

Service Learning Through Involvement of a Pharmacy College in a Community Diabetes Improvement Project

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ABSTRACT. Pharmacy practice faculty and students from Drake University College of Pharmacy and Health Sciences participated in a community diabetes screening, referral, and education project funded by the Wellmark Foundation. The purpose of the project was to improve diabetes health in an urban community in the 50317 zip code area, which has a high prevalence of diabetes within Des Moines, Iowa. Visiting Nurse Services (VNS) coordinated and organized the screenings. Pharmacy students participated in the screenings as part of a service learning assignment for their Introductory Pharmacy Practice Experience (IPPE). Pharmacy faculty participated in the planning task force, developed the data collection tool, coordinated student participation in the screenings, and analyzed the data (entered by a pharmacy student). The VNS tested

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approximately 5,000 people at approximately 100 screenings from October 1999 to June 2000. One hundred twenty-two pharmacy students participated in the screenings and had many positive reflections on the experience. This project demonstrates a valuable service learning experience and a successful collaboration of pharmacy school students and faculty in a community diabetes health improvement initiative. [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <<http://www.HaworthPress.com>> © 2004 by The Haworth Press, Inc. All rights reserved.]

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BACKGROUND AND RATIONALE

Wellmark Blue Cross and Blue Shield of Iowa is a major health insurer for the state. In 1998, Wellmark Incorporated published "Health in Iowa: The Wellmark Report" as a toolkit of information, ideas, and resources for health improvement projects in communities in Iowa. A detailed analysis of the claims-made data that was generated from 1995 to 1998 and was included in the report found the highest prevalence of diabetes in Des Moines, Iowa, to be in the 50317 zip code area of Polk County, east of Drake University (1). The prevalence in this area was 11% and greatly exceeded a national prevalence of 5.9%, based on CDC demographic information available at the time.

The presentation of this data to a group of people invested in healthy communities in the Des Moines area spearheaded the formation of a diabetes task force to address health concerns related to this disease state in our capital city. The diabetes task force was assembled following presentation of this data to members of Healthy Polk 2010 and Healthy Iowa 2010, organizations committed to improving the health of communities in Polk County and Iowa. The charge of the task force was to develop an action plan to address diabetes health in our urban Des Moines community. The task force was comprised of a diverse group of health care providers; educators, including members of our pharmacy practice faculty; and community advocates. Members met regularly during the next year to develop a grant proposal that would not only create a broad coalition for improving community health in diabetes in this zip code area but would also create a model that could be transportable to other commu-

nities in Iowa. The grant proposal was approved and funded by the Wellmark Foundation, a nonprofit foundation of Blue Cross Blue Shield of Iowa and South Dakota, for the time period of August 1999 to August 2000.

The pharmacy practice faculty members of the task force envisioned the project as an opportunity for improving community health through their direct efforts and also for service learning for pharmacy students. Providing students with these experiences encourages the integration of didactic and applied knowledge. The use of service learning as an early experience is valuable in understanding the socioeconomic, behavioral, clinical, and cultural influences on patient care and is encouraged by ACPE and AACP. In addition, these experiences can plant the seed for civic involvement and foster collaborations with community partners who develop a greater appreciation of the pharmacist's role in health promotion and prevention initiatives (2-4). Early experiential learning is already required in our six-semester Introductory Pharmacy Practice Experience (IPPE) course sequence. Our diabetes project became a required service learning activity within the IPPE sequence.

PROJECT AND COLLEGE GOALS

The overall goal of the project was to provide a screening program, a clinician referral, and diabetes education to residents of the 50317 zip code area. The task force developed these goals based on American Diabetes Association (ADA) recommendations that community screening programs incorporate referral to a clinician for further evaluation of an abnormal blood glucose screen. The task force also wanted to increase the level of awareness of risks for diabetes among all participants, regardless of their blood glucose reading during the screening, as nationally about one-third of people with Type 2 diabetes are undiagnosed and asymptomatic (5).

Specific project goals were to:

1. Screen 5,000 of the 39,000 residents of the 50317 zip code area. This was a realistically achievable number based on the emphasis by the ADA on only screening high-risk populations, estimates of diagnosed and undiagnosed cases in that area, personnel resources available, and experience of the Visiting Nurse Services (VNS) in screenings of this nature.
2. Develop a coalition of community partners to plan and implement the screening clinics.
3. Enhance the level of awareness of the risks of diabetes in participants during the screenings and offer follow-up education to all participants after the screening.

4. Refer people with abnormal blood glucose readings to physicians for follow-up.
5. Contact participants referred to physicians to determine whether or not they were diagnosed.

The College of Pharmacy established a number of goals for involvement in the project. We wanted to involve pharmacy faculty task force members as collaborators with other community and public health partners in the planning process to create a stronger community health connection to our university and the College of Pharmacy & Health Sciences. We also wanted to solicit the participation of pharmacy students in the diabetes screenings as a service learning component of an IPPE course for students in their first professional year. Finally, we wanted to enable the college to provide leadership in project design, data collection, and data analysis, thereby setting the tone for future collaborations.

