Service-Learning Projects in a Public Health in Pharmacy Course[1]

Jean T. Carter and Gayle A. Cochran

School of Pharmacy and Allied Health Sciences, The University of Montana, Skaggs Building, Missoula MT 59812-1522

This teaching innovation introduced students to service-learning projects that would impact public health in the community and state. Third-year pharmacy students in the required "Public Health in Pharmacy" course, worked in groups of eight to 10 students on an assigned a project. They worked with community representatives to plan, implement or evaluate programs during fall semester. Student attitudes, contributions, and understanding of the project were measured several times during the semester. Data showed that students found these real world experiences frustrating at times and wanted more structure in their projects. Their peer evaluations were generally high, but the overall experience was often under-valued. This service-learning model has been well received at community sites and, once the impact of their project becomes evident, by pharmacy students. It is particularly appropriate for groups of advanced students and may require fewer resources to administer than more traditional service-learning programs.

BACKGROUND

Service-learning is a relatively new concept for pharmacy education with few articles published in the pharmacy education literature to date(1-5). In a survey of U.S. pharmacy schools conducted in 1997, 17 schools reported having a program in place that utilized service-learning(6). Since that survey, another 11 schools have presented information at American Association of Colleges of Pharmacy annual meetings on the topic. However, a uniform definition of service-learning is not utilized by all pharmacy schools, so these programs vary significantly from school to school.

A search of the literature did not reveal any service-learning programs structured along the model utilized by the authors. Additionally, in reviewing service-learning activities that are being conducted in other healthcare professional programs, no examples similar to this model were found. Most of the service-learning programs in U.S. pharmacy programs appear to focus on the provision of pharmacy services and to involve individual pharmacy students in their second to fourth professional year(1-5). The results of this literature review coincide with the results of the 1997 survey(6).

In 1998, a service-learning component was incorporated into the professional curriculum of the University of Montana Pharmacy program. The "Public Health in Pharmacy" course was selected as the site for this learning activity. Initially, third professional year students were required to go into the community, find a project to which they could commit up to 10 hours of service, and prepare a written report about their project. In 2000, the service-learning activities were reviewed and subsequently revised. This is a description of the changes made to the service-learning activities in that public health course and the results to date.

DESCRIPTION OF INNOVATION

Revision and supervision of the service-learning projects in the public health course were conducted by the course coordinator and a second faculty member who had attended a CCPH Service-Learning Institute. The revised projects took advantage of the course material (public health) and the advanced standing of the students. Some of the more notable changes were the use of groups rather than individual students; the identification of potential projects by the faculty rather than the students; and increased monitoring of groups and projects throughout the semester.

Each project incorporated the four elements of service-learning: (*i*) involvement of a community organization; (*ii*) enhancement of the academic curriculum; (*iii*) fostering civic responsibility, and (*iv*) reflection on the experience. In addition, students practiced their skills in interpersonal and professional communication, leadership, conflict management, and group behavior. The specific learning objectives for the service-learning projects were:

1. Given a community-based problem, students will work with members of the community to assist with the problem.
2. Given a community based problem, students will work with other students to assist with the problem.
3. Students will provide a solution or new information about an issue or problem that will be shared with the community organization.
4. Based upon their experience, students will make recommendations for future action on the problem or issue.
5. After reflecting upon their own experience, students will be able to describe what they liked and did not like about the experience.

Incorporating into the Curriculum

Approximately 60 students take the required Public Health in Pharmacy class each fall, which was where service-learning

projects was supervised and graded. The course syllabus contained information about project grading, due dates, and expectations for group behavior. Activities related to the project accounted for half the grade in the course. The project-related activities and their percent of the total grade were a final report (20 percent), three reflection papers (15 percent), final presentation (10 percent) and group participation (five percent). In addition, students received written materials and an in depth orientation lecture about service-learning during the second week of the semester. At the end of that orientation session, group and project assignments were made.

Throughout the semester, students were given class time to work in their groups. They had one hour in the public health course and two hours (two one-hour sessions) in a separate discussion course, Integrated Studies V (IGS V). These in-class work sessions were scheduled three to four weeks apart.

At mid-semester, one lecture session was set aside for students to present informal reports on the progress of their projects to their classmates. At the end of the semester, the last two class periods and the final exam time were used for group presentations of their projects. The total number of public health class lecture hours dedicated to the projects was five lecture hours plus the final exam time.

Assigning Groups

The service-learning project groups had 8-10 students each. Students were assigned to a group based on their enrollment in another required course, Integrated Studies V (IGS V). The IGS V course has six sections that enroll up to 10 students each. The IGS V discussion class met weekly for two hours, although the sessions often ended earlier, giving students about 15 minutes at the end of many the sessions to spend time on their project. In addition, the IGS V coordinator scheduled two one-hour time slots during IGS V for the service-learning projects. Because of this scheduling, the students never complained about not being able to meet with their groups.

To help the students organize their efforts and delegate work within their groups, "Group Roles" were introduced in the second year. Within a week of receiving their project assignment, groups were expected to have students assigned to the Leader, Co-leader, Recorder, Resource Manager, and Technology Support roles. Students were encouraged to share responsibilities and build on the strengths of their teammates when assigning roles or tasks. The descriptions of the group roles and procedures are provided in Appendix A.

Assigning Projects

The projects were assigned to groups in a manner that would facilitate the advisors' ability to attend the groups' IGS sessions. Groups with more members were also targeted to receive the projects that appeared to require more work. The two faculty advisors supervised at least three projects apiece each year.

During the orientation lecture session, each student received a packet that contained a brief description of the problem or project, the name of the community contact person, related materials if they existed, procedures for the group and a timeline to keep them on schedule. Students also received specific information about the formats and deadlines for the final report and presentation. Students were given enough time to meet briefly with their team and faculty advisor to get organized, assign group roles, and plan activities for the next several

weeks. Students were encouraged to contact their advisor as often as needed.

Project Descriptions

In the first year (fall 2000), seven projects were conducted by students. They included promoting blood drives on campus; assisting with efforts to pass a new Pharmacy Practice Act; creating a child safety education program; tracking immunization rates for the geriatric population; estimating stocks of Pharmaceuticals for treating plague and anthrax; designing a single-dose Chlamydia treatment education program for physicians; and determining interest in emergency contraception programs. Students worked with representatives from the local health department, campus family housing, and the state pharmacy association. Two of those representatives were also faculty members.

Based on comments from the first year, the focus of the second year (fall 2001) projects were changed to include more hands-on activities with pharmacy or medical focus. Projects included two continuation projects: the child safety program and the geriatric immunization rate study. Students assigned to these projects were expected to build upon the work of their predecessors. The remaining projects were new and included providing information about blood chemistry labs; studying hand washing habits and upper respiratory infections rates in dormitories; designing a campus-based tobacco cessation program, and planning self care kits for viral upper respiratory infections. The contacts for these community and campus groups were from the local health department, a medical clinic, campus health enhancement and family housing. None of these contacts were faculty members. More details about the activities in each project are provided in Appendix B.

ASSESSMENT METHODS AND RESULTS

Data Analysis

Quantitative and qualitative data were collected for this innovation. Quantitative data were analyzed with unpaired t tests and descriptive statistics (frequencies and means). Actual calculations were performed in EXCEL 97 spreadsheets. Alpha was set at 0.005 per comparison based on a Bonferroni-like correction. Qualitative data were reviewed by the two instructors to look for trends in comments.

Pre and Post Attitude Measures

A 10-item pre- and post-attitude questionnaire was administered to the students during the second and final week of the semester. Responses were anonymous, so the questionnaire was used to track the overall change in attitudes. Anonymity was used to allow students to express freely their opinions about the projects and process.

