

This activity is worth 2 PACE contact hours. All questions must be answered. A minimum passing score of 70% must be achieved, no partial credits can be awarded.

* 1. First Name

* 2. Last Name

* 3. Email:

Implementation of a Diagnostics Consultation Service Improves Health Outcomes

Elizabeth Leibach¹, Ed.D., MLS(ASCP)CM*, Nadine Fydryszewsk¹, Ph.D., MLS(ASCP)CM*, Brandy Gunsolus², DCLS, MLS(ASCP)CM*

¹Rutgers, The State University of New Jersey Newark, New Jersey

²Augusta University Medical Center Augusta, Georgia

Consultations with healthcare practitioners and consumers provide clinical laboratory scientists opportunities for evidence-based assessment of the impact of diagnostic information on health outcomes. Methods for characterization and impact of CLS consultations on health outcomes have not been reported. To address the role of CLS consultations in clinical decision support (CDS), consultation services have been established and evaluated in four healthcare delivery settings: consumer information (CI), diagnostic management intervention (DMI), patient care intervention (PCI), and utilization review (UR). CI involve interaction with consumers with questions about interpretation of diagnostics parameters and results. DMI are primarily inpatient and require hand-offs among multiple providers. PCI can be simple or complex involving literature searches using hand-held devices and interaction with team members. UR is driven by laboratory information system data generated by locally-generated and published rules defining daily reports of errors and inappropriate test orders. Consultation interactions in each setting are characterized by variables: provider type, medical subject/diagnosis, diagnostic question, testing cycle phase, treatment phase**

(screen/monitor/diagnose), complexity (number of hand-offs and/or logic steps, and patient and financial outcomes. The data collected for each variable were analyzed from these encounters over a one-year period. From these consultations, priority for direction of clinical laboratory resources (material/human) and value (quality/cost) of information have been established. Implementing the Diagnostic Consultation Model[®], real time evidence from consultation services is combined with evidence from the literature, used to monitor for and correct patient safety concerns, and inform efforts to provide accurate, timely information for CDS and shared decision-making between consumers and healthcare providers.

* 4. All of the following are true statements EXCEPT:

- Quality consultation must include current review of related medical literature.
- Consultation is pivotal to diagnostic error reduction.
- Clinical laboratory quality improvement and the DCM[®] are unrelated patient safety-focused activities.
- Utilization review is a type of consultation.

* 5. Which of the following activities best describes an aspect of patient safety?

- The clinical laboratory chemical hygiene plan
- Analytic method comparisons
- The use of personal protective equipment
- Impact of diagnostic information on health outcomes

CLEC 2019 Poster Quiz

Abstract 2

Evidence from Consultation Defines the Difference Between Clinical Doctorates and the Ph.D. in Clinical Laboratory Science

Elizabeth Leibach, Ed.D., MLS(ASCP)CM*, Nadine Fydryszewski, Ph.D., MLS(ASCP)CM*

Rutgers, The State University of New Jersey
Newark, New Jersey

Since the inception of the doctorate in clinical laboratory science (DCLS), universities sponsoring educational programs for this new practitioner have struggled with its academic placement. The PhD is considered the highest achievement level and oriented toward research. Practice doctorates are considered applied though still at the doctoral level and classified as terminal degrees for many healthcare professions. Rutgers University, the first to offer the DCLS, opted to launch the educational program for this new practitioner as an advanced practice clinical doctorate, conceiving the practice to be applied and patient/consumer focused. During completion of the first DCLS curriculum, evidence emerged describing an additional curriculum need to augment competencies in clinical research equivalent to competencies associated with the Ph.D. During the DCLS residency year, the Consultation Model was implemented in four clinical settings: Consumer Information (CI), a national consultation network; Diagnostic Management Intervention (DMI),

laboratory consultation; Patient Care Intervention (PCI)**, clinical service consultation; and Utilization Review (UR), EHR and LIS review consultation. Data were collected on multiple variables: provider type, diagnosis, diagnostic question, testing cycle phase, treatment phase, and complexity (hand-offs and/or logic steps). Analyses of the consultation variables indicated the need for additional clinical research competencies, particularly data analytics associated with data warehouses built from EHR/LIS elements, and development of diagnostic algorithms supporting treatment paths. Adding these additional research competencies to the DCLS curriculum is underway which will result in a dual degree option, DCLS/Ph.D. Doctoral students will be accepted into either program but must demonstrate aptitude in clinical research to progress to the Ph.D.

