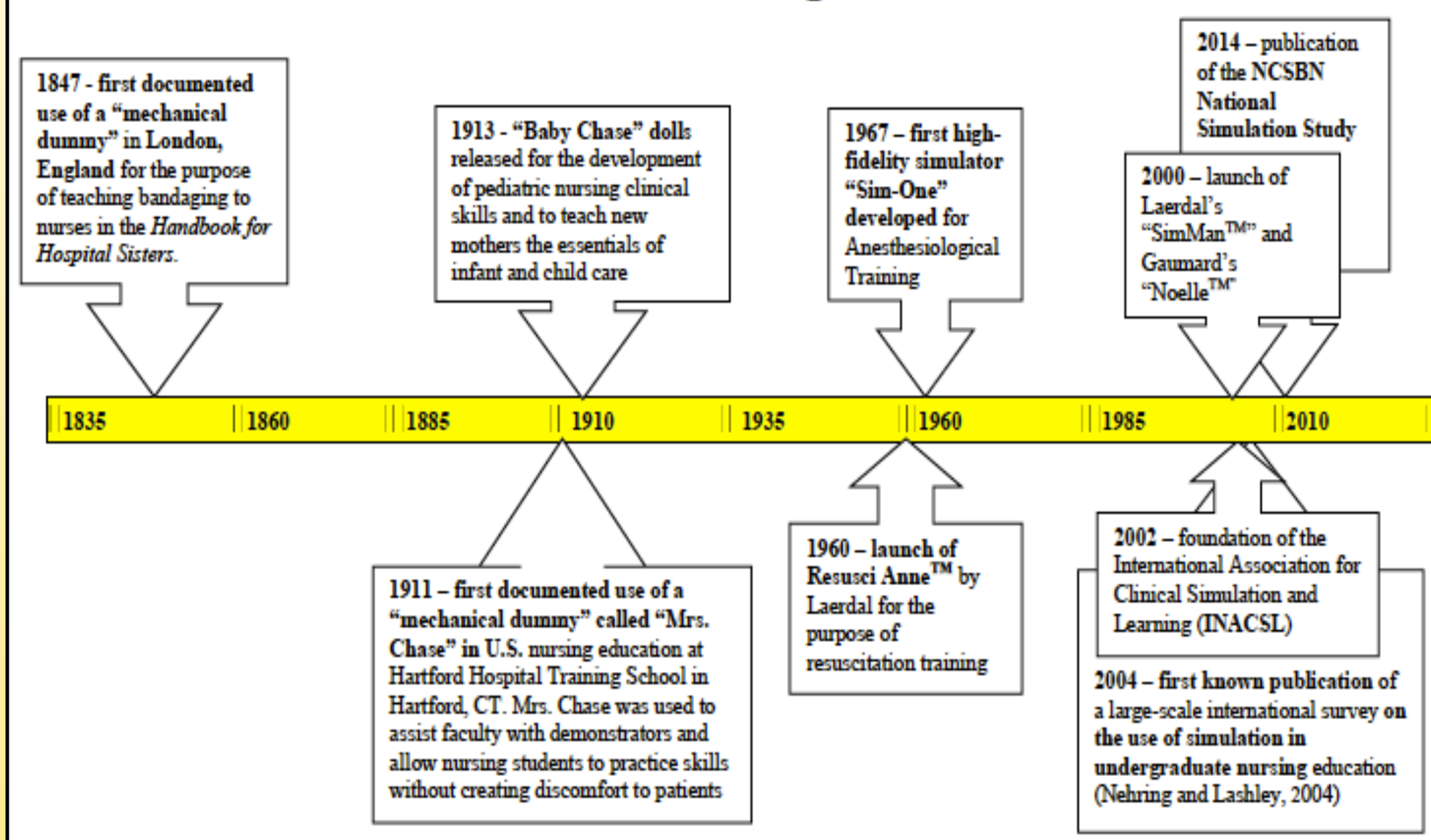


# Simulation as Replacement for Clinical in Undergraduate Nursing Education: Ratios of Simulation to Clinical Replacement Time

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## Introduction

### History of Simulation in Nursing



The results of the NCSBN National Simulation Study indicate that *up to 50% of traditional clinical can be replaced with simulation and produce the same outcomes* for nursing students as long as rigorous standards are put in place.

Although the results of the *NCSBN study support using a 1:1 ratio for simulation to traditional clinical replacement time* in undergraduate nursing education; there is *no standard ratio of clinical replacement time* currently being used in the U.S.

## Purpose

The *purpose* of this literature review 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.

The *specific question* was: "What are the outcomes of using different ratios of simulation to clinical replacement time in undergraduate nursing education?"

## Methods

Systematic review of the literature using the key words: simulation, clinical, replacement, ratio, and nurs\*

Databases utilized in the search were: Cochrane, CINAHL, MEDLINE, and PsychINFO

Individual searches of the *Clinical Simulation in Nursing* journal and the *Journal of the Society for Simulation in Healthcare*

## Results

Article	Type of Study	Results/ Key Findings
Bearson & