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AUTHOR Carlson, Diane L.; Miller, Sharon
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ABSTRACT

A program of service provision by medical technology program faculty at Northern Illinois University is described. The faculty offer their laboratory expertise to other university faculty and to graduate students who require blood testing in their research design. The services requested and the reimbursement for the services can be negotiated by the faculty involved. Since it is the affiliated hospitals of a university with a 3+1 program that have the instrumentation for clinical instruction, testing cannot be managed at the university. The university can provide phlebotomy services and interpretation of the laboratory test results. As a test, services have been provided to researchers in the physical education and home economics departments. No revenue was generated for these services for two reasons: the feasibility of offering the service was still being determined, and the graduate student researchers had limited funds. Based on the initial test, however, charges for the services will be implemented. As the project grows, a course in phlebotomy may be developed. Responsibilities of the researchers using the services are outlined. (SW)

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A Revenue Generating Project in a 3+1 Medical Technology Project

Diane L. Carlson, MS, MT (ASCP), CLS (NCA)
Assistant Professor

Sharon Miller, Ph.C., MS (ASCP), CLS (NCA)
Associate Professor

Medical Technology Program
Northern Illinois University
Dekalb, Il.

A Revenue Generating Project in a 3+1 Medical Technology Program

Introduction:

One is never certain that a paper will be accepted for presentation when an abstract is submitted to the review committee of a scientific assembly and this year, I was as uncertain of acceptance of this paper as other papers in other years. Possibly, I should not have been as uncertain because the two words "revenue-generating" spark interest in almost any setting. Of course there are obvious reasons for a program to desire to generate income for itself and its institution. Not among the least of these reasons are to defray the cost of supplies and reagents or to defray the cost of faculty development. Equally important, as universities continue the process of periodic program review, a project such as this may aid in the justification of expensive programs that are subject to careful scrutiny. This scrutiny will always exist because it is a well known fact that university courses including a laboratory component are more costly than courses without the laboratory component. In addition, the new prospective payment system has caused all medical technology programs to scrutinize their costs. Although the Health Care Financing Administration has ruled that hospital-based programs will continue to recover education costs under Medicare[3], the feedback I get from NIU's (Northern Illinois University) clinical affiliates that the hospital administrations have a "wait and see" attitude toward the medical technology programs.

Synopsis:

The portion of the 3+1 program where I am proposing the establishment of this project is at the university. Therefore, it would be established and organized by the university faculty and may involve the participation of

pre-clinical medical technology students.

The university program faculty would offer their laboratory expertise to other university faculty and graduate students who require blood testing in their research design. The services requested and the reimbursement for the services would be negotiated by the faculty involved.

Project Beginnings:

The project beginnings took place when the first request for a laboratory service was made six years ago (my first semester teaching). A faculty member in the physical education department asked if I could perform iron levels on the subjects who had volunteered to be part of her research project. I evaluated the space and time elements and considered it not to be possible to provide the services requested. The time to perform the tests was expected to be donated. Cost of reagents controls supplies would be reimbursed by the PE faculty member.

Next, in the spring of 1981, a student in a masters program in nutrition asked if I would perform phlebotomies on the subjects who volunteered to participate in her research project. I agreed and enlisted the aid of medical technology students who had previous phlebotomy experience either from the university health service lab or summer employment. The medical technology students were very eager to be of service; the students seize any opportunity to maintain their phlebotomy skills. The blood drawing sessions were scheduled at convenient times and were held in the medical technology lab/classroom. There was no monetary reimbursement but we were inconvenienced very little.

The request that supplied sufficient motivation to launch this project came last fall. We received a letter from the Chair of the Department of Physical Education asking if we could perform the testing the graduate students needed for their research. What was significant about this request was that they

offered to reimburse the cost of the testing AND negotiate a fee for the time/expertise provided by our faculty.

I would like to stress that this project is in the process of being created because of requests from faculty from various parts of the campus; it was not an attempt by us to push our services onto a faculty who did not know that they needed us. At this point, we discussed the facilities the Medical Technology Program possessed and what we could offer.

Facilities:

Well, what facilities does any university with a 3+1 program have? As you all know, it is the affiliated hospitals that have the instrumentation needed for giving the students the clinical experience; not the university.