* 6. Clinical doctorates in CLS are distinguished from the Ph.D. in CLS by which of the following characteristics:

- | | |
|--|--|
| <input type="radio"/> Credit hours required for the degree | <input type="radio"/> Focus of the post-degree practice |
| <input type="radio"/> GPA required for program admission | <input type="radio"/> Program accreditation requirements |

* 7. Ph.D. curriculum in CLS would develop additional competencies in which of the following areas? (Select the one best answer.)

- | | |
|---|--|
| <input type="radio"/> Clinical research and analytics | <input type="radio"/> Consultation reporting |
| <input type="radio"/> Consultation and interprofessional communications | <input type="radio"/> EHR review |

CLEC 2019 Poster Quiz

Abstract 3

University of Vermont Medical Laboratory Science: Public Health Laboratory Science Concentration

*Christine Griffin, MS, MT(ASCP)SH, Paula Deming, PhD, MT(ASCP), Burton W. Wilcke, Jr., PhD, and Katrina Moreau, MAT, MLS (ASCP)CM

University of Vermont
Burlington, Vermont

Public Health Laboratories are critical to the US Public Health system, providing surveillance and response to promote better population health outcomes. There has been a long-standing shortage of public health laboratorians and current demographic data indicate this trend will continue. Undergraduate public health laboratory education would prepare competent entry level professionals to enter into the public health workforce. To address this need, in 2006, the University of Vermont's Bachelor of Science in Medical Laboratory Science (MLS) degree program developed a track for students interested in pursuing careers in public health laboratory settings. Students enrolled in the Public Health Laboratory Science (PHLS) concentration complete a modified MLS curriculum with coursework in biostatistics, clinical microbiology, food microbiology, epidemiology

and molecular biology. PHLS students apply their learning through a project based, hands-on practicum in a public health laboratory at one of our affiliate sites throughout the Northeast. Projects span a wide array of topics from the development of molecular assays to public health laboratory education related to the identification and prevention of infectious microorganisms. The curriculum meets the requirements for the MLS major with a concentration in PHLS emphasizing microbiology. Students who also complete a clinical microbiology practicum are eligible for the ASCP technologist in microbiology certification exam. Approximately 10% of our MLS students complete the MLS PHLS concentration. Alumni surveys indicate graduates were very satisfied with the program and all are either employed in the field of public health or continuing their education.

* 8. The MLS PHLS concentration mainly supports which of the eleven core functions of Public Health Laboratories?

- | | |
|--|---|
| <input type="radio"/> Laboratory Improvement and Regulations | <input type="radio"/> Partnership and Communication |
| <input type="radio"/> Public Health Related Research | <input type="radio"/> Training and Education |

* 9. Required courses taken by students in both the MLS PHLS concentration and the MLS CLS concentration include:

- | | |
|---|--|
| <input type="radio"/> Molecular biology and clinical microbiology | <input type="radio"/> Clinical microbiology and clinical chemistry |
| <input type="radio"/> Biostatistics and molecular biology | <input type="radio"/> Biostatistics and immunology |

CLEC 2019 Poster Quiz

Abstract 4

Marketing Your Medical Laboratory Science Program, a Case Study of Weber State University

*Kendal Beazer, MHA, MLS (ASCP)CM, Ashley Wilkinson, MLS (ASCP)CM, Kenton Cummins, MHA, MLS (ASCP)CM

Weber State University
Ogden, UT

Laboratories across the United States are having difficulty finding qualified laboratory personnel to fill vacant positions, especially in rural areas. This has forced laboratory administrators to hire employees that lack the proper laboratory training to do the work required and has increased laboratory errors, posing a risk to patients. An explanation for these shortages is that students are unaware of the profession or they do not know how to become licensed medical laboratory professionals. After the development of a structured, targeted marketing plan, the Medical Laboratory Science (MLS) program at Weber State University (WSU) experienced significant growth. A regression analysis shows a growth of 27 students per academic year, equating to roughly 13% yearly increase in matriculation above organic growth. A case study will be presented on WSU's MLS marketing efforts and how it has affected market awareness and matriculation numbers of the

program. The targeted marketing plan aims to increase brand awareness and inform the public of the profession. This study characterizes the current online marketing efforts of other MLS departments (including online presence, social media sites, search engines and links to the program's home page). Marketing strategies are presented that may help individual programs increase market awareness and attract students for greater matriculation numbers.