The results of the pre- and post-test for the two years are presented in Tables I and II. In the pre-test, students rated "promote the practice of pharmacy" the highest with scores of 3.98 (2000) and 3.85 (2001). In the post-test, they rated the "not a bad group experience" item the highest with scores of 3.65 (2000) and 3.70 (2001). In both years, the "busy work" item received the lowest ratings in the post-tests.

In both years, many of the items showed a significant change from pre- to post-test; however, all but one was in a negative direction. The one item that showed a change in a positive direction in the second year was, "(not) an overwhelming responsibility."

Table I. Percent agreement and means (SD) for the pre- and post- project attitude questionnaires in 2000

I believe the service-learning project will be:	Agree [a]	Pre-test (n=58)	Agree [a]	Post-test (n=55)	*P* value
an opportunity to help the community.	86%	4.23 (0.866)	53%	3.18(1.140)	0.000[a]
a way to promote the practice of pharmacy.	76%	3.98 (0.813)	53%	3.15(1.297)	0.000[b]
a good way to work with classmates.	69%	3.84(0.751)	60%	3.36(1.176)	0.012
a good use of my time.	71%	3.72 (0.774)	22%	2.58(1.031)	0.000[b]
an opportunity to make a difference.	67%	3.70 (0.906)	42%	2.96(1.138)	0.000[b]
an opportunity to apply my knowledge.	64%	3.65 (0.935)	29%	2.65(1.109)	0.000[b]
(not) a bad experience working with a group.'	50%	3.58(0.731)	62%	3.65(1.126)	0.676
(not) a poor use of my time.[0]	41%	3.40(0.821)	22%	2.56(1.014)	0.000[b]
(not) an overwhelming responsibility.[0]	33%	3.04(0.823)	58%	3.55(1.068)	0.006
(not) an example of "busy work" [c]	24%	2.61 (1.081)	15%	2.18(1.020)	0.032

[a] Percent of scores greater or equal to four on a five-point Likert scale that is anchored at l = strongly disagrees and 5=strongly agrees.
[b] Level of significance set at P < 0.005 per comparison.
[c] Score reversed and the item paraphrased *(i.e.,* "NOT" added) so that a higher value implies a more positive response.

Table II. Percent agreement and means (SD) of pre- and post- project attitude questionnaires in 2001

I believe the service-learning project will be:	Agree [a]	Pre-test (n=58)	Agree [a]	Post-test (n=55)	*P* value
an opportunity to help the community.	87%	4.15(0.627)	54%	3.35(0.971)	0.000[b]
a way to promote the practice of pharmacy.	67%	3.85(0.811)	43%	3.00(1.095)	0.000[b]
an opportunity to apply my knowledge.	78%	3.83(0.818)	24%	2.65 (0.994)	0.000[b]
an opportunity to make a difference.	57%	3.61 (0.834)	33%	2.96(1.074)	0.000[h]
a good use of my time.	65%	3.59 (0.942)	20%	2.65 (0.900)	0.000[b]
a good way to work with classmates.	54%	3.56(0.817)	46%	3.33(0.818)	0.165
(not) a bad experience working with a group. [c]	52%	3.50(1.069)	57%	3.70(1.093)	0.383
(not) a poor use of my time. [c]	54%	3.25(1.282)	15%	2.70(0.916)	0.000[b]
(not) an example of "busy work." [c]	24%	2.63(1.408)	13%	2.21 (1.047)	0.105
(not) an overwhelming responsibility. [c]	24%	2.50 (0.926)	35%	3.39(0.714)	0.003[b]

[a] Percent of scores greater or equal to four on a five-point Likert scale that is anchored at 1 = strongly disagrees and 5=strongly agrees.
[b] Level of significance set at *P* < 0.005 per comparison.
[c] Score reversed and the item paraphrased *(i.e.,* "NOT" added) so that a higher value implies a more positive response.

FORMATIVE ASSESSMENTS
Reflection Questions
Twice during the semester, each student provided short written answers to four questions: (*i*) What have you personally contributed to the service-learning project to date; (*ii*) What have you learned about your project topic; (*iii*) What have you learned about your target population; and (*iv*) What have you learned about your service-learning group? Space for additional comments was also provided.

The students' responses were collected and returned to the faculty advisor at the end of the session. Responses were reviewed for potential group or project problems. Initially anonymous, the forms were changed to confidential in the second year to allow faculty advisors to track potential problems. Students received up to 10 points for each assessment, with points awarded for completeness and not content.

Between the first and second assessment, students tended to show improved understanding of the project and increased involvement in project activities. Occasionally, comments indicated some conflicts between group members or concerns that someone was doing too much or too little.

Good News, Bad News Session
This mid-semester session allowed the groups to share their project successes and barriers with each other. Students were asked to present something that was going well and something they were having trouble with to their classmates. The informal session was conducted by a fourth-year pharmacy education clerk to allow students to speak freely. The clerk recorded the good and bad news items for each group and provided that information to the advisors.

Reassuring students that they would not lose points because of external factors that were interfering with their projects did not seem to alleviate their feelings of frustration. However, sharing their experiences during the "Good News, Bad News" session and in their presentations did seem to help students feel better about the amount of progress they made in their own projects. It also provided another way to spot potential problems early in the process.

Advisors' Notes
This was another mechanism used to keep the instructors informed about each other's projects and to document project progress. These one paragraph summaries of each IGS V session captured group dynamics as well as project progress. See Figure 1 for a sample paragraph.

SUMMATIVE ASSESSMENTS
Reflection Letter
This end of the semester, one-page reflection letter required students to write to a friend or family member, describing something about their project that really stood out. It could be a positive or negative experience. This activity required the students to think about their project and to express their opinion or feelings about it. Students were allowed to hand in hard copies or e-mail their letters to the course coordinator by the end of the last day of the semester. Students received full points if their letters were turned in on time; late letters lost 10 percent of the possible points.

In both years, a majority of the reflection letters contained positive comments about the project and group as well as

Fig. I. Advisor's notes

Fig. 2. Example of student problem solving.

pieces of new knowledge or observations students made about working with their community contact person and the public.

Project Presentations

At the end of the semester, each group was required to present their project to their classmates. The choice of the number of speakers and type of media used for the 18-20 minute presentations was left to the students' discretion. Every member of the group received the same grade, so students were encouraged to find a combination of speakers and media that would produce an optimal result. Presentations were assessed on three main characteristics: Presentation skills, content, and appropriate use of media. At least two faculty members assessed each presentation and their scores were averaged to arrive at the final points.

Final Report

Each group was also required to produce a written document that described their project activities and results that could be printed to the community contact person. Criteria for the report were used to standardize the grading, although the nature of some projects was such that not all criteria fit well. Grades were based on the appearance (presentation) of the report, content, and grammar. Each report had at least four required sections: Introduction / Background; Methods; Results; and Recommendations. The minimum page length was five pages, but many required more. Students were encouraged to include copies of brochures or other materials developed as part of their projects. As with the presentations, all students within a group received the same grade for the report. Students were encouraged to assign the report to their strongest writers, but many opted to have everyone contribute portions. The final report accounted for the largest portion of the service-learning project grade.

In both years, students reached different levels of completion with their projects by the end of the semester. Overall, those students who were able to report a result were most pleased with their project. Students who experienced delays caused by external factors *(e.g.,* flu vaccine delays in the geriatric immunization project) and those working on projects that were creating or implementing a new program *(e.g.,* smoking

cessation, Well Check Fair) were most likely to express frustration and dissatisfaction with their projects. In spite of frustrations, all groups made thoughtful recommendations for future work or evaluation of the projects.

Building on the work of a previous group was successful in the Child Safety project and considered repetitive in the Geriatric Immunization project. The results obtained by the Child Safety group seemed to lift the spirits of the students who were struggling with new programs that were in their first year *(e.g.,* Well Check Fair). It also showed the students how their recommendations could be used.

Self and Peer Assessments

Students were required to assess their own and their peers' behavior in the group. The end of the semester evaluation form was designed to look like the form students use each semester to rate their instructors. It used a five-point Likert-like scale *(i.e.,* 1 = poor to 5 = excellent) with a space for comments. Responses to the peer evaluations were confidential. Students received points based on their average evaluation points. For example, if a student received an average of 3.5 out of a 1-5 scale, they earned seven of the ten possible group points. The results varied by group, which made them more difficult to interpret. A couple observations held true across both years. Many students rated their own performance lower than their peers did. Their peers also tended to give them higher performance rating than they gave themselves. One or two groups showed such great variation in ratings across students, that confounding factors, such as personality conflicts, appeared to have been measured.

Each year, about two groups had perfect ratings (5s) for all the team members. This may have been due to students agreeing to rate each other highly or the sign of a group that worked well together. Using notes and observations made by faculty advisors during the semester, the causes of these identical results could be teased out.

Only one group in the first year and one in the second year had obvious problems with personality conflicts. The size of the groups usually allowed other group members to buffer the effect. Both groups were able to complete their projects and reflected their feelings about one another in their peer evaluations.

Student Evaluations of the Projects

As part of the overall course evaluation, the projects were evaluated. A majority of the students rated the project as "aver-

age" in the second year. For every comment that found the project "lame" there was one that found it "interesting." Some students wanted more organization. One student thought immunizations was old news and suggested that new updated topics be used!

Students described their ability to work with community members to meet a need in their presentations and reports. Not all students had the satisfactory experience of meeting all of their project objectives. However, even those who failed to meet the objectives seemed to learn something about working on real world projects. Figure 2 describes how one group built on the work of the previous year to solve a low attendance problem.

Community Contact Feedback

The course instructor solicited comments from the community contacts at the end of the semester. Overall, the informal feedback from the community contacts was favorable. Most were-appreciative of the help and enjoyed interacting with students. They were usually willing to work with another group the following year.

In the first year, one of the contacts that was also a faculty member complained that the students in her group should be doing more. It appeared that this person had different expectations than the other community members. Students in groups with a faculty member representing a community group had difficulty relating to the community organization. The students felt they were just doing the faculty member's work and not really helping the community. These comments led to using only external contacts in the second year.

In the second year, one of the community contacts attended the students' presentation of their project at the end of the semester. She publicly thanked her group for their efforts at the end of their presentation. After that session, many students independently approached the course coordinator and told her that they thought that public "thank you" was a real boost. Even students working on other projects felt better about what they had done.

Volunteered Comments from Former Students

Three students who participated in projects in the first year shared their revised opinions with one of the faculty advisors during the second year. Two of them had completely panned their anthrax and plague project the previous year. After September 11, 2001, they viewed the same project in a very positive way. A third student was amazed to learn how much the materials a student group had prepared to facilitate the passage of a new practice act were being used.

These comments illustrate one of the limitations of end of semester assessments - the full impact of a project on the community is not always apparent at the time of completion. Also, some projects were focused on planning and their impact will not be seen until a subsequent group implements their plan. Students had more positive attitudes about the project when their impact was immediate and apparent.

DISCUSSION

Ensuring that students have a positive and rewarding experience in a service-learning program should be of paramount importance. Otherwise, students may not want to seek future opportunities to serve their communities. Providing feedback to students about the impact of their projects on the community appears to be a pivotal factor in their perception of the experience

as a good or bad. Since students respond favorably to hearing a public "thank you" or to knowing their projects had an impact, finding ways to provide this information will be a priority for fall 2002. Building on the work of prior groups also appears to give students a sense of what their work means and how it can be used by others.

Another aspect of satisfaction is expectations. The negative trends in the pre and post project surveys seem to indicate that the expectations for the experience were higher than what students actually experienced. The instructors are critically reviewing the instrument as well as the projects to determine how to improve the experience and measure the results. Ideas for increasing student understanding of service-learning as described by Nickman will be explored(1). Because satisfaction with the group may be confounding satisfaction ratings for the service-learning experience, those items will be separated into distinct sections on the instrument. It may also be informative to collect data on the project and group assignments.

It is difficult to say whether the negative trends observed in this program are normal, because most programs measure only post-project attitudes. Barner found a significant increase in first professional year students' perceptions of community service using pre- and post-testing. Overall, student responses were positive (3.6 - 4.0 on a 5.0 scale) on three questions regarding the value of the service-learning experience(5). Of two other pharmacy schools that have published their evaluations of students' perceptions of the service-learning experience, Nickman found positive reactions to service-learning among first professional year pharmacy students in a post-experience evaluation(1). In surveying first and second professional year students after service-learning experiences, Piper et al. found that the majority of students thought that the experience was educational, but only approximately 20 percent felt that it should be extended beyond one semester and approximately 25 percent felt that the requirement for service-learning should be eliminated(3). Direct comparison of the results of these various programs is complicated due to the use of different questions and the variety of experiences measured.

The one exception to the negative trend in pre-to-post attitude scores was in the second year, when the students said the projects were not as overwhelming as they originally thought they would be. When this information is combined with the formative assessments that indicated each student had definite tasks for which they were responsible and the lack of complaints about being overworked or unable to complete the project, it seems indicate that the size of the groups were appropriate. Groups were sufficiently large to accommodate a complex, poorly defined problem and sufficiently small enough to give everyone a role in the process.

The use of groups to develop programs is one of the distinctive features of this program. Most of the programs described in the literature had individual students approaching agencies with existing programs. Of those that did have students develop programs, it appeared that they did so individually or in pairs. In this model, 10 students tackle a complex, labor-intensive problem that would overwhelm an individual or pair of students. These groups can take on a project that an agency just does not have the manpower to do.

There is little or no published data from professional pharmacy students performing service-learning in the latter years of the pharmacy curriculum. Lansam found increased interest in service-learning in second professional year students, compared to first year, but the second year project was much more

pharmacy-focused(3). Several authors have cited the availability of student time for service-learning as a constraint to implementing such programs(2,3,6). One could speculate that requiring participation late in the pharmacy curriculum in a student project that is community-focused, rather than pharmacy-focused, might not be popular among students. However, the model does allow advanced students to tackle community problems from a background of pharmaceutical knowledge and skills, similar to the way a practicing pharmacist would.

IMPLICATIONS FOR OTHER PROGRAMS

The model described in this manuscript is not meant to replace early experiences in the pharmacy curriculum, but offers another way to incorporate service-learning into the pharmacy curriculum. By involving more senior students, the emphasis can be shifted from learning about the individual community members' problems and issues to learning about and working on community health problems and issues. By assigning students in groups, they not only gain valuable experience on how to function productively in such groups, but fewer community sites are required. For example, for a class of 60 students, 60 individuals or families would be required for the early experience service-learning model where only six or seven project sites are required in the public health model.

This service-learning model prepares students for a number of opportunities and realities that they will encounter in pharmacy practice. It opens their eyes to the roles that pharmacists can play in public health in their future communities. It provides an opportunity for students to work with community professionals from other disciplines. It exposes them to the group process and organization which is the method by which most community activities are accomplished. And, finally, it illustrates "real life" with all of its frustrations and disappointments as well as its successes and triumphs.

Not every school of pharmacy has a public health course, but this service-learning activity could also be carried out in conjunction with a variety of other pharmacy courses, such as current topics in pharmacy, pharmacy ethics, or pharmacy administration courses. The type of community projects selected could be adapted to the subject material of the course. We have demonstrated that a faculty member carrying a regular workload can comfortably supervise up to four of these service-learning projects at one time, which encompasses up to 40 students. Having at least two faculty members involved in the administration of the service-learning component distributes the workload and increases the chance of one of them to be available if any "trouble shooting" is required on the projects.

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APPENDIX A. GROUP ROLES AND PROCEDURES

Assign One Student to Each Role:
Leader. Responsible for scheduling, planning, and running group meetings, meeting with the project faculty advisor on a scheduled basis, tracking tasks and assignments, encouraging involvement of all group members, and working on the project.

Co-leader. Responsible for working with the leader to ensure that meetings are planned and scheduled and tasks and assignments are made and completed. The Co-leader will evaluate the progress of the group, remind everyone of deadlines, and help keep meeting discussions "on task." If the Leader cannot attend a meeting, the Co-leader will be responsible for running it.

Recorder. Responsible for writing and storing the minutes of each meeting. A copy of the minutes should be provided to (*i.e.,* e-mailed) to the faculty advisor. The Recorder should also maintain all team member contact information (telephone numbers and e-mail addresses).

Resource Manager. Responsible for collecting information (electronic and hard copy), products, and other project-related items and keeping them in a central location. This is done to maximize access and minimize loss of project items.

Technology Support. Responsible to other team members and should be available to assist them with project presentation, brochures, spreadsheets, data analysis, or other things that may require knowledge of various publishing, spreadsheet, or presentation software.

All team members are responsible for taking an active role in the project. Individuals should attempt to volunteer for a fair share (*i.e.,* not too much, not too little) of the work. This includes the individuals who also have other roles in the group (*e.g.,* Leader, Recorder).

Group Procedures:
1. Limit the number of group members who contact the community person.
2. Prepare a list of questions about the project prior to meeting with the contact person.
3. Meet with the contact person to discuss the project.
4. Develop a plan to guide the team's efforts. (You will eventually use the plan to split project into parts that may be completed by various members of the team and create a timeline for completion.)
5. Discuss plan with faculty advisor. (The faculty advisor will help your team develop a plan that can be completed this semester.)
6. As a group, set the timeline and split the project among group members. (Identify strengths and weaknesses of each member and assign accordingly.)
7. Work in smaller groups or as individuals on assigned parts of project.
8. Bring project work to integrated studies sessions that have been scheduled for the project and work with your team. The faculty advisor will attend and assist as needed.
9. Prepare a 20-minute presentation that describes your project. Prepare a final report that may be given to your community contact person.

APPENDIX B. DESCRIPTIONS OF THE PROJECTS

Blood Drive. The Blood Services arm of the American Red Cross needs to organize blood drives on the UM campus in October and November. Students in this group will work with the Red Cross to meet the goal of obtaining 50 units of blood at each drive. Activities will involve hanging posters and getting radio announcements out to the campus community, assisting with sign ups for two days before the actual drive, registering donors, and ensuring all donors have

some refreshments prior to leaving the area.

Facilitating Passage of a New Practice Act. Successful passage of a new Pharmacy Practice Act will require educating pharmacists and their legislators about the need to have a modern practice act. Students working on this project will work with state pharmacy association members to learn about strategies to inform pharmacists and legislators about the importance of a piece of legislation and use them to gain sufficient consensus to pass a new practice act.

Child Safety for UM Housing Residents. Family housing provides a variety of services through the community center for its young families. Students will work with community center staff to design and implement educational programs in the treatment of common childhood illnesses with OTC medications, prevention of poisoning, and child safety. Both written materials and presentations have been identified as useful methods to meet these needs.

Geriatric Immunizations. Students will investigate immunization rates in various Missoula senior populations, including community dwelling individuals, home health patients, assisted living and personal care homes, and long term facilities. They will analyze these data and develop programs to increase vaccination rates in various subgroups of the senior population as needed. They will work with faculty members who have access to these populations, including one who have working with the city/county health department.

Supply of Selected Pharmaceuticals in Missoula County. This project will estimate the average supplies of antibiotics in Missoula Country that could be used to treat anthrax and plague. As part of the availability assessment, students will also determine the various routes through which additional supplies may be obtained within 24 and 48 hours. The information will be given to the Disaster Intervention Specialist at the city/county health department for use in future disaster planning.

Single-Dose Chlamydia Treatment Education Program for Physicians. Students working on this project will work with the city county health department to prepare a professional education program for physicians, nurse practitioners, and physicians' assistants to promote the use of the 1998 CDC guidelines. Some of the information that the student group will have to determine is: *(i)* the audience; *(ii)* the goal of the educational program; *(iii)* program content; and *(iv)* how to measure the impact of the program.

Emergency Contraception Program. If passed, the revised pharmacy practice act will allow pharmacists to participate in protocols. One protocol that is receiving interest at the city/county health department is an emergency contraception program (ECP). Students will be asked to determine who is interested in ECP and to determine what elements would be needed for a campaign to gain protocol approval. Students will also work on a protocol for ECP and determine how much training pharmacists should have to participate.

UM Well Check Fair. The Well Check Fairs provide active and retired university faculty and staff with various physical and laboratory assessments. This year, Fair participants will be required to return

for their lab results in mid-November. During this return visit, educational programming will offered. Students will assist with the planning and promotion of this new event, perform physical assessments at the fair *(e.g.,* blood pressure), and provide individual counseling to participants on what each lab test measures.

Geriatric Immunizations (second year). This project will build on work completed last year and continue to monitor influenza immunization rates for seniors. It is likely that the group will have to work around another shortage of influenza vaccine this fall. In addition to monitoring, students will assist with the planning and staging of the annual influenza vaccination program for seniors (The Great Flu Shoot Out) which is sponsored by a local hospital and the city/county health department. The Shoot Out has had fewer seniors attending over the past couple of years and students will be asked for ideas to increase attendance.

Child Safety for UM Housing Residents (second year). Building on the successes and failures of last year's group, students will work with the community center staff to design and implement educational programs in treating common childhood illnesses with OTC medications, preventing childhood poisonings, and child safety. More specifically, students will develop articles for the family housing newsletter on the OTC treatment of common childhood illnesses and seek ways to improve attendance at the Child Health Fair, which was poorly attended last year.

UM Clean Hands Program. The UM Health Enhancement program, which is housed at the Curry Health Center, is charged with creating programs that will make positive, healthy behaviors an easy choice for UM students. The Coordinator of the program is interested in developing a program to educate dorm residents about the importance of hand washing to prevent the spread of infectious diseases. The group assigned this project will meet with the Coordinator or her associate to plan a program for the UM campus, assist with its implementation, and evaluate its effect.

WMC Adult Virus Self-Care Kits. The Western Montana Clinic (WMC) is currently working with the City / County Health Department to reduce unnecessary use of antibiotics in viral upper respiratory infections. One part of their work is dedicated to researching the effectiveness of giving patients viral self-care kits rather than prescriptions. Students will be required to conduct an extensive literature review and to determine what should be included in such a kit, how much it will cost, how to distribute it, and how to evaluate their impact. The actual preparation of kits may not occur until a later time, so this group may be laying the groundwork for the final product.

UM Campus Smoking (Tobacco) Cessation Program. The UM Health Enhancement program, which is housed at the Curry Health Center, is charged with creating programs that will make positive, healthy behaviors an easy choice for UM students. The Coordinator of the program is interested in adapting a community smoking cessation program currently offered in Missoula to UM students. The group assigned this project will meet with the Coordinator to review the community program, plan ways to adapt it to the UM campus, assist with its implementation, and evaluate its effect.