and it should be the goal of all health care providers to reduce these disparities.

**NEED FOR THE STUDY**

In a study by Graber and colleagues, U.S. colleges of pharmacy were surveyed on the current and ideal emphasis of 33 curriculum topics. The curriculum topics assessed were topics certified by the American Association of Colleges of Pharmacy (AACP), and the schools were asked to rank the ideal and current emphasis of the curriculum topics on a five-point scale (1 = not at all, 5 = to a great extent). One of the curriculum topics assessed was "care for underserved patient/populations" and through the survey, the topic was found to have a current emphasis of 2.33 and ideal emphasis of 3.33. In comparison with a combination of five other health care professions (dental, medicine, physician assistant, nurse practitioner, and midwife), the academic deans of these five health professions ranked their ideal curriculum emphasis on care for the underserved 12 out of 33. The academic deans of pharmacy schools ranked the ideal emphasis on care for underserved patient/populations ranked only 29 out of 33. With an increasing number of uninsured and underserved patients and increased accessibility to pharmacists, it is important to question why pharmacy schools are not putting a greater emphasis on care for these populations.
As Graber and colleagues found, the level of emphasis on care for the underserved patients/populations is greatly lacking in pharmaceutical education, especially in comparison to the other health care professions. The American Association Colleges of Pharmacy (AACP) formed the Center for the Advancement of Pharmaceutical Education (CAPE) in 1992. The CAPE includes educators and practitioners that help to guide the future of pharmacy education through the development of educational outcomes. These CAPE Educational Outcomes are meant “to drive curriculum development” and “tell the story’ to external audiences about the role of the pharmacist.” These outcomes were revised in 2004, and a stronger emphasis (see Outcome 3 below) was placed on population based care and public health.

Outcome 3: “PUBLIC HEALTH Promote health improvement, wellness, and disease prevention in cooperation with patients, communities, at-risk populations, and other members of an interprofessional team of health care providers.” These “at-risk populations” could easily be considered the medically underserved. If pharmacy schools are to fulfill the educational outcomes presented by the CAPE, they need to make educating pharmacy students about the medically underserved a priority in their curriculums.

There are pharmacy schools that have made it a priority to increase the emphasis on medically underserved populations in their curriculum. The University of Washington School of Pharmacy offers pharmacy students opportunities to learn about medically underserved populations throughout their curriculum, including an elective course in “Health Care in Underserved or Rural Communities.” One of the most extensive integrations of the medically underserved into a pharmacy curriculum is at the University of Pittsburgh School of Pharmacy. The University of Pittsburgh has implemented
experiential learning courses throughout the pharmacy curriculum to increase the pharmacy student’s exposure to the medically underserved, as well as other populations. The school also offers a professional elective like the University of Washington called “Pharmaceutical Care to Underserved Populations.” The course uses independent study, journal clubs, various projects, discussions, and clinic-based patient care experiences to educate and prepare students to provide pharmaceutical care for the underserved. These schools have chosen to focus on the medically underserved in their curriculums through a variety of courses and experiences for students.

With the improvements in care for the underserved through health centers and managed care systems, many opportunities are being presented for pharmacists to provide clinical services and affordable medications to the medically underserved. Pharmacists choosing to practice in these settings have the opportunity to gain professional and personal satisfaction, but will face many obstacles. The barriers that decrease the access to health care for the medically underserved can also be barriers for pharmacists in providing the medications and clinical services they need. The cost of medications, cultural differences, differing languages, and general lack of experience providing services to the medically underserved can deter pharmacists from practicing in this setting or practice is the setting for a shorter period of time.

Assessing current pharmacy student awareness and desire to learn more about underserved populations is an important first step in training future pharmacists to provide excellent pharmaceutical care to the medically underserved and eliminating health disparities.
OBJECTIVES

The primary objective of this study is to ascertain the current curriculum exposure, knowledge, and interest in medically underserved populations of 3rd (P3) and 4th (P4) year professional pharmacy students enrolled at Butler University.

METHODS

Data Source

The survey was administered through the web-based survey software company, Survey Monkey, utilizing the Butler University College of Pharmacy and Health Sciences (COPHS) email listserv to all P3 and P4 students. The study was approved by the Butler University Institutional Review Board before administration of the survey.

Selection Criteria

The survey participants were chosen based on their current enrollment in the Butler University COPHS as either pharmacy professional year 3 or 4 students. Each student has a Butler University email (name@butler.edu). Additionally enrollment in the P3 and P4 listserv is mandatory.

Exclusion Criteria

Butler University students who were not currently enrolled in the P3 or P4 year were excluded from this study.

Study Design

An eleven item survey was designed by the study investigators for the purpose of this study (see Appendix). The survey involved multiple choice, Likert response scale, and open response questions. The question design was focused on first identifying the
current pharmacy professional year of the survey participant (P3 or P4). The next two questions (2,3) were developed to assess the participant’s general awareness of underserved populations through the use of knowledge based questions. The questions focused on identifying the population size without access to a primary care provider (medically underserved) in the state of Indiana (location of Butler University) and the United States. The data utilized was from 2003 reports, this is due to the most up to date information currently available from the source.¹

The following questions (4,5,6) were developed to assess the student confidence in defining a medically underserved population and knowledge of Indiana community health centers. Those participants who responded yes to their knowledge of Indiana community health centers that served the medically underserved were asked to list those health centers (Question 6). This question was specifically designed to increase our knowledge of community health centers as researchers.

The next three questions (7,8,9) focused on the participants’ perception of Butler University COPHS and the current emphasis on the medically underserved in the curriculum. The participants were asked if they had taken a pharmacy course where information was presented on the medically underserved and an open response question followed to further elaborate on the course that supplied this information. Another Likert scale response was applied in Question 9 asking the adequacy of the level of information presented about medically underserved populations through Butler University pharmacy courses.

The final two questions (10, 11) were used to assess the interest of participants in taking a pharmacy professional elective focusing on the medically underserved.
Pharmacy professional electives at Butler University COPHS are usually taken in the P3 year of the program, and all students are required to take two of these electives. The elective courses offered often include Nutrition, Women’s Health, Pediatrics, Geriatrics, Medical Spanish, Teaching to Learn/Learning to Teach, Advanced Law, and several others based on current faculty availability. The final open response question was designed to give the participant a chance to state further questions or comments about the survey and survey topics. The survey was active from Jan. 17th to March 1st, 2007.

Statistical Analysis

Descriptive statistics were performed using SPSS statistical software to summarize the rankings and frequencies of the responses to the survey questions. The data was also analyzed for normality using Kolmogorov-Smirnov and Wilks-Shapiro statistical tests, and an independent sample t-test was performed. Non-parametric tests were then used due to dependent variable data being not normally distributed. A Mann-Whitney Test was applied to the data collected from the survey’s Likert response questions to find statistical significance. Non-parametric correlations were also performed for the continuous Likert question response data to examine the association between the responses to various questions. The specific non-parametric correlation used was the Spearman’s rank correlation coefficient. Finally a Chi-square test of independence was used to examine the association/lack of association between professional year and Likert response question data.

Post-Study Interviews

Interviews were conducted with three Butler University COPHS P4 students who had participated in a “Rural & Indigent Care Rotation” in the 2006-2007 school year.
Some of these rotations included an Indian Health Service rotation in Bethel, AK, a rotation at People’s Health Center, an Indianapolis underserved pharmacy site and federally funded clinic, and St. Anne’s Clinic in Terre Haute, IN. These were informal interviews conducted after the closing of the survey during March 2007. The students were asked to describe their rotation experiences, interest in working with the underserved, feelings on an underserved pharmacy professional elective, and any other relevant comments on the topic. All students were informed of the use of their interview information in the study; each student volunteered and verbally consented to their participation in the study.

RESULTS

One-hundred and twelve students (39.5%) of the 283 eligible students (160 P3s and 123 P4s) participated in the study. Forty-nine of 160 possible participants were P3 students (30.6%), while 63 of 123 possible participants were P4 students (51.2%). P3 participants accounted for 43.8% of the respondents, while the P4 participants were 56.2% of the respondents.

In evaluating the participants’ current knowledge of medically underserved populations data, Questions 2 and 3 had four population numbers to answer each question. There was only one correct answer for each of these questions. The most common answer to “About how many people in the United States did not have access to a primary care provider in 2003” (Question 2) was 20,000,000 people (48.2%). Thirty five million, the correct answer, was the next answer most likely to be chosen at 27.7%. Question 3, which asked about Indiana instead of the United States, saw a slightly higher
percentage (31.3%) of students answering the question correctly with 800,000 people without access to a primary care provider in 2003. Five hundred thousand was the most common answer (40.2%), and it is interesting to note that the most common answers to both Question 2 and 3 were below the correct population numbers.

Focusing further on the participants' knowledge of medically underserved populations, Question 4 utilized a Likert question response scale. The participant was asked to state their confidence in "defining a medically underserved population and identifying the barriers they may face in their access to healthcare". Most participants (47.3%) agreed they were confident, while a very small percentage highly agreed (6.3%). A large percentage either felt neutral (22.3%) about the statement or disagreed (22.3%) with their confidence level in the statement.

The participants' knowledge of community health centers in Indiana that serve the medically underserved was assessed in Question 5. The number of respondents who answered the question affirmatively (55.4%) was slightly higher overall. Question 6 asked the participants who responded yes to list the community health centers referenced in Question 5. This question was opened-ended and 58 of the 62 yes-respondents completed a response. There was a great variety in the answers given by participants. Common responses included The Shalom Clinic, Gennesaret Free Clinics, St. Ann's Clinic, Wishard Health Centers, Planned Parenthood, and Blue Triangle Wellness Center.

Question 7 focused on whether medically underserved population information was presented to the participants as a Butler University COPHS student. Only 31 participants (28.2%) responded yes to Question 7. Twenty-eight of the yes-respondents completed Question 8, which asked the course where the information referenced in
Question 7 was presented. The overwhelming answer to this question was RX425: Delivery of Healthcare. The participants were then asked to rank their agreement with the statement “The level of information that has been presented on medically underserved populations in my Butler University pharmacy course is adequate” in Question 9. Only 10 (9.1%) respondents agreed with the statement, while 75 (68.2%) respondents disagreed or strongly disagreed.

The participants’ interest in taking a pharmacy professional elective focusing on medically underserved populations was assessed in Question 10. Sixty-two (56.3%) participants were interested in taking the elective, while 28 participants were not interested (25.4%). Twenty participants were neutral in their responses to Question 10.

Finally the participants were asked to elaborate further if they had any questions or comments on the survey. Eleven participants gave responses on varying topics; recommendations and questions about the course design and further integration of medically underserved populations into the complete pharmacy curriculum.

DISCUSSION

This survey was designed to assess the exposure, knowledge, and interest in medically underserved populations. Based on the participants’ responses many students felt they could confidently define a medically underserved population and identify their barriers in accessing health care. For both questions assessing the population size of those without access to a primary care provider, the most common response was lower than the correct population size. This might be due to the students feeling they can identify who is medically underserved, but not considering many patients as medically
underserved because of the lack of understanding barriers to health care. Most health care providers would assume someone who is poor is medically underserved, but not always those patients with mental, physical, or cultural barriers to health care.

Many students did not have the knowledge of a community health center in Indiana, and those who did gave a variety of different responses. The majority of health centers listed were current sites of Butler University COPHS P4 rotation sites; Shalom Clinic, Gennesaret Free Clinics, St. Ann’s Clinic, People’s Health. Several sites listed as community health centers were actually not health centers; Veterans Affairs (VA), Planned Parenthood, and MedCheck. These organizations do treat the underserved, but that is not their primary patient population, especially MedCheck, an immediate care center, and the VA, which only serves veterans. All pharmacists and future pharmacists need to be able to identify health care organizations within their communities where the medically underserved can receive health care services.

The study participants stated they received very little information on the medically underserved while in pharmacy school. Less than a third of students indicated that information on the medically underserved was presented in their pharmacy school courses. The mean response for both P3 and P4 students were almost equal for this question (1.73 and 1.70, respectively), so the recall for both classes was not skewed. The few students that identified the statement in the affirmative, primarily identified only one source of the information; Delivery of Health Care.

"RX 425. Delivery of Health Care: This course introduces the pharmacy student to various health care systems and to factors that affect the access of patients to quality health care."

Delivery of Health Care presented information on Medicare, Medicaid, and patient assistance programs to pharmacy students. For many it was their first and last exposure
to didactic lectures focused on the medically underserved. An overwhelming percentage of P3 and P4 students (68.2%) felt the level of information presented to them on medically underserved populations was inadequate. This definitely shows a need for more exposure to information about medically underserved populations while in pharmacy school.

The number of students interested in a professional elective on medically underserved populations is encouraging in the future development of a course. Many students commented they were very interested in this needs-based course, but felt the integration of more information on the underserved throughout the curriculum was needed. This was also echoed in the interviews with the three P4 students. One P4 student who had already taken three Rural & Indigent Care Rotation stated, "We learn the best way to treat a patient while in school, but the best way in school isn't always the best way with underserved patients. I wish we would have spent more time including factors such as cost in making therapeutic decisions."

