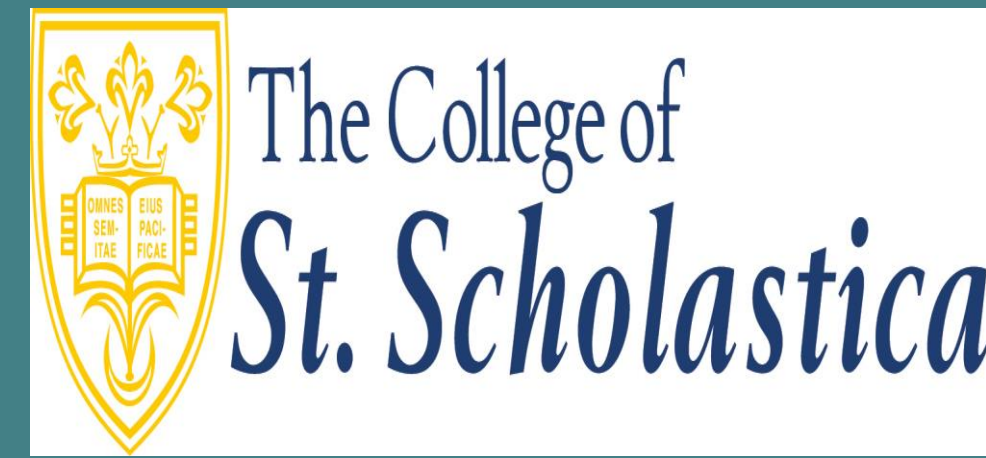


# Effective Implementation of a Cardiac Patient Simulator Across the AGPCNP Curriculum



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## Background

NP core competencies delineate that NP's utilize advanced health assessment skills in patient evaluation (NONPF, 2016)

Health care students, including NP students, are often lacking in cardiac assessment skills

Studies have demonstrated that health care students have improved performance of cardiac assessment with the use of patient simulators (Butter et al, 2010; Jefferies et al., 2011; Tiffen, Corbridge, Shen & Robinson, 2011).

Due to the variety of the clinical experiences, not all students have the opportunity assess patients with a wide variety of disease conditions.

## Methodology

Harvey Cardiopulmonary Simulator realistically simulates over 50 cardiac conditions (University of Miami, 2016).

Faculty identified appropriate cardiac conditions to include across the curriculum

During clinical supervision course meetings faculty introduced each clinical case, students completed an appropriate history, a cardiopulmonary exam on the cardiac simulator, and identified differential diagnoses and correlated with exam findings.

Faculty correlated pathophysiology with history and exam findings. Faculty had students compare and contrast how the pathophysiology produced the clinical exam findings.

Faculty had students repeat clinical exams after pathophysiology review so that they could better differentiate exam findings.

## Curriculum Plan

Class	Goals	Cardiovascular Simulator
Advanced Health Assessment	<ul style="list-style-type: none"> <li>Function of normal cardiovascular system</li> <li>Function &amp; assessment of abnormal cardiac function-                             <ul style="list-style-type: none"> <li>-Vital signs, venous pulses, arterial pulses, precordial movements, auscultation (radiation)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Normal heart sounds</li> <li>Aortic Valve Sclerosis</li> <li>Mitral Valve Prolapse- Isolated Click &amp; Murmur</li> <li>Mitral Regurgitation</li> <li>Aortic Stenosis</li> </ul>
Adolescent/Young Adult	<ul style="list-style-type: none"> <li>Appropriate History</li> <li>Identify cardiac dysfunction based on cardiopulmonary exam</li> <li>Differentiation of exam findings correlated with underlying pathophysiology</li> </ul>	<ul style="list-style-type: none"> <li>Innocent Murmur/Pre-participation Sports Physical</li> <li>Mitral Valve Prolapse</li> <li>Mitral Regurgitation</li> </ul>
Adult/Chronic Complex	<ul style="list-style-type: none"> <li>Appropriate History</li> <li>Identify cardiac dysfunction based on cardiopulmonary exam</li> <li>Differentiation of exam findings correlated with underlying pathophysiology</li> </ul>	<ul style="list-style-type: none"> <li>Mild Aortic Stenosis</li> <li>Aortic Regurgitation</li> <li>Pericarditis</li> </ul>
Frail Elderly	<ul style="list-style-type: none"> <li>Appropriate History</li> <li>Identify cardiac dysfunction based on cardiopulmonary exam</li> <li>Differentiation of exam findings correlated with underlying pathophysiology</li> </ul>	<ul style="list-style-type: none"> <li>Severe Aortic Stenosis</li> <li>Cardiomyopathy</li> <li>Heart Failure</li> </ul>

## Results

Students rated the Cardiac Simulation over the course sequence 6 on a 7 point Likert scale that ranged from not at all helpful to extremely helpful.

Students demonstrated improved cardiac history and exam skills across semesters.

Students recommended continuing implementation of the cardiac simulator across multiple courses.

## Recommendations

1. Have all faculty trained on the use of the cardiac patient simulator.
2. Include the cardiac patient simulator in advanced pathophysiology course.
3. Utilize the Nursing Education Simulation framework to measure the outcomes of confidence, knowledge and satisfaction (Tiiffen, Corbridge, Shen & Robinson, 2011).
4. Implement summative evaluation utilizing the cardiac patient simulator
5. Follow-up student evaluations to correlate cardiac simulation experiences with clinical practice.
6. Add additional emphasis on management planning for cardiac simulations

## References

- Butter, et al. (2010). Simulation-based mastery learning improves cardiac auscultation skills in medical students. *Journal of General Internal Medicine* 25(8), 780-785.
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