* 10. What symbol did WSU's MLS department use for brand recognition?

Blood Smear

Microscope

Petri Dish

Virus

* 11. What is recommended as the first step in a successful marketing campaign?

Define your target audience

Start a social media page

Create a brand

Create swag

CLEC 2019 Poster Quiz

Abstract 5

Redesigning University of Washington Medical Laboratory Science Clinical Rotations: Duration, Direction and Outcomes

***Patty F.Callahan, BS, MLS(ASCP), Max J. Louzon, MS, MLS(ASCP)SBB, Laurianne T. Mullinax, MS, MLS(ASCP), Daniel D. Bankson, SM, PhD, DABCC**

**University of Washington
Seattle, Washington**

Background: Local changes and needs in blood bank operations, allowed us to increase our Medical Laboratory Science (MLS) blood bank rotation to four weeks by reducing rotation length for clinical chemistry, microbiology and hematology from six weeks to five weeks. We evaluated the impact of this change on American Society for Clinical Pathology (ASCP) Board of Certification Exam (BOC) performance.

Methods: We compared BOC scores for 119 MLS graduates with six-week clinical rotation lengths in chemistry, microbiology and hematology (2009-2013) and 127 MLS graduates with five-week rotation lengths in these disciplines (2014-2018). We evaluated first time pass rates, overall certification scores, specific discipline scores, and student rotation length satisfaction surveys.

Results: Mean + SD overall BOC scores for six-week rotations (547 +74) was not significantly different from overall BOC scores for five-week rotations. Similarly, there was no significant effect on BOC scores for chemistry, microbiology, or hematology. The mean first-time pass rate for six week rotations was 97% compared to 96% for five-week rotations. Student satisfaction surveys

received from 282 out of 307 (92%) students during 2014-2018 indicated that the five-week rotation length was adequate.

Conclusion: Reducing rotation length had no detrimental effect on BOC scores or student satisfaction. These findings allowed us to respond to changing patterns in laboratory medicine. Beginning in 2018, students will receive a one week rotation in one of six molecular diagnostic testing laboratories, including hematopathology, virology, microbiology, genetics and blood bank. These rotations may be expanded as laboratory testing moves in this direction.

* 12. Which of the following University of Washington MLS program clinical rotations is currently a 4 week rotation?

Chemistry

Research

Blood Banking

Hematology

* 13. Which of the following statements is true regarding outcomes of altering University of Washington MLS clinical rotation lengths?

Decreasing rotation lengths had a significant detrimental effect on overall BOC scores

Altering rotation lengths had no detrimental effect on student satisfaction.

Decreasing clinical rotation lengths had a significant detrimental effect on individual discipline ASCP BOC scores

First time pass rate was significantly different after rotation lengths were decreased.

CLEC 2019 Poster Quiz

Abstract 6

Instrument Enrichment Pilot Program: A Study

James March Mistler and Caterina Miraglia

UMASS Dartmouth

The Medical Laboratory Science Department at the University of Massachusetts Dartmouth was awarded a grant in 2016 to create a laboratory enrichment pilot program to enhance the laboratory skills of sophomore level students. This was necessary due to previous course failures in the junior year Clinical Chemistry course (MLS 342) causing retention issues (with a 3-year unsuccessful average of 17.79%). In this study, data in the form of student surveys, laboratory practical grades, and final course grades for MLS 342 are used for assessment of the program. Junior-level students who participated in the pilot program as sophomores completed a survey after finishing MLS 342. The majority (88.89%) of students indicated that they would strongly recommend the program to future sophomore students. Areas that students felt particularly prepared for in junior-level chemistry were pipetting and dilution skills, spectrophotometer skills, total protein assays, standard curves, and exam preparation. The 2 sample t-test was used to compare the 3- year

average MLS 342 course grade to the new data for students who took the pilot and those who did not. Students who took the pilot did statistically significantly better (86.669%, $p = 0.0156$, 95% CI - 9.3547, -1.0206) when compared to the 3-year average (81.481%) than those who did not (82.996%, $p = 0.5388$, 95% CI -6.4593, 3.4313). In addition, 100% of the students who took the enrichment program were successful in MLS 342. These data suggest that the pilot program contributed to increased student success in junior year Clinical Chemistry. Positive student comments and ratings on survey data also supports the utility of the pilot program.

* 14. What was the delivery style used in the UMASS Dartmouth MLS instrument pilot program?

- | | |
|--|--|
| <input type="radio"/> Solely online modules and laboratory simulations | <input type="radio"/> Blended: online modules and in-person laboratory practice |
| <input type="radio"/> Solely in-person modules and laboratory practice | <input type="radio"/> Blended: online laboratory simulations and in-person modules |

* 15. What activities did students perform for the pilot program's laboratory practical?

- | | |
|---|---|
| <input type="radio"/> Serial dilutions and spectrophotometer readings | <input type="radio"/> Microscopic urinalysis |
| <input type="radio"/> Manual total protein assay with standard curve graphing | <input type="radio"/> Manual total glucose assay with standard curve graphing |

CLEC 2019 Poster Quiz

Abstract 7

Virtual Learning: The Development of Case Study based Lab Simulation in the Clinical Laboratory Science Undergraduate Curriculum

Stephanie Cochrane, MS, MLS(ASCP)CM*, Deborah Josko, PhD, MLT(ASCP)M,SM, and Georgia McCauley, PhD, MBA, MT(AMT)

**Rutgers, The State University of New Jersey, School of Health Professions , Newark, New Jersey
Winston-Salem State University, School of Health Sciences, Winston-Salem, North Carolina**

The goal for implementing simulation into medical laboratory education is to provide students with a highly realistic learning environment to practice “real-world” situations before starting clinical internships. To encourage higher levels of thinking during simulated scenarios, the incorporation of case studies exposes the learner to problem-based learning which facilitates the development of critical thinking skills by tapping into the cognitive learning domain of Bloom’s taxonomy. This research project focused on developing case study based lab simulation for undergraduate CLS students. By utilizing case studies in laboratory-simulated scenarios, the learner engages in critical thinking/problem-solving skills by focusing on cognitive learning in order to evaluate, analyze, and interpret laboratory data from all major areas of the clinical laboratory as it correlates to a specific patient diagnosis. Each learning module was based on a disease/condition the student is most likely to encounter in the hospital/laboratory setting. Learning module # 1 centered on a Type 2 diabetic with chronic renal failure and learning module #2 involved a patient with gastrointestinal

bleeding due to colon cancer. The pedagogical framework encompassed the following phases: pre-briefing, analysis and test performance, student-centered discussion, and debriefing. The results of the module evaluations concluded, 100% of students strongly agreed they learned to think critically as a result of the activities in learning module #2, while 75% of students strongly agreed (25 % simply agreed) in learning module #1. Utilizing case studies, group discussions, and simulated scenarios creates a student-centered learning environment, thus allowing students to become active learners.

* 16. Which of the following was added to the refried beans to produce a positive Hemocult screen in Learning Module 2?

Ascorbic Acid

Beef blood from red meat

Gram Iodine

Lemon Juice

* 17. Which phase was most critical to the learning process and allowed students to participate in reflective thinking in order to begin bridging the gap between theory and practice?

Pre-briefing

Student Centered Discussion

Analysis and Test Performance

De-briefing

CLEC 2019 Poster Quiz

Abstract 8

The Efficacy and Acceptance of Brief Intentional Teachings to Encourage Success (BITES)

Scott Moore, DO, MLS (ASCP)CM

Weber State University , Ogden, UT

Students in Medical Laboratory Sciences occasionally struggle in lecture to acquire the knowledge covered in the objectives. After review of the ASCLS Body of Knowledge, nine clearly-stated objectives in Acid-Base studies were distilled and two BITES were created. These BITES are a form of microlearning, where students take 10-20 minute chunks of time to learn a brief topic. 5 objectives are defined and review questions are asked to stimulate active recall and retrieval. At the end, three questions are asked which require application of the knowledge gained over the previous 10-20 minutes. Three surveys were given to all students at different points in time to assess the efficacy and acceptance of BITES; Post-Lecture (Pre-BITES) Questionnaire (PLQ), Post-BITES Questionnaire (PBQ), and Post-3-month Questionnaire (P3Q). In comparing the PLQ and the PBQ, eight correct answers were recalled more often in the PBQ and three correct answers were recalled more often in the PLQ. All correct answers were recalled more often in the P3Q than the PLQ. The question, "I enjoyed these BITES" was answered 1 "no" and 5 "yes", and received the following scores; 0-1's, 0-2's, 3-3's, 8-4's, 11-5's. The question, "I preferred learning with..." indicated that all students but one preferred BITES over lecture. As we continue to master our craft of teaching, we

learn that MLS Students prefer learning with BITES in a traditional lecture-based classroom and that durable learning was accomplished over 3-months with their use. Further studies are required to see if BITES improve student engagement.

