

■ A Summer Intensive Bootcamp: Building the Pharmacy Pipeline in Rural Appalachia

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Abstract:

The University of Charleston School of Pharmacy (UCSOP) held an ExRx (Experience Pharmacy) Boot Camp in both June 2015 and 2016. The purpose of the camp was to educate and expose undergraduate and high school students to the importance of the profession of pharmacy as it relates to rural healthcare. The ExRx Boot Camp is a four-day on-campus experience that provides students with real-life simulations of rural healthcare as it pertains to pharmacy practice. Facilitators included pharmacy students who served as interns or counselors and numerous UCSOP faculty and staff. In total, 59 high school and undergraduate students from 12 different states (over 50% residing in rural communities) participated in an exploratory hands-on curriculum focused on the profession of pharmacy. Survey feedback from participants indicated that the ExRx Boot Camp gave them an understanding of a pharmacist's role in serving rural populations, the importance of the pharmacist's role in chronic disease management and public health. Survey data indicated an increased desire by camp participants to pursue a pharmacy career and to work in medically underserved areas.

Introduction

Recruitment of college students is becoming a serious concern for many higher education institutions across the United States. Studies have shown that the pipeline for science, technology, engineering and mathematics (STEM) fields is especially narrowing (Maltese and Tai 2011; Muller 2015). In particular, healthcare fields are seeing a greater demand for entering personnel since the passage of the Affordable Care Act of 2010 (Schwartz 2012). As a remedy to fill health-related programs and increase the pipeline of students into professional health care programs, many colleges and universities have implemented career summer camps where high school students can be exposed to a variety of health professions, learning not only the broad overview of the

field, but the day-to-day operations of nursing, dentistry, medicine, and pharmacy (Gibbs 2005; Lauver, Swan et al. 2010; Winkleby, Ned et al. 2014; Crump, Ned et al. 2015).

At universities with pharmacy schools, camps designed to increase the number of students interested in pursuing pharmacy have been popular recently. As an example of the plethora of camp offerings, in 2016, Husson University in Maine, the University at Buffalo (SUNY), the University of Findlay (Ohio), The University of Toledo (Ohio), Cedarville University (Ohio) and the University of Arizona all held pharmacy-specific summer camps on their university campuses (personal communication).

Over the last five years, pharmacy school enrollment has become more

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competitive. Pharmacy schools have been growing at an unprecedented rate. With the addition of new schools, the applicant pool shrinks, making the market for enrollment tighter (Crighton, Toscani et al. 2016). Some arguments suggest that the growth of pharmacy schools is outpacing the market for pharmacists (Barker 2015). However, this may not necessarily be true in rural, medically underserved areas where the pharmacist may be the only health care provider in the community (MacKinnon 2013). Practicing in rural areas is particularly important as the role of the pharmacist continues to increase and expand to include point of care testing, health assessments, medication therapy and management, and immunization (Ghorob and Bodenheimer 2012).

As a university set in rural Appalachia, we sought to reach out to students in the rural counties of our state and offer the opportunity to learn about the broad field of health care. Throughout the United States, the shortage of healthcare providers is especially felt in rural areas (MacDowell, Glasser et al. 2010). Data from the U.S. Department of Health and Human Services indicates that 43 out of 55 counties in West Virginia (80%) contain areas that are designated as medically underserved (Coyne, Demian-Popescu et al. 2006). Similarly, the West Virginia Department of Education states that 43 of 55 counties in West Virginia are designated as rural areas. (Education 2015) We can deduce that many of these rural counties house medically underserved areas.

The ExRx (Experience Pharmacy) Boot Camp was held over four days as an intensive on-campus immersive experience that provided the opportunity for high school and undergraduate students to explore the profession of pharmacy through a hands-on curriculum. Facilitators included pharmacy students, serving as interns or counselors and University of Charleston School of Pharmacy faculty and staff.

In the two years that we have offered the ExRx Boot Camp our total participants included 59 students (31 in 2015 and 28 in 2016) from 12 different states – West Virginia, Ohio, Kentucky, Tennessee, Virginia, Indiana, Pennsylvania, North Carolina, Florida, New Jersey, New York, and Michigan. Over 50% of participants resided in rural areas of Appalachia (particularly the WV, TN, OH, and KY participants). Attendees engaged in hands-on immersive experiences in the IV, Compounding, and Simulation labs. Participants also attended sessions on the history of pharmacy, medicinal plants, medication adherence, patient consultation, careers in pharmacy, and college/pharmacy school readiness.

The goals and learning outcomes of the camp included: engaging the students in the practice of pharmacy in an effort to increase interest in the pharmacy profession;

increasing the likelihood of students attending pharmacy school and practicing pharmacy in rural areas; providing students with an understanding of the pharmacist's role in patient care and health outcomes in rural Appalachia and beyond; preparing students to apply for undergraduate or professional school by assisting them with their application process and encouraging them to apply their experiences to their educational goals; increasing the students' understanding of pharmacy practice and the role of the pharmacist as part of a collaborative healthcare team; providing an educational forum for students to apply concepts and strategies related to patient care and pharmacy practice; and finally assisting students in making connections between pharmacy practice and health disparities present in rural Appalachia.

