



Assessing Student Pharmacist Performance of Rapid Strep, HIV, and Influenza Point-of-Care Testing

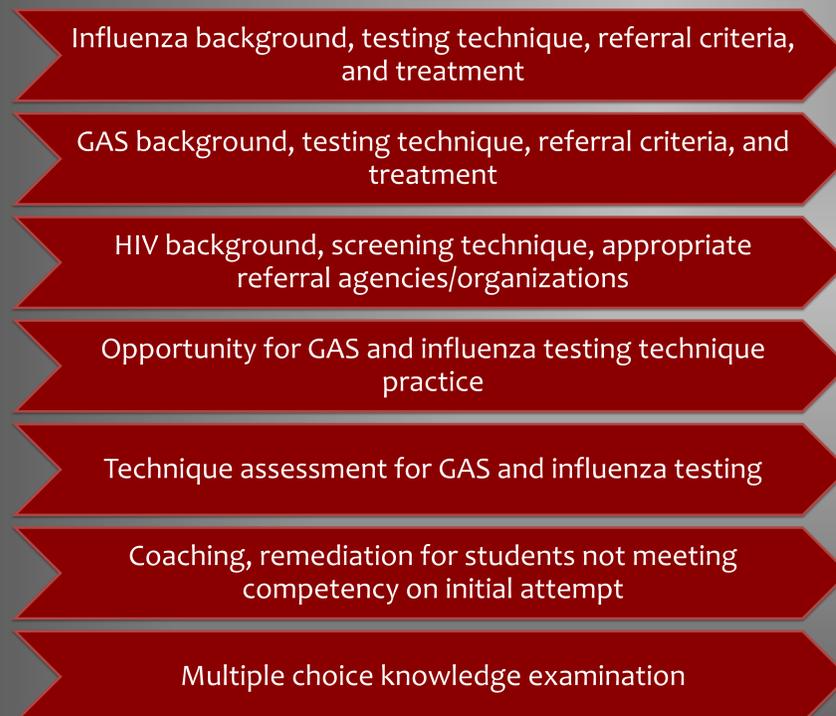
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Background: Pharmacists have demonstrated POCT for influenza, group A strep (GAS) pharyngitis, and human immunodeficiency virus (HIV) can be effectively implemented in a community setting.^{1,2,3} Within the United States, the CDC estimated that in 2015 over one million adults and adolescents were living with HIV and of those estimated, 162,000 patients were undiagnosed.⁴ Additionally, during the 2015-2016 influenza season, 25 million Americans were infected with influenza, resulting in 11 million influenza-associated medical visits and 310,000 related hospitalizations.⁵ It is estimated that acute pharyngitis accounted for 15 million patient visits in the United States in 2006.⁶ GAS, or streptococcus pyogenes, is responsible for 5 to 15% of cases in adults and 20 to 30% of cases in children and is the only acute pharyngitis indication benefiting from antibiotics.⁷ Despite these statistics, it has been reported that more than 60% of pharyngitis are treated with antibiotics.⁸

A 2011 survey of colleges of pharmacy in the United States found that 80% of colleges teach content regarding POCT for diabetes and cholesterol screening, while just 22% teach content related to POCT for infectious diseases.⁹ A 2015 survey of student pharmacists and practicing pharmacists reported that less than 20% had received any training regarding POCT for infectious diseases.¹⁰ Of the respondents that had received training, the most commonly reported POCT training for infectious diseases was for HIV, GAS, and influenza.¹⁰

Objective: The goals of this study were to implement point-of-care testing training for student pharmacists and to evaluate student performance on performing a point-of-care streptococcus pharyngitis and influenza swab.

Figure 1. Components for point-of-care testing content.



	Topic		
	HIV	GAS	Influenza
Recognize risk factors for acquiring the disease or condition	X	X	X
Recognize clinical presentation of disease or condition		X	X
Demonstrate appropriate Point-of-Care testing technique	X	X	X
Identify appropriate referral agencies/organizations for patients with a reactive screening for HIV	X		
Develop an appropriate treatment plan utilizing disease-specific guidelines for a patient with a positive testing result		X	X
Identify appropriate counseling strategies for patients screening reactive for HIV	X		
Identify criteria for when community pharmacy testing is not recommended		X	X
Identify referral criteria for when testing is not appropriate or condition should not be treated in the pharmacy		X	X

Results

All 161 students enrolled in the course completed the knowledge examination. The class average and standard deviation on the assessment across both campuses were 97% ± 7%. Three students did not meet 80% competency on the first examination and were required to take the remediation examination one week after the first attempt. All three students achieved minimum competency of 80% on the second attempt.

Student pharmacists proficiently performed most POCT skills on the first attempt. Skills which more commonly required a second attempt included swabbing the back of the throat (14%) and swabbing the nasal cavity (12%). The pre-training survey was completed by 148 out of 161 student pharmacists (91.9%) and the post-training survey was completed by 147 student pharmacists (91.3%). Results from the POCT pre-post surveys all demonstrated statistically significant change in responses on all questions. Survey results are reported in Tables 2 and 3.

TABLE 2. PERCENTAGE OF STUDENTS COMPLETING RAPID STREP TESTING SKILL ON FIRST ATTEMPT

INTRODUCES SELF TO PATIENT	100%
EXPLAINS PROCEDURE TO PATIENT	99%
FOLLOWS UNIVERSAL PRECAUTIONS, INCLUDING GLOVES	100%
TILT PATIENT HEAD SLIGHTLY BACK AND ASK TO STICK TONGUE OUT	98%
USES TONGUE BLADE TO HOLD TONGUE DOWN	95%
SWABS BACK OF THROAT (NOT TOUCHING TEETH, CHEEKS, GUMS, TONGUE)	86%
DISCARD BIOHAZARDOUS WASTE APPROPRIATELY	96%

TABLE 3. PERCENTAGE OF STUDENTS COMPLETING RAPID INFLUENZA TESTING SKILL ON FIRST ATTEMPT

INTRODUCES SELF TO PATIENT	99%
EXPLAINS PROCEDURE TO PATIENT	98%
FOLLOWS UNIVERSAL PRECAUTIONS, INCLUDING GLOVES	99%
PATIENT HEAD TILTED BACK STEADIED WITH NON-DOMINANT HAND	96%
INSERT SWAB STRAIGHT INTO NASAL CAVITY PROPERLY AND ROTATE...	88%
DISCARD BIOHAZARDOUS WASTE APPROPRIATELY	94%

Conclusions: Through this POCT module, student pharmacists displayed knowledge and comfort testing and initiating treatment for GAS and influenza and referral for HIV. Student pharmacists also reported an increased willingness to perform, provide referral for reactive screening, and implement POCT for HIV in their future practice. Expanding POCT training to other colleges could increase patient access to POCT. Training future pharmacists who are knowledgeable and comfortable conducting POCT could benefit patients and improve public health by broadening exposure to services within the community. As point-of-care testing for influenza and streptococcus pharyngitis becomes more wide-spread in pharmacy practice, utilizing student pharmacists to reduce workflow burden may soon be a way to increase the number of patients treated for these illnesses.

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