

Small Scale, Low Resource Options for Introducing Clinical Laboratory Science Students to Interprofessional Simulation

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LEARNING OBJECTIVES

1. Describe the use of SBAR as a communication tool.
2. Identify the phrases associated with the term CUS.
3. Construct a classroom-based interprofessional simulation for clinical laboratory science students.

ABBREVIATIONS: IOM – Institutes of Medicine, CLS – Clinical laboratory scientist, IP – Interprofessional, SBAR – Situation, Background, Assessment, Recommendation/request, Team STEPPS – Team Strategies and Tools to Enhance Performance and Patient Safety, APP – Advanced practice provider, WHO – World Health Organization, CUS – Concerned, Uncomfortable, Safety issue, SP – Simulated patient, PA – Physician assistant, UAB – University of Alabama at Birmingham

INDEX TERMS: Interprofessional education, Interprofessional simulation, Interprofessional communication, SBAR

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INTRODUCTION

In the report, Health Professions Education: A Bridge to Quality, the Institutes of Medicine (IOM) has detailed a vision for preparing healthcare professionals.¹ A focal point within this vision is teaching students to work in interdisciplinary teams. In a separate report, Measuring the Impact of Interprofessional Education on Collaborative Practice and Patient Outcomes, the IOM calls for an alignment of education and healthcare delivery systems.² The Clinical Laboratory Science (CLS) education community needs to readily embrace the IOM's vision and enthusiastically answer the call with innovative educational methods such as interprofessional simulation (IP).

Some CLS programs are already considering interprofessional simulation, but may not have an existing simulation infrastructure or financial support from administration. Other programs have a laboratory with instrumentation, but have not yet made the leap from simulating a “day in the lab” with CLS students to including students from professions outside the laboratory to provide comprehensive situations that more closely mimic working in a healthcare environment. This manuscript offers small scale, low resource options to help a CLS program include IP simulation as an innovative educational method to teach interprofessional communication and teamwork.

Getting Started: Know the Fundamentals

While high fidelity mannequins, patient rooms, and instrumentation provide an authentic environment, they are not required to offer a quality IP experience. There are, however, fundamentals that remain the same whether designing intricate scenarios for students from several professional programs or simple scenarios with students from only two professions. This includes the alignment of content knowledge between students from different professions, clearly defined objectives, a brief prior to the simulation, scripted scenarios, and a structured debrief once the simulation is complete. Most importantly, it requires an effective interprofessional partnership between the people designing the simulation. On a larger scale, the institution needs to be sure an interprofessional collaborative culture is supported and is a priority. Ideas should be presented and leaders from all professions involved need to have an opportunity to contribute and modify the scenarios to ensure it is meeting the needs of their students.

Communication Simulation using SBAR

Teaching teamwork and communication can be challenging. The Agency for Healthcare Research and Quality promotes the use of a teamwork system developed by the Department of Defense called Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS).³ One of the five key principles in the TeamSTEPPS framework is communication. A technique for communicating critical information within this principle is SBAR, an acronym for situation, background, assessment, and recommendation/request (Table 1). When a healthcare provider has information that requires action concerning a patient's condition, SBAR can be used to organize and guide communication within and between professions. The "R" in SBAR is for recommendation/request, a process with which some laboratory scientists are timid. The use of SBAR empowers the clinical laboratory scientist to assert recommendations. In many cases, the clinical laboratory scientist is the expert on the situation who can and should provide guidance to the provider.

Classroom-Based Interprofessional Communication Simulation

Introducing CLS students to the use of SBAR can be the first step in teaching IP communication. This can

begin as a paper exercise to allow students to become familiar with the use of the tool. For example, students may be provided with a brief case scenario and the results of a type, screen, and partial antibody identification (Figure 1). The objective is to write an SBAR conveying that crossmatch-compatible blood is not yet available for a patient who has a critical hemoglobin. Once the students are comfortable with the use of SBAR through the writing exercise, the exercise can be expanded into a classroom-based IP simulation.

Table 1. SBAR Communication Strategy

Situation	What is going with the patient? "I am calling about the type and screen on Mrs. Jones, medical record number 12345. Her antibody screen is positive."
Background	What is the clinical background or context? "She has a history of an antibody that can cause hemolysis and it looks like she has developed an additional antibody."
Assessment	What is the problem or your assessment of the situation? "I need to do additional work to identify the antibody and ensure we have crossmatch-compatible blood ready. This should take around 2 hours."
Recommendation	What action would you recommend or what request do you have? "I will page you when we have RBCs ready for transfusion. If you anticipate an emergent need for transfusion, please call me and we can discuss emergency release options."