PROJECT DESCRIPTION

The diabetes task force met monthly for one year prior to grant approval to identify community partners for the screenings, determine outcomes to measure, develop a data collection tool to be used at the screenings, determine screening logistics, identify screening sites in the community, and collaborate on grant writing and application.

One of the pharmacy faculty members developed the data collection tool to be administered at the blood glucose screenings (Appendix A). Components of the tool were crafted from discussions among the task force members, review of materials used by VNS and the Iowa Department of Public Health in community screenings, review of the primary literature on diabetes screening, and the Diabetes Risk Test available in brochures printed by the American Diabetes Association.

Visiting Nurse Services (VNS) coordinated the screenings, provided the nurses to complete data collection at the screenings, and performed blood glucose testing. Within a few months after the screening, the VNS nurse coordinator made telephone calls to screening participants who had been referred to their physician to determine patients diagnosed with diabetes after referral.

Participation in the screenings was required for pharmacy students as a service learning project for one of the IPPE course sequences. Our IPPE course is required and offered every semester during the first, second, and third professional year. These introductory experiences in pharmacy and health care are designed to provide the student with opportunities for immediate and longitu-

dinal application and integration of knowledge and skills gained in the classroom. This community project enabled students to meet a requirement of IPPE 2 that students participate in projects that enable them to explore community resources available to aid special populations in obtaining appropriate health care. A faculty task force member coordinated the scheduling of students at the various screening sites during the course of the project. Students assisted participants in completing the data collection form, obtaining an accurate weight on scales provided, and taking the American Diabetes Association (ADA) Diabetes Risk Test included on the form. Students also handed out the ADA brochure "Know Your Score, Take the Test" to all participants to educate them on their risks for diabetes and to enable them to share this information with family and friends after the screening.

A student was solicited to enter project data into a Microsoft® Access® database formatted to accommodate the data collection sheet developed by one of the task force faculty; the student was paid through the project grant funds. Data were imported into a Microsoft® Excel® spreadsheet and analyzed by a faculty investigator. Descriptive statistics and correlations were performed on screening data. The following data were collected: total number of participants screened, demographic information, proportion of participants screened with abnormal blood glucose readings, correlation between results of the ADA Risk Test and blood glucose reading, proportion of patients referred to physicians who completed follow-up, and proportion of participants newly diagnosed with diabetes after physician referral. Student experiences were evaluated through submission of a short reflective paper required for IPPE 2. Format for this paper was guided by David Kolb's learning cycle, described in a book on student reflection papers by Eyler (6).

PROJECT RESULTS

Four thousand nine hundred eighty-eight records were evaluated. Of those screened, 86% were Caucasian. The mean age for the group was 49.2 years (S.D. 18.4), with a range of 4 to 100 years. The majority of individuals (67.4%) were between the ages of 30 and 69. Fifty-eight percent of those screened were female. In addition, 12% had a previous diagnosis of diabetes.

Data for glucose readings were evaluated based on the three classifications: (1) fasting or when an individual had consumed no food in the previous eight hours, (2) random or when an individual had eaten within the last eight hours, and (3) all fasting and random participants. Glucose readings of less than 30 mg/dl observed in 4 people without signs or symptoms of hypoglycemia as

evaluated by the screening nurses were considered anomalies and were eliminated from the analysis.

Six hundred four participants (13%) had an abnormal glucose reading of ≥ 140 mg/dl. Of these, 374 had no prior diagnosis of diabetes. Two hundred of the participants with abnormal readings not previously diagnosed with diabetes contacted their physicians with the results of their screening. Fifty-eight individuals were subsequently diagnosed with diabetes after physician evaluation. A more complete document on the project and its findings can be obtained from the Wellmark Foundation (7).

STUDENT REFLECTIONS

A total of 122 students participated in the screenings. Students were required to submit a written reflection paper on their experience in the IPPE course. Our hope for students engaging in this service activity was derived from a quotation by Honnet and Poulsen: "Service, combined with learning, adds value to each and transforms both" (8). Students were asked to reflect on their thoughts and feelings, their perceptions of patients and providers, and any positive or negative aspects of the experience. The comments below were extracted from these reflection papers:

"I enjoyed working one-on-one with patients."

"I enjoyed the communication with patients and explaining risk factors [associated with diabetes]."

"It was beneficial to work alongside other health professionals and see how they work and interact with the patients."

"Expanded my knowledge of [what goes on in a diabetes screening]."

"The reward of the experience was seeing the many individuals who became more informed on the importance of getting their blood sugars checked."

"[My frustration was] to see how many people just have no idea about the importance of preventative services and why they should seek them."

"The lifestyle habits of a few of the patients were somewhat of an issue. Many of them stated they ate fast food on a daily basis and were not overly concerned with their health partly due to time constraints."

“I was somewhat concerned about my own readings. I tested as borderline, which came as a surprise to me. I have since changed my diet to include less sugar intake and have set up an appointment with my doctor concerning this matter.”