The NIU Medical Technology Program has two full-time, tenured faculty members. The program has one laboratory classroom in the biology building and this is where all our introductory laboratory courses meet. Therefore the room gets fairly heavy use. The instrumentation the program possesses is quite nice for the introductory courses and includes 2 Coulter Counters (FN; $D_2$3), 2 hematocrit centrifuges, 1 hemoglobinometer, 6 spectrophotometers, 1 Clinicard, 1 Coag-a-mate Junior, 1 incubator, 2 centrifuges, 4 serofuges, 2 water bathes, and all the phlebotomy supplies needed. This is nearly all that the one lab classroom can hold comfortably, and it serves us quite nicely. The additional space and time requirements of providing testing services would strain the schedule in the lab classroom. Not the least of the problems is the cost and outdating of reagents and controls. (The researchers always hope that we'll donate any suitable reagents that might be leftover from class.)

Services Offered:

Given what we have and not knowing what each researcher will request, how can we offer services that could accommodate the testing needs of any researcher? We had decided that we could not offer to do the testing ourselves nor could we perform it in the student classroom. First of all we did not have the time; of course, that depends upon what tests are ordered. Also, realistically we could not offer many tests at a reasonable cost due to the fact that the test would not be ordered in large volumes. What we would offer the researcher is the following:

1. Phlebotomy services-

   We would supply the equipment and the phlebotomists. Together we would negotiate times for blood drawing that followed the research design and were as convenient as possible.

2. Testing location-

   Although we would not perform the testing ourselves, we would find a laboratory in the area that would give the researcher quality results at the best price. After the blood was drawn, we would take responsibility for properly processing the specimens and delivering the specimens to the appropriate lab. Often, researchers do not know what laboratories are available in the area, nor do they have the helpful contacts that the medical technology faculty possess. (Remember that hospital labs are trying to expand their markets. You can help.)

3. Interpretation services-

   If the researcher would require explanation of the test results, we would be be more than happy to provide the explanation or the reference. As an example, a physical education student wanted to know how the "colds" that his participants were experiencing were affecting the WBC, RBC, hemoglobin

and hematocrit results. A reference was supplied in that case.

Researcher responsibilities:

Before any agreement is made between the researcher and our program, the researcher will be notified of the responsibilities that he/she must accept. First of all, the researcher must perform all the necessary steps in the process of clearing the research design through the Human Subjects Committee. The subjects, themselves must be supplied by the researcher. This, of course, is not always easy once the person realizes that blood drawing is necessary for obtaining results for the study. I have been asked to seek interested study participants from among the medical technology students. This person felt the MT students would be less fearful of needles. Third and last, the researcher must tell us what blood tests are required. It is the researcher's responsibility to review the literature and determine the appropriate test(s) needed.

Once the researcher has contacted us, usually per telephone or personal appointment, and we have verbally discussed the needs and responsibilities, we ask that the researcher send the requests to us in writing. We, in turn, send a written reply of the services we intend to supply. This will include information about test cost, the laboratory performing the tests, and a schedule of when and where the blood drawing will take place.

Clients:

To date, we have experience in providing these services to researchers in the Physical Education and Home Economics departments. We deliberately have not advertised to all departments that might be interested because we felt it best to start on a smaller scale.

This past spring is the first semester that the Medical Technology Program has offered the lab testing service. Three graduate students contacted us in February. The first student was a graduate student from the Department of Physical Education who wanted to utilize all three services and his research design was approved by the Human Subjects Committee. The tests requested were WBC count, RBC count, hemoglobin, and hematocrit. Essentially he and another person were scheduled for an eight week exercise program; one person exercised with a special back pack and mask that similuated high altitude atmospheric conditions and the other person exercised without the apparatus. Each week the two individuals came to my office, I drew the blood, and called for a specimen pickup from a large reference laboratory in the Chicago area. Prior to the start of the research I called the local hospital, the University Health Service and this reference lab and, not surprisingly, the reference lab was the least expensive and the most convenient. At the end of the eight week period, the student's total testing cost was $72.00, which he felt was very reasonable. This study was very convenient for me because the individuals in this study came to my office for phlebotomy, and the reference lab driver picked up the specimens at my office, and the reports were delivered to my office the following day.