At the University of Alabama at Birmingham (UAB), CLS students participate in a learning activity called interprofessional transfusion medicine rounds. When they "round," they take the case scenario and serological results they are given and call an advanced practice provider (APP) with their SBAR. The providers used for this activity are physician assistant or nurse practitioner faculty who are board-certified and licensed. This activity is performed at the end of the semester during which blood bank is taught,

FOCUS: INTERPROFESSIONAL SIMULATION

Demographics: 16 yo, AA, female Diagnosis: anemia History: anti-K															Name: Jennifer Jones																
															MR#: 12345																
															Date _____ MLS _____																
															Interpretation _____																
ABORh Typing																															
Anti-A					Anti-B					Anti-D					A ₁ cells					B cells											
4+					0					0					0					2+											
Antibody Screen																															
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1	+	+	0	0	+	0	0	+	0	+	0	+	0	+	0	+	+	0	+	0	+	+	+	+	0	0	+	0	0	0	2+
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1	+	+	0	0	+	0	0	+	0	+	0	+	0	+	+	0	+	+	0	+	+	+	+	+	+	0	+	0	0	2+	
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5	0	+	+	0	+	+	0	0	0	+	0	+	0	+	0	+	0	+	+	0	0	+	+	+	+	0	+	0	0	0	2+
6	0	0	+	+	+	+	0	0	0	0	+	0	+	0	+	+	+	+	0	+	+	0	+	+	+	0	+	0	0	1+	
7	0	0	+	0	+	+	0	0	+	+	0	+	0	+	0	+	+	+	+	0	0	+	0	+	0	0	+	0	0	0	2+
8	0	0	+	0	+	+	0	0	0	+	0	+	0	+	+	0	+	+	+	0	+	0	+	+	+	0	+	0	0	2+	
9	0	0	+	0	+	+	0	0	0	+	0	+	0	+	0	+	0	+	0	+	+	+	+	+	+	0	+	0	0	0	2+
10	0	0	+	0	+	+	0	0	0	+	0	+	0	+	0	+	+	0	+	0	+	+	+	0	+	0	+	0	0	0	2+
11	+	+	0	0	+	0	0	0	0	+	0	+	0	+	0	+	+	+	+	0	+	+	0	+	0	0	+	0	0	0	2+
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Figure 1. A sample case from transfusion medicine rounds

therefore the APP faculty practitioners are instructed to ask any question that they would ask while working in the hospital even though this occurs in a safe, classroom setting. The CLS students are able to practice the use of SBAR, learn what information practitioners often request during a critical transfusion situation, and the practitioners learn about (or refresh their knowledge on) turnaround times in complex transfusion cases as well as transfusion options when crossmatch-compatible blood is not available. This meets the World Health Organization (WHO) criteria for interprofessional education since the CLS students and APP faculty are learning about, from, and with each other.⁴ This is an educational activity that receives high praise from students and APP faculty (Figure 2). The only resources required are a case scenario, provider from another profession, a classroom, and a telephone.

This same classroom-based simulation can be used to highlight another principle within the TeamSTEPPS framework – mutual support. Mutual support is the ability to anticipate and support team member's needs

through understanding their roles, responsibilities, and workload.³ Within critical situations, there are times when healthcare professionals need to be assertive. CUS, an acronym for the statements, “I am concerned”, “I am uncomfortable”, and “This is a safety issue,” can be used during these situations. Each of these statements is an escalation from the previous one. The case scenarios necessary to prompt concerns may revolve around transfusion reactions, incorrect specimen collection, and other critical situations rather than the more routine scenarios described for the SBAR activity.

Taking the Next Step: Incorporating Patients into the Simulation

Using communication techniques such as CUS and SBAR can also be incorporated into small scale simulation using low fidelity mannequins or simulated patients. A simulated patient (SP) is a person who has been coached to represent an actual patient.⁵ The SP is instructed to share a specific history, use body language, and respond to questions and simulated treatments in a manner consistent with

As health care providers, many times we encounter patients that will require transfusions with a variety of blood products. Immunology, histology, and biology were all courses we took during our years in school, however, as we become more clinically focused, the requirements for preparing blood for transfusion become a distant memory. Deep within our cerebral cortex this information exists, but is often hard to recall when it is not applied on a daily basis. In clinical practice, this becomes an issue when patients requiring a transfusion have antibodies that preclude them from receiving blood products in a short timeframe.

