

**Title:**

Simulation as Replacement for Clinical in Nursing Education: Ratios of Simulation to Clinical Replacement Time

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**Session Title:**

Rising Stars of Research and Scholarship Invited Student Poster Session 2

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**Keywords:**

clinical replacement ratios, simulation and undergraduate nursing education

**References:**

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**Abstract Summary:**

What is the best ratio to use when replacing traditional clinical time with simulation time in undergraduate nursing education? This poster presentation will summarize a systematic review of the literature on the use of different replacement ratios for traditional clinical time with simulation time in undergraduate nursing education.

**Learning Activity:**

LEARNING OBJECTIVES	EXPANDED CONTENT OUTLINE
The learner will be able to summarize the current knowledge on the outcomes of using different replacement ratios for simulation to traditional clinical	Results from a systematic review of the literature will be presented in poster format on the outcomes of replacing traditional clinical with simulation at varying replacement ratios. Learners will have the opportunity to discuss

	and share if and how simulation is used as traditional clinical replacement at their educational institutions.
The learner will be able to list key milestones in the evolution of simulation use in nursing education from 1847 until present day	A timeline will be presented featuring key historical milestones on the evolution of simulation use in nursing education from 1847 until present day

### Abstract Text:

**Purpose:** The purpose of this poster presentation is to summarize the state of the knowledge on the use of simulation as a replacement for traditional clinical in undergraduate nursing education with a specific focus on the ratios of simulation to traditional clinical replacement time selected by schools and colleges of nursing.

**Background:** Simulation in undergraduate nursing education is an instructional method by which a hypothetical, yet realistic, opportunity is created that allows a single nursing student or a group of students to provide care for a patient who is represented by a manikin, an actor, or a standardized patient depending on the clinical situation. Simulation facilitates active student engagement and integrates practical and theoretical learning with opportunities for repetition, feedback, evaluation, and reflection. There is evidence that simulation has been used as an instructional methodology in nursing education since 1847, but simulation has changed significantly as technology has advanced. Simulation has been recommended as a teaching method for undergraduate nurses by the American Association of Colleges of Nursing, Institute of Medicine, Interprofessional Education Collaborative Expert Panel, and as a method of teaching that supports the Quality and Safety Education for Nurses competencies. The recent results of the NCSBN National Simulation Study indicate that up to 50% of traditional clinical can be replaced by simulation as long as rigorous standards are in place. Hayden et al (2014) in the NCSBN National Simulation Study utilized a 1:1 simulation to traditional clinical replacement ratio meaning that 1 hour of simulation equaled 1 hour of a traditional clinical experience. The researchers used a 1:1 replacement ratio because no evidence existed to use any other clinical replacement ratio. However, many nursing programs across the United States are utilizing different replacement ratios such as 1 hour of simulation to equal 2 hours of traditional clinical, without any empirical evidence that the same outcomes can be met. Many nurse educators are now wondering: what is the best ratio to use when replacing traditional clinical time with simulation time in undergraduate nursing education?

**Aim:** The objective of this systematic review of the literature was to identify the best evidence on the amount of time that should be spent in simulation to replace traditional clinical while producing the same outcomes. For example, what are the outcomes of using a 1:1 ratio (1 hour of simulation to replace 1 hour of traditional clinical), 1:2 ratio (i.e. 1 hour of simulation to replace 2 hours of traditional clinical), 1:3 ratio (i.e. 1 hour of simulation to replace 3 hours of traditional clinical), or 1:4 ratio (i.e. 1 hour of simulation to replace 4 hours of traditional clinical) in an undergraduate nursing education program?

**Method:** A systematic review of the literature was conducted to identify research articles that provided information about using differing replacement ratios for simulation to traditional clinical in undergraduate nursing programs. The search strategy aimed to find both published and unpublished studies, limited to the English language, and within undergraduate nursing education. The keywords used for the search were *simulation, clinical, replacement, ratio, and nursing*. The following databases were included in the search: Cochrane library, CINAHL, MEDLINE, and PsychINFO. In addition, the keywords were also entered into the search engines of two peer-reviewed journals specific to simulation: *Clinical Simulation in Nursing* and the *Journal of the Society for Simulation in Healthcare*.

**Results:** The initial search of the literature resulted in 572 studies. The titles were reviewed for relevancy and narrowed to 24 studies that were selected for further review. After reviewing the articles, a total of 9 studies were relevant to the substitution of simulation for clinical using different replacement ratios. Five articles were categorized as purely descriptive studies and described the ratio of time or number hours in simulation used to replace traditional clinical hours in undergraduate nursing programs. One additional comparative descriptive program evaluation study described how the implementation of a 1:2 simulation to traditional clinical replacement ratio for 50% of traditional clinical time impacted faculty capacity. One quasi-experimental study explored student perceptions of learning and clinical outcomes between simulation and traditional clinical when replacing 16-21% of traditional clinical with simulation using a 1:2 simulation to traditional clinical replacement ratio. Another quasi-experimental study utilized a 1:1 ratio for simulation to clinical replacement time and aimed to identify the effects of a theory-driven simulation curriculum on nursing student clinical performance. Another article, published by a known simulation expert, described the development of a simulation policy. This policy development article was included as a relevant article to the systematic review due to the simulation expertise of the author and the qualitative comments included on the reasoning behind the implementation of a 1:3 simulation to traditional clinical replacement ratio.

**Conclusion:** Although the results of the NCSBN study support using a 1:1 ratio for simulation to clinical replacement time in undergraduate nursing education; there is no standard ratio of clinical replacement time currently being used in prelicensure nursing curricula. Many undergraduate nursing programs are using 1:2, 1:3, or even 1:4 ratios for simulation to traditional clinical replacement time. Some small-sample studies do show positive clinical outcomes when using a 1:2 replacement ratio for simulation to traditional clinical hours; however, there exists no strong empirical evidence that replacing traditional clinical with less time in simulation results in comparable outcomes for undergraduate nurses.