Methods

The four-day camp was structured to function as a residential experience for the students. To that end, campers were housed in the dormitories on campus and Pharmacy students interacted in the role of counselors for the students at a ratio of one counselor per five students. The activities consisted of a series of one- to two-hour sessions where students learned about college life and careers in pharmacy. Topics specific to entering college included: University 101, Common Mistakes during the Interview Process, Mock Interviews, Personal Statement Review, and Ethical Decision Making. Pharmacy careers exposure included: The Travelogue of a Tablet (where the process of developing a drug was discussed), Simulation Lab (where mannequins simulate disease states for the students), The Role of a Pharmacist, Careers in Pharmacy Roundtable (with Pharmacists in different fields from the area), Sterile IV Lab (where campers compounded sterile IV solutions and sealed them in IV bags), History of Pharmacy and running a Mock Pharmacy. Interspersed among these topics were fun break-out sessions where ice-breakers and other games were played to establish a sense of team-building and collegial interaction.

In 2015, camp participants completed a 38-question survey regarding their experiences at camp. Thirty-three questions used a five-point Likert-type scale and 5 questions were short-answer, ($n = 28$; 90% response rate). Camp participants in 2016 completed a similar 30-question survey regarding their experiences at camp. Twenty-four questions used a five-point Likert-type scale and 6 questions were short-answer ($n = 28$; 100% response rate). There were four demographic questions asking state of residence, grade level, GPA and gender. Questions specific to the camp's enhancement of the student's interest in pharmacy measured directly if specific sessions increased their knowledge of the field or desire to pursue a career in pharmacy. In both years, the surveys were conducted,

collected and compiled online using SurveyMonkey (www.surveymonkey.com).

Results

Survey questions focused on overall satisfaction with the camp experience and assessment of learning outcomes. In addition, we sought to determine what impact the camp experience had on participants' understanding of the pharmacist's role in serving rural populations.

In both 2015 & 2016, over 80-90% of respondents indicated that they gained an understanding of the pharmacist's role in serving rural populations (fig.1). In addition, 90% said they better understood the importance of managing chronic disease states in rural areas. In 2015, 79% agreed that ExRx Boot Camp helped determine pharmacy as the right career for them. In 2016, however, 90% agreed that ExRx Boot Camp experience helped them determine pharmacy was the right career choice for them (fig. 2). In 2015, 46% of respondents indicated intent to start pharmacy school by 2017. In 2016, we found that 56% of respondents indicated intent to start pharmacy school by 2018. When asked if they learned more about the Pharmacy profession as a result of the camp, 96% responded positively (agree/strongly agree) in 2016 versus 79% in 2015. Staying in the dorms on campus was considered a good experience with 93% reporting positively in 2015 versus 96% reporting in 2016 positively. The interactions with camp counselors and the instructors was assessed positively with 92.9% in 2015 versus 100% in 2016 responding agree/strongly agree to the friendliness of the counselors and helpfulness of the faculty and staff. Finally, comments from the campers were very positive (fig. 3). All 2015 respondents had a GPA ≥ 3.0 . All 2016 respondents had a GPA ≥ 2.6 .

Discussion

Summer camps are increasingly popular ways for pharmacy schools to recruit students to the profession. In an increasingly competitive recruitment environment, many schools are utilizing summer programs as a way to increase the pipeline of students applying to pharmacy school. However, schools located in rural areas (like West Virginia) face especially unique challenges in recruiting students. It is essential that universities located in rural areas of the United States reach out to the high schools in their area to provide a mechanism to address the barriers associated with limited access to healthcare, which include a lack of job prospects and career opportunities and thus a lack of healthcare role models in their communities. In fact, in some rural areas, patients drive more than 50 miles to see a primary care physician.

Recruiting students to programs in rural areas will help emphasize the importance of the pharmacist to patient care, disease management, and public health. By emphasizing healthcare careers and especially pharmacy careers in underserved areas we may facilitate the expansion of allied health services in these areas as newly trained professionals seek to work in their hometowns. As alumni, graduates of this program become essential to managing chronic disease states and promoting positive health outcomes.

With the two years of implementation of our pharmacy careers summer camp, we saw an improvement in the ways we prepared for the camp, the implementation of the activities and the overall satisfaction of the campers. Considerations and recommendations for the future of the ExRx Boot Camp include: 1) increase number of WV, KY and OH high school students and college students who attend the camp either through scholarships or direct marketing (or both), 2) increase discussion of health disparities in rural areas throughout the camp curriculum, and 3) add an off-site service project as a component of the camp to better expose students to health disparities in rural areas.

References

- United States Department of Health and Human Services. Health Professional Shortage Areas (HPSAs). <http://datawarehouse.hrsa.gov/tools/analysers/hpsafind.aspx>
- Barker, A. (2015). "The pharmacy job crisis: blame the pharmacy school bubble." *Pharmacy Times*.
- Coyne, C. A., C. Demian-Popescu, et al. (2006). "Social and cultural factors influencing health in southern West Virginia: a qualitative study." *Prevention of Chronic Disease* 3(4): A124.
- Crighton, M., M. Toscani, et al. (2016). "Are pharmacy schools growing too fast?" *Pharmacy Times*.
- Crump, C., J. Ned, et al. (2015). "The Stanford medical youth science program: educational and science-related outcomes." *Advances in Health Science Education* 20: 457-466.
- West Virginia Department of Education (2015). Urban/Rural Designation for West Virginia Counties and the E-Rate Discount Matrix. <https://sites.google.com/a/wvde.k12.wv.us/erate/training-information/training-updates/fcc-and-sid-numbers-needed-for-application/urban-rural-designation-for-west-virginia-counties-and-the-e-rate-discount-matrix>