The two other P4 students interviewed commented that often students choose to take professional elective because they are already interested in the topic. One student, "really enjoyed the nutrition lectures" so she made the decision to take the Nutrition professional elective offered. If more information is exposed to students earlier in the curriculum, there is a greater chance they would be willing to take a course focusing on the medically underserved due to the piqued interest in the topic.

Limitations

The survey response rate (39.5%) was adequate based on our goals for the study. In retrospect, a second email could have been sent to the students as a reminder to increase the likelihood of survey completion. Time given for the completion of this
survey during a required class meeting might have also increased the percentage of respondents.

The design of this study yielded highly descriptive data, which was the initial goal of assessing the current curriculum exposure and interest in medically underserved populations of P3 and P4 pharmacy students at Butler University. Since the P3 and P4 students had already chosen their professional electives, the information on interest we received was primarily retrospective. We were able to conclude there is adequate interest in a professional elective focusing on medically underserved populations, but interest does not always translate to enrollment in a course.

The surveying of P1 and P2 students would be an ideal way to continue and fulfill the objective of this study to develop an underserved populations pharmacy professional elective course. The survey should include a definitive question of whether the student would take an underserved populations elective. Several P3 and P4 students were unsure what an underserved populations professional elective would cover. We would recommend that a survey given to P1 and P2 students would benefit greatly if a list of topics with a Likert scale response were included. The students could state their interest in medically underserved population topics such as urban, rural, international, women and children, health literacy, Spanish-speaking, or physical barriers to health care. These responses could then be used to define what specific topics should be focused on during the course design. Utilizing the results from these two studies would be an ideal way to design a pharmacy professional elective course focusing on medically underserved populations.
CONCLUSIONS

Through this study, we have established that there is an interest in a professional pharmacy elective focusing on medically underserved populations, but additional information is needed in the development of this course. The continuation of this study through creation of a survey focusing on underserved topics wanted by P1 and P2 students in the course and their definitive decision on whether to take the elective. There is currently a need for a greater emphasis on medically underserved populations throughout pharmacy curriculums. The data collected during this study through surveys and interviews, reinforces the importance of focusing on the needs of medically underserved populations from the P1 through P4 year of pharmacy education.
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16. Butler University Registrar. Butler University College of Pharmacy and Health
Appendix

**Developing A Pharmacy Professional Elective Course:**
**Underserved Populations**

Principal Investigator: Courtney Hedrick, Pharm.D. Candidate and Kristal Williams, Pharm.D. Butler University College of Pharmacy and Health Sciences

**Purpose of Survey:** This survey is part of a PharmD research project done by a 6th-year pharmacy student at Butler University as part of a requirement for graduation. The completion of this survey is vital to the completion of the project. The surveys are completely voluntary and participants remain anonymous. Choosing to or not to complete this study will in no way affect your academic standing at Butler University. If you do decide to participate, the survey should take less than 10 minutes to complete. Thank you for your time and cooperation.

**Instructions:** Please choose only ONE answer for each question and check the box that most correctly applies.

1. Butler University COPHS Class Designation for 2006-2007 school year?
   - [ ] Professional Year 3
   - [ ] Professional Year 4

2. About how many people in the United States did not have access to a primary care provider in 2003?
   - [ ] 5,000,000
   - [ ] 20,000,000
   - [ ] 35,000,000
   - [ ] 10,000,000

3. About how many people in the Indiana did not have access to a primary care provider in 2003?
   - [ ] 300,000
   - [ ] 500,000
   - [ ] 800,000
   - [ ] 1,000,000

4. I am confident in defining a medically underserved population and identifying the barriers they may face in their access to health care.
   - [ ] highly agree
   - [ ] agree
   - [ ] neutral
   - [ ] disagree
   - [ ] highly disagree
5. Do you know of any community health centers that serve the medically underserved in Indiana?
   - [ ] Yes
   - [ ] No

6. If Yes, please list them below

7. Have you taken a pharmacy course (RX) at Butler University that has presented information on medically underserved populations?
   - [ ] Yes
   - [ ] No

8. If yes, what was the course (name or number)?

9. The level of information that has been presented on medically underserved populations in my Butler University Pharmacy courses is adequate.
   - [ ] highly agree
   - [ ] agree
   - [ ] neutral
   - [ ] disagree
   - [ ] highly disagree

10. I would be interested in taking a pharmacy professional elective focusing on medically underserved populations.
    - [ ] highly agree
    - [ ] agree
    - [ ] neutral
    - [ ] disagree
    - [ ] highly disagree
11. Further Questions or Comments?