Feedback from the VNS nurses regarding involvement of the pharmacy students was very positive. They commented that the students conducted themselves very professionally, interacted positively with VNS staff and screening participants, demonstrated a good basic understanding of diabetes, and provided essential manpower in assisting with the screening workload.

LESSONS LEARNED: THE STUDENT AND COLLEGE PERSPECTIVE

Our involvement as a college in this project was very positive for our students, our faculty, and the community.

Use of the IPPE as an early professionalization tool benefits students by exposing them to practice philosophies, enabling them to broadly consider career paths, and reinforcing their classroom learning (9). Other authors have incorporated public health screenings within their IPPE courses and have found positive reinforcement for the pharmacist’s role as well as practical application of knowledge (10). Our students who were involved in this project as part of IPPE developed a better appreciation for the realities of diabetes prevention and education far beyond lessons learned in a classroom. The challenges of diabetes unawareness and negative health behaviors such as inattention to lifestyle became readily apparent during the screenings. Students learned the value of collaborating with other health care providers in improving public health, reinforcing their role as future health professionals participating in community health initiatives. Some students had no exposure to blood glucose testing prior to attending the screenings and appreciated the opportunity to observe this technique. One student had a very personal experience related to his own blood glucose reading and changed his behavior directly as a result of his project experience.

The faculty members involved in this project were able to contribute their unique knowledge and skills to successful grant application, project implementation, and data analysis. The opportunity to network broadly with diverse community health advocates and providers created future opportunities for additional collaboration. Some of these pharmacy task force members are now involved in a major community access project funded by HRSSA and are working with some of the same collaborators involved in the project outlined

in this paper. In addition, collaborators at the Wellmark Foundation have solicited our involvement in related projects. The Wellmark Foundation publication of project results has been included in tenure and promotion materials by faculty involved and certainly contributed to positive outcomes in these endeavors. Faculty time was either donated as "in kind" or reimbursed based on budget line items for statistical analysis included in the grant.

The community experienced direct benefit through an increased awareness of diabetes risks and diagnosis of a chronic disease that many were unaware of prior to the screening. Initially, it was estimated that 15.5% (58/374) of people not previously diagnosed with diabetes who had an abnormal screen were ultimately newly diagnosed with diabetes by their referring physician. Continued follow-up of referred patients even after termination of the study revealed at least 80 people who were ultimately newly diagnosed.

CONCLUSION

Faculty and students at a college of pharmacy have the capability to enhance community health through collaborations with community partners. Students who engaged in an early service learning project developed an appreciation for the roles of other health providers in health screenings and demonstrated realistic views of the opportunities and barriers for improving public health and diabetes in particular. This project demonstrated the ability of a pharmacy college to improve diabetes health by improving awareness of risks and informing people who were not previously diagnosed of a chronic condition that could be successfully identified and treated.

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APPENDIX A

Healthy Polk 2000 Wellmark Diabetes Screening Project

Consent: I hereby authorize the taking of a blood sample to be used for the purpose of determining my blood sugar level. I specifically agree Visiting Nursing Services (VNS), the Wellmark Foundation, its agents and employees, or any other entity associated with the project will incur no liability whatsoever arising out of the taking of the blood sample. Furthermore, I give permission for my results and any other given information to be shared with a designated physician. I also give permission for VNS to contact me in the future regarding these results. I am aware that aggregate results of this screening program may be published or presented, however, my identity will always be protected.

Screening Site: _____ Date of Test: _____

First Name: _____ Last Name: _____ Telephone: _____

Address: _____

City: _____ State: _____ Zip: _____

Daytime Phone Number: _____

Evening Phone Number: _____

Birthdate: _____ Gender: Male Female

Race: American Indian or Alaska Native Asian Native Hawaiian or Pacific Islander

Black or African American White Hispanic, Spanish, Latino

Other (Please list) _____

APPENDIX A (continued)

1. What is Your Preferred Speaking Language?

- English Sign
 Spanish Other: List _____

2. Has a physician ever told you that you have diabetes or high blood sugar? Yes No

3. Do you have a doctor you see at least once a year? Yes No
 If yes, who? _____

4. How did you find out about the clinic?

- Radio Sign Church School
 Television Flyer Poster Individual

5. The last time I ate was 0-2 hours ago. It consisted of a meal
 2-8 hours ago snack
 more than 8 hours ago

DIABETES RISK TEST (Check if answer is YES) (Points)

1. My weight is equal to or above that listed in the chart. (5)
2. I am under 65 years of age and I get little or no exercise. (5)
3. I am between 45 and 64 years of age. (5)
4. I am 65 years old or older. (9)
5. I am a woman who has had a baby weighing more than 9 pounds at birth. (1)
6. I have a sister or brother with diabetes. (1)
7. I have a parent with diabetes. (1)

Total Score:

Data Collection: If test was positive please mark that you gave the person the vouchers

- _____mg/dl Blood Glucose Level Given Education Voucher
 Follow-Up
 Medical Attention Recommended
 Decline