

Clinical Laboratory Tycoon Case Study: Are you management material?

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OBJECTIVE: Many clinical laboratory scientists find themselves in a management position during their career, but have limited training to assume this role. The Clinical Laboratory Tycoon case study was designed to submerge students into the laboratory business by having the participant act as a laboratory manager with the capacity to make all the decisions about his or her own lab.

DESIGN: The student participant completed a set of modules that each related to varying aspects of managing a laboratory including selecting what tests to offer, hiring employees, marketing the services, setting goals, budgeting, and evaluating overall success.

SETTING: This Clinical Laboratory Tycoon case study was used to instruct clinical laboratory science students in a university based clinical laboratory science program as part of their seminar in teaching, research, and management course. The size of these classes range from ten to twenty students and results reported in this paper are collected from a class size of sixteen students. The study could also be adapted for use in a hospital based program or as continuing education for laboratory employees.

MAIN OUTCOME MEASURE: At the conclusion

of the study, the student participants reported what they had learned during their time as managers and how their perspective changed.

CONCLUSION: Student participants reported that they gained an understanding and appreciation for the responsibilities of the laboratory manager. For some, this study helped to define career goals.

INDEX TERMS: Management; Laboratory Education; Teaching Tools

Clin Lab Sci 2009;22(4):203

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INTRODUCTION

Often clinical laboratory scientists find themselves being promoted to supervisory and managerial positions with limited exposure to what these positions entail. Students and laboratory employees set goals to eventually move into a managerial assignment and may not realize all that is involved with this career choice. A manager typically leaves the bench and takes on the business side of laboratory medicine. As a faculty member, it is often difficult to engage students in management topics and the instructor may need to challenge him or herself as a scientist to teach this important part of clinical laboratory science.

The Clinical Laboratory Tycoon case study introduces student participants to managerial topics, while encouraging active learning. Students designed and managed their own small laboratories in an attempt to become a Clinical Laboratory Tycoon. This modular study requires the student to learn

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about a topic through reading assignments, lectures, and discussion and then apply their new knowledge to a related scenario, thus reinforcing hierarchical learning. Topics included organizational laboratory structure, leadership styles, ethics, human resources issues, education and training, finances and marketing, regulations and compliance, laboratory information systems and career planning.

MATERIALS AND METHODS

The Clinical Laboratory Tycoon case study contains modular assignments that address various topics relating to laboratory management. Students complete a reading assignment using a laboratory management textbook and related articles and participate in a lecture/discussion prior to engaging in modular activities. Lecture sessions conducted similar to continuing education seminars given to laboratory professionals and discussions that incorporate brainstorming further give the student the feel of working as a manager in a clinical lab. Each module is introduced with directions and leading questions. Condensed modular assignments are included below and can be manipulated as needed.

MODULAR ASSIGNMENTS:

Introduction to Clinical Laboratory Tycoon Case Study

You have been hired to create a small, but functional clinical laboratory to service the university student community in conjunction with health services (lab size ~10 ft X 10 ft). The lab will be open 40 hours per week (M-F 8:00 AM-4:00PM) and you must have it staffed for this timeframe. You have been authorized to hire 2 full time employees or 1 full time employee and 2 part time employees. You have no equipment except for an old Clinical Laboratory Science Program microscope and your budget, although not disclosed to you, is limited. To set up this lab, you must choose instrumentation, hire employees, create policy and procedures, and maintain the lab's daily activities. You are under serious time constraints and must have this lab up and running by the end of the semester.

Throughout the semester, you will have assignments to aid you in creating the ultimate clinical lab so that you might become a clinical lab tycoon. For each assignment, completely address the questions using your textbook and other resources. All assignments should be typed and created to reflect your professionalism as a laboratory manager.

Module 1: Laboratory Organization

A carefully designed and organized lab is essential to clinical function. How will your lab be spatially organized? Consider that two or even three employees may be present in this small space and each must be able to carry out their necessary work functions. A model or models should be used to address this question.

Module 2: Leadership Style

Complete a leadership self assessment prior to completing this assignment*. As the manager (and leader) of the new university clinical lab, discuss your leadership style. What did you learn about your leadership style from the leadership self assessment? What will you do to develop your leadership qualities that are weak? What leadership challenges do you expect to overcome? How will you plan, organize, implement, and control your lab? How much time will you spend on each task and how you involve your employees in each process?

* There are numerous leadership assessments available. A useful website with an assessment is found in the reference section and Denise Harmening has several assessments available in her book^{1,2}.

Module 3: Laboratory Workflow

As the manager of the university laboratory, you are charged with the task of creating a workflow chart to demonstrate how specimens will be received, tested, and results reported. Will you collect specimens yourself (i.e. Will you draw blood?) or will health services do this? How will results be reported? Demonstrate your problem solving skills when completing this task. Keep in mind that you are limited to the software that is available (Microsoft Office, D2L, and E-mail).

Module 4: Ethical Principles

Create a code of ethics for your lab. This should be a list of 5 to 6 ethical principles that you expect your employees to follow.

Module 5: Job Advertisement

Design a one page advertisement for the positions that you have available in your clinical lab. It should include all criteria relating to the position including essential job functions. Your advertisement should reflect whether the position requires a Bachelors or Associates degree and whether the position is part-time or full time.

Module 6: Interview Questions

Prepare interview questions to ask prospective applicants. When preparing the questions, remember what is acceptable and unacceptable or even illegal to ask.