* 18. What is the primary objective of lecture?

- To enable students to pass the ASCP registry exam
- To fill a student's mind with conjecture
- To make students struggle to think of an answer and learn problem solving
- To prompt corrective action

* 19. Evidence showed that students in the Principles of Clinical Chemistry course at Weber State University in Spring 2018 enjoyed what form of teaching more?

- BITES
- Both BITES and Lecture
- Lecture
- Neither BITES nor Lecture

CLEC 2019 Poster Quiz

Abstract 9

Passing Grade for MLT Courses

Pamela B. Primrose Ph.D. MLS ASCP

Ivy Tech Community College
South Bend, IN

Institutional policy for what constitutes a passing grade for MLT programs varies across the nation. Institutions allow programs to set the lowest passing grade at a C and others a D for all courses unless otherwise defined NAACLS. Many programs are required to accept a D as passing since there is no NAACLS standard. This puts MLT programs at risk of not meeting metrics for certification pass rates, employment rates, and may lead to loss of clinical sites. A Survey Monkey with eight questions was sent October 27, 2018 to 123 NAACLS MLT programs with the goal of identifying a standard of practice and potential development of a NAACLS standard. Survey has current completion rate of 88/123 (72%). Results: 74% of programs require students to pass lab: 76% with a grade of C and 56% of programs can then issue a grade of F. Programs (35%) not requiring C in lab required a combined lec/lab grade of C to pass. The lowest C was 70% and C+ 75% at 39% and 33% respectively. A grade of D (70%) was reported as passing by 62% (16) of programs. Many comments received. Recommendation to NAACLS for standard stating students must pass lab to pass course was supported by 73% of programs. It appears that the majority of programs are in favor of a NAACLS standard to set a requirement for passing lab with a grade of C. At the very least, a standard of practice has been defined. National discussion needed.

* 20. What, if any, are potential risks for Medical Laboratory Technology programs if a grade of D must be accepted as the minimum pass grade for laboratory, or lecture/lab combined?

- Certification pass rates may not meet NAACLS benchmark Clinical affiliates may decline acceptance of students for training
- Employment rates may not meet NAACLS benchmark All of the above are potential risks for MLT programs

* 21. What percentage of Medical Laboratory programs are in favor of a NAACLS standard requiring a minimum grade of C in the laboratory component MLT courses and overall combined course grade C?

- 56% 73%
- 62% 88%

CLEC 2019 Poster Quiz

Abstract 10

Increasing Awareness of Medical Laboratory Science through Summer Outreach Programs

***Lindsey Clark, B.S., MLS (ASCP) CM, Lindsay Gilbert, M.Ed., MLS (ASCP) CM, Cherika Robertson, M.Ed., MLS (ASCP) CM**

**University of Arkansas for Medical Sciences
Little Rock, Arkansas**

A common challenge among the Medical Laboratory Science profession is that it does not often receive the attention it deserves. In an effort to overcome this issue, increase awareness of Medical Laboratory Science as a career, and expand recruitment efforts to high school students, the Department of Laboratory Sciences faculty developed a hands-on laboratory experience to be implemented into existing summer outreach programs on the University of Arkansas for Medical Sciences campus. Participants in the outreach program included 175 high school students from rural areas of the state. This experience involved participants completing a process of DNA extraction using the Bio-Rad Genes in a Bottle™ Kit and viewing a presentation highlighting the MLS profession, program prerequisites, laboratory career opportunities, and salary outlook. A post experience survey was given to the participants with a 77% response rate. Results showed the overwhelming majority of participants enjoyed the laboratory activity. A total of 53% of survey participants indicated they did not have knowledge of the Medical Laboratory Science profession prior to the activity, with 93% indicating the presentation and activity provided a better understanding of the field. While 24% of respondents indicated they were interested in pursuing a career in laboratory sciences, 48% would consider Medical Laboratory Sciences as a stepping stone into another healthcare related field. Implementing a laboratory component into existing summer programs proved to be an effective method for program outreach and recruitment among high school students. The department plans to continue offering this experience for future summer outreach opportunities.