From past conversations with the clinical laboratory scientist, the information and explanations as to why these transfusions may be delayed often exceeds the clinician's knowledge base, and often can be slightly overwhelming. In these situations, we need to hear the basics as to why a transfusion may be delayed and a reasonable expectation as to how long it might take to prepare the blood. The specific details behind this reason may not be as important. Through inter professional simulation, clinicians and clinical laboratory science students can interact and discuss similar clinical situations. It is within this type training that we both may better understand each other's profession, learn to effectively communicate, and ultimately provide better patient care within the true clinical setting.

Figure 2. Perspective of a Physician Assistant faculty on interprofessional transfusion medicine rounds

the profile of a specific patient. The UAB nursing and laboratory science programs run a simulation that requires only three rooms: two "patient rooms" with low fidelity mannequins or simulated patients with phlebotomy arms, and the CLS student laboratory. The objectives of this simulation are to provide routine care for a patient and demonstrate the use of teamwork and communication strategies in an interprofessional healthcare setting. The interprofessional interactions occur face to face as nursing students deliver specimens to the CLS student lab and over the telephone to communicate critical results. At specimen delivery, CLS students assess acceptability criteria such as, specimen labeling (two patient identifiers), completed test request, and proper collection tubes. The telephone interactions

include the CLS students calling critical results to the nursing students and nursing students inquiring about results, urgency of a situations, and completion time for laboratory tests from the CLS students. Throughout the simulation, nursing students are performing basic patient assessment and CLS students are analyzing specimens (complete blood count, plating specimens for culture, type and screen, etc). The scenario is roughly 20 minutes and is followed by a structured debriefing.

SBAR and CUS are techniques embraced by many healthcare organizations throughout the US and will likely ease a student's transition from campus to the clinical setting. Having the opportunity to practice communicating with other members of the healthcare

team in a safe environment during simulation increases student's confidence, self-efficacy, and attitude toward working in interprofessional teams.^{6,7}

Let the Students be the Teachers

The UAB Physician Assistant (PA) Program has a stand-alone, three semester hour clinical laboratory medicine course in which first year PA students learn about the laboratory setting and how laboratory professionals are an integral part of the clinical team and decision making process. The course is specifically designed to have CLS faculty teach important core subjects (hematology, microbiology, immunology, and transfusion medicine) throughout the semester to demonstrate how the lab is instrumental in making the diagnosis, as well as managing and treating the patient. This exemplifies the value faculty at UAB place on learning from content experts including those from other professions. To take this one step further and progress to interprofessional education, where people learn about, from, and with each other, there is a hands-on clinical skills lab where the first year PA students learn how to perform phlebotomy. Task trainers (phlebotomy arms) are used for this simulation. Instructors for the skills lab include senior CLS students. In this lab, PA students learn the technical aspects of phlebotomy and how they can affect the results of laboratory studies. CLS faculty and students discuss the impact of hemolysis, clotted specimens, mislabeled specimens, and order of draw on laboratory results and patient care. Students from both programs have the opportunity to discuss complications and challenges associated with their clinical positions and how they affect patient care.

Healthcare education programs, with whom the UAB CLS program has collaborated, highly value the opportunity to introduce their students to the clinical laboratory. Laboratory results are the crux on which many diagnoses and treatment regimens are based.

Teaching future healthcare workers to interact with each other as students is a valuable piece to helping them work together after graduation as practicing professionals. Comfort and confidence interacting with healthcare professionals outside the laboratory can facilitate CLS professionals seeking positions on committees outside the laboratory. A place where the laboratory needs to ensure they have a strong voice.

CONCLUSION

Interprofessional simulation is standard in many healthcare programs such as nursing and medicine. The IOM, has essentially pleaded with all healthcare education programs to work together and use IP education and simulation to help our students provide high quality patient care as they transition into the workforce. Several small scale low resource options have been presented in this manuscript to help CLS programs implement IP programming into their curricula.

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