Module 7: Applicant Review

You have been authorized to hire 2 full time employees or 1 full time employee and 2 part time employees. After placing a job advertisement in the newspaper and in several journals, you receive numerous applications and interview five applicants (see table 1). You may ask the applicant more questions if needed. (A discussion board is provided for this purpose. You must identify the applicant and your question. The applicant's answer will be posted.) Finally, who will you hire and why?

Module 8: Educational Objectives

You have hired your employees and now must train them. Write 5 educational (training) objectives that they must master to begin work. Apply appropriate taxonomy levels depending on employee degree level.**

**A NAACLS approved resource on writing instructional objectives is available.³

Module 9: Employee Evaluation

Your employees have been working and you are now tasked with doing a 90 day review with each of them. Design your review. Include a description of how you will deliver this review. Describe how you will discuss the review with your employees and how you will receive feedback from them.

Module 10: Lab Testing Cost Analysis

You have been running the university lab for a few months and you are considering dropping the HIV screening test since it is so labor intensive. Analyze the cost/benefit of this test and determine a cost per test for the HIV procedure. Is it worth the effort to

continue screening your population of patients for HIV?

The patient pays \$15 per HIV screening test performed. Keep in mind that this test requires venipuncture and that these charges are not calculated into the charge per test generated above. Also, note that while you can quit offering the test, you cannot raise the price of the testing since you signed a contract with Health Services saying that you would not raise testing prices for 3 years.

Module 11: Considering Financial Reports and Creating a Budget

Using the provided financial reports, create a *generic* lab budget for the upcoming fiscal year. Identify ways that you might cut back to increase profit. This should be a basic budget with salary based on the employees that you have hired (\$20 per hour for Bachelors and \$17 per hour for Associates). Also include projected non-salary items on your budget. This budget should contain basic items based on what information you have been provided.

Module 12: Healthcare Reimbursement

Your lab does not take any healthcare plans. Anyone using the lab's services is required to file their own paperwork for healthcare reimbursement. As lab manager you are trying to decide what cost/benefit there would be if you were to file healthcare reimbursement for your patients. Discuss the pros and cons of this decision and how it might impact your overall budget and staffing needs.

Module 13: Marketing of Services

Your lab is not making as much profit as you would like. Develop a marketing plan/strategy for your lab. Describe this plan/strategy and develop a flyer that you will distribute to "sell" your product. Where will you distribute this flyer and how does it reflect your marketing plan/strategy?

Module 14: Regulatory Agencies

There are numerous regulations that affect labs and laboratory testing. Which regulatory agencies affect the university lab? How will you as lab manager address the requirements of each of these agencies?

Module 15: Laboratory Information Systems

Several local labs donated old lab equipment to get

TABLE 1. University Lab Applicants

Applicant Name	Education	Part/Full Time	Experience	Interview Notes
Susie Sample	Bachelors	Full time	Generalist in Hospital for 5 years setting, seems to be know it all	Ready for change from hospital
Joe Phlebotomy	Associates Recent graduate	Part time	Phlebotomist for 6 months while in school; no MLT experience	Excited about job; seems very naïve
Lucy Lyme	Bachelors	Part time-full time for a short duration, if needed	Retired as MT with 20 years at local hospital lab	Does not seem very flexible; nervous about new setting
Christopher Chemistry	Associates	Full time	Worked at local clinic for 3 years	Ready for change; dislikes college setting, thinks will enjoy small lab
Melanie Micro	Bachelors	Full time or part Time	Worked part time at small, local lab involved personal life	Familiar with university setting,

your lab up and running, but you must still come up with a computer system. Your lab has a very limited budget for computer based hardware and software. You do have 2 computers with printers that have internet access. Address how you will record, maintain, and transmit patient results to Health Services. You can utilize any system that is currently in place including Blackboard (Desire 2 Learn), Excel, and Microsoft Word. Keep in mind security and confidentiality when completing this module.

Module 16: Trends

How will you respond to the current ever-changing trends in laboratory science and medicine? Since you are a small lab, do you expect these to impact you?

Module 17: Laboratory Annual Report Over the past year you have aspired to become a Clinical Laboratory Tycoon. It is now your job, as laboratory manager, to evaluate the success of your lab. How do you feel as manager and what have you learned? Do

you feel that the lab was successful under your leadership and what would you have done differently? Have your future career goals changed based on what you learned in this study? Can we count on you for another year as Clinical Laboratory Tycoon lab manager?

RESULTS

Student participants in the Clinical Laboratory Tycoon case study completed topical modules that explored various aspects of laboratory management. These tycoons reported that the study opened their eyes to all of the duties and responsibilities involved in being a laboratory manager. Several students decided that becoming a manager is not for them and they instead would prefer to stay at the bench. Other students felt that after some time working in the main laboratory, they would enjoy taking on supervisory responsibilities and even eventually assuming the lead

CLINICAL PRACTICE

role as manager. Still other participants found that they enjoyed one aspect of management such as education or test cost analysis and wish to explore these avenues either as clinical laboratory scientists or by furthering their education. The majority of applicants agreed that they would prefer to gain experience on the bench prior to taking on extensive managerial related duties.

CONCLUSIONS

Some clinical laboratory scientists aspire to become laboratory managers, while others gain this position by default. Besides personnel actions, many clinical laboratory scientists and especially students are not exposed to the job duties and responsibilities of laboratory managers. The Clinical Laboratory Tycoon case study is designed to show participants a different side of laboratory medicine, the side that managers face on a daily basis. By completing this study, participants hopefully will gain a new respect for this

challenging position and will be able to make an informed decision about whether this role is for them.

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