* 22. The summer outreach hands on laboratory experience targeted which group of participants?

High School Students

Current Medical Laboratory Science Students

College Seniors

Middle School Students

* 23. The majority of survey respondents indicating they would consider Medical Laboratory Sciences as a stepping stone into another healthcare related field also stated they were interested in pursuing what career?

Physical Therapy or Occupational Therapy

Physician

Nursing

Undecided

CLEC 2019 Poster Quiz

Abstract 11

A National Assessment to Help Shape and Support Clinical Laboratory Workforce Development

***Renée Ned-Sykes, PhD**

Centers for Disease Control and Prevention, Atlanta, GA

Yesenia Wilkins, MPH

Centers for Disease Control and Prevention, Atlanta, GA

Many challenges in clinical laboratory workforce development are not well documented from a national perspective. The CDC recently began a 3-year initiative — the Workforce Assessment of Laboratory Communities (WALC) — to identify and address priority workforce development needs. As a first step, a literature review was conducted to document the extent and scope of data collected about the clinical and public health laboratory workforces in the U.S. Four scientific databases (Medline, Embase, CINAHL, Scopus) and Google were searched for relevant sources published between 2000-2018. Of the 157 sources related to clinical laboratory workforce development, ~41% profiled the workforce (e.g., demographics, specialties, salary); and, overall, the most robust data are related to workforce profiling. However, few sources investigated aspects such as: career awareness or attractiveness, the impact of various kinds of education or training on job performance, or how current staff are professionally developed so they can meet evolving needs. Therefore, there is a lack of actionable data concerning a number of workforce issues. CDC is beginning to work with laboratory partners, including ASCLS, to fill critical information gaps through primary data collection or secondary analyses of existing data. These findings will help better position CDC and its laboratory partners to coordinate, develop, and implement effective programs that address challenges in the education, recruitment, retention, and professional development of the nation's clinical laboratory professionals. These efforts will help to better shape and support a competent and adaptable laboratory workforce.

* 24. Of the following questions prioritized in the literature review, which is the only one deemed to have sufficient data related to it?

- How do clinical laboratories and laboratory staff get their formal training needs met?
- Are there sufficient numbers and types of degree programs to meet the laboratory workforce needs?
- What is the awareness and perception of careers in clinical laboratory science among students in relevant science or technology degree programs (not just MLT/MLS programs)?
- What is the impact of regulatory or statutory requirements, especially pertaining to licensure and board certification, on entry into the profession, job satisfaction, and career progression?

* 25. Of the various factors affecting the clinical laboratory workforce, which of the following has been a long-standing area of focus for CDC?

- Lack of awareness of the clinical laboratory profession
- Bottlenecks in the education of medical laboratory technicians and scientists/technologists
- Ongoing need for training of the current laboratory workforce to increase skills/competencies
- Lack of clearly defined career paths for laboratory professionals

CLEC 2019 Poster Quiz

Abstract 12

Using a Game-Based Learning Platform to Increase Student Engagement in the Classroom

Melissa Jamerson PhD, MLS(ASCP)CM

Virginia Commonwealth University

Richmond, VA

The Department of Clinical Laboratory Sciences at Virginia Commonwealth University incorporated the use of a game-based learning platform into a junior level Immunology course. The primary goal of this addition was to increase student engagement during review sessions. In previous years, each Immunology class was started with a review of material from an earlier lecture. The review consisted of short answer and multiple choice questions as a means to highlight important concepts and allow additional opportunities for students to ask questions. During these review periods it was observed that class participation ranged from 3-20%. Additionally, those who did participate were the same students in each class period. The incorporation of the game-based learning platform into review sessions involved asking review questions in multiple choice format with 30 seconds of time for students to answer after each question was asked. This new format resulted in class participation increasing to 95-100%. Review of student answers also allowed the instructor to determine which areas the students needed additional assistance with before exams. Student feedback indicated that they enjoyed the ability to be anonymous when answering questions while still getting immediate feedback. This new review format will be utilized in additional courses, specifically Immunohematology. Furthermore, this game-based platform will be used to review material with senior students in their advanced senior level courses.

* 26. What percent of students participated in the game based learning platform?

50-60%

95-100%

75-85%

65-70%

* 27. Why did students prefer the game-based learning platform over traditional methods of review?

They liked the ability to answer questions anonymously.

They did not like the immediate feedback from the traditional method.

They enjoyed the ability to give free response answers.

They enjoyed the use of technology in the classroom.

CLEC 2019 Poster Quiz

Abstract 13

Pilot Program in Clinical Microbiology Laboratory Simulation for MLS Students

***Angela Wilson MS, M(ASCP); Loree Heller PhD, M(ASCP)CM, MB CM; *Barbara Kraj PhD, MLS(ASCP)CM, MB CM**

**Old Dominion University
Norfolk, VA**

Medical Laboratory Science (MLS) educational programs face the challenge of placing students for clinical practical/rotations. In a non-medical university, this has been particularly true for clinical microbiology practica as local healthcare systems centralize microbiology, serology, and molecular testing services with smaller hospitals housing “stat labs” only. Encouraged by the success of an immunohematology simulation practicum implemented over 15 years ago, in the summer 2018 faculty piloted a clinical microbiology simulation lab to satisfy entry-level practical competency requirements. The pilot program consisted of three weeks of on-campus lab simulation, followed by a two-week hospital clinical experience, as opposed to five weeks in the clinical setting in the traditional practicum. In the lab simulation, students completed clinical microbiology evaluations on all clinical specimen types. Identification techniques included bench top tests, automated identification and antibiotic susceptibility testing. Students utilized rapid kit tests and performed quality control. Upon completion of the students’ practicum final exam and microbiology section of the comprehensive program exit exam, faculty evaluated student learning using two-sample t-tests to establish if statistically significant differences existed in the scores achieved by students enrolled in the pilot versus the traditional model. We hypothesized that no such differences would exist. There were no statistically significant differences between the post-practicum exam results achieved by both groups ($p < 0.05$). We conclude that students had equally valuable learning experience in both practicum models and plan to expand the on-campus simulation to alleviate clinical site shortage.

* 28. In order to assess the success of the pilot, on campus microbiology practicum, a comparison of learning outcomes achieved by students enrolled in the traditional and pilot program was done by:

- metaanalysis descriptive qualitative analysis
 two-sample t-test survival analysis

* 29. The competencies covered in the pilot, on campus microbiology practicum, should include:

- quality control ability to perform microbial identification and susceptibility testing for pathogens from a variety of clinical sources
 biosafety all of the above

CLEC 2019 Poster Quiz

Abstract 14

Inter-professional Education: A Pilot for Future Collaboration

*Lisa H. Hochstein, MS, MLS(ASCP)CM and Pamela Gregory-Fernandez, MS, PA-C, DFAAPA

St. John's University, Department of Clinical Health Professions, Queens, NY

Inter-professional education (IPE) has become an integral pedagogy within the St. John's University College of Pharmacy and Health Sciences Department of Clinical Health Professions. An interprofessional case study activity was developed and incorporated into the Clinical Laboratory Sciences (CLS) and Physician Assistant (PA) programs. A pneumonia case involving aspects of patient care relevant to both programs was created. In order not to interfere with courses currently in progress for both programs, the event occurred during lunch hour and both programs asked for student volunteers. Ten students in total participated. Students worked together to better understand each other's role in diagnosing the patient, emphasizing team practice. PA students illustrated techniques in history and physical examination. CLS students then led the PA students into a mock lab and shared examples of pneumococcal plating and microscopic isolation for diagnosis confirmation. At the conclusion of the event, students evaluated their experience. Utilizing Role Perception Questionnaires, CLS and PA students indicated greater perceived value for one another's profession at activity completion. Evaluations indicated that students felt this was a worthwhile experience and that they learned a lot about each other's role in patient care. They also indicated that they would like to have similar programs in the future.

* 30. After presentation of the case study, students were asked what the possible patient diagnosis could be. Most of the students indicated:

- Patient had pneumonia Patient had exacerbation of emphysema
 Patient had COPD Patient had a cardiac episode

* 31. At the conclusion of the IPE activity, students were surveyed and indicated:

- They learned about each other's profession
- They wanted to participate in future activities
- They felt the activity was worthwhile
- All the above