The second individual to contact us about the lab testing services was another physical education graduate student. This student needed lactic acid, PH, plasma bicarbonate and hematocrit testing. At that time he planned to use an undetermined number of subjects and all would have their blood tested before and after the experimental element was administered. This student wanted to test what effect an excessive dose of sodium bicarbonate would have on neutralizing the lactic acid and, therefore, eliminating pain as a person exercises. This study was much more difficult to accommodate because more

subjects were involved, the timing of specimen collection was more critical, and the tests requested had to be performed without delay. The local hospital was the only choice we had for test performance due to its proximity. This student's design, however, was not approved by the Human Subjects Committee and he no longer required our service.

The third student to contact us only required our phlebotomy service. She was in the nutrition program and the faculty had arranged to provide laboratory space so that she could perform the testing herself. The test required collection of a red-top tube for serum; the student had access to a centrifuge and performed her own specimen processing. We arranged a time and place to draw blood from the volunteers that she assembled. Once the phlebotomy session was completed, our responsibilities were also completed.

Results:

The next logical question to ask and answer is "How much revenue did we generate for the services?" We did not charge for the services, therefore, not generating revenue at this point for two reasons:

1) these clients were graduate students with very limited funds
2) we wanted to determine the feasibility of offering the service on trial basis.

Based upon the experience from this past semester, I feel we are ready to begin attaching charges for our services. The researcher will be billed for the cost of the test performed at the outside laboratory. Of course, our project will not generate revenue from that billing item. We will generate revenue when we bill for the phlebotomy services. The cost of the phlebotomy service is calculated using the CAP[2] workload recording recommendation of 30 minutes for

a bedside phlebotomy. The average phlebotomy hourly rate in the area is multiplied by 0.5 hours to obtain the charge per phlebotomy. I used the hourly rate for a phlebotomist rather than a medical technologist to keep the rate per phlebotomy at an attractive level. If the testing is performed by the area reference lab, the client will not be billed for phlebotomy supplies because the phlebotomy equipment is supplied by the reference lab as part of the cost of the test. If the testing is performed by any other laboratory, then the MT program will be supplying the equipment and this will have to be reimbursed. Obviously, the more subjects in the study, or the more phlebotomies that are performed on an individual, the more revenue will be generated.

Benefits

Now that this project has been described, one can recognize that the amount of revenue generated will vary from year to year depending upon the level of research activity of the university faculty. Not only will the amount of revenue fluctuate, but, also the total will not be astoundingly high. This is the point where one has to recognize and evaluate the other positive aspects of the project. This project gives a medical technology program the opportunity to interact with faculty and students from other departments. Often times, one feels very isolated on a large campus. This will provide a professional setting to meet other faculty and learn about their activities, and more importantly, other faculty meet us and learn of our activities.

As the project grows, there is the potential for another benefit. This is an opportunity to develop a course in phlebotomy. After intensive instruction, the medical technology students can become the phlebotomists. The MT students would practice on simulators and each other. Later, under discreet supervision, our students would be the phlebotomists and specimen processors for the various

research studies. Of course this last benefit will take time to develop. Lastly, the project will be an example to students of how laboratory services can be marketed, and the students will see the faculty operate in a professional rather than academic setting.

Other Allied Health Programs:

The idea of an academic program administering a revenue-generating project is not new. Physical therapy programs adapt quite well in this area. Physical therapy faculty have been involved in the total operation of the physical therapy clinic of a university health service or the PT faculty have established a clinic outside the university for community service.[1] In both cases, the PT faculty work in the clinic as physical therapists and the revenue generated by their service is added to the program budget. Other allied health programs may have similar situations, but I am only aware of those in physical therapy programs.

Conclusion

In conclusion, I want to stress that faculty outside the Medical Technology Program came to the medical technology faculty requesting help. Of course, the researchers want the testing performed by the MT faculty at no cost, but they realize that this is unrealistic and are very happy that we will perform the investigative work to find the lab that can perform the necessary testing at the lowest cost. In essence the medical technology faculty is acting as a broker between the researcher and the laboratory. Because the market is university research faculty a 3+1 or 2+2 program could establish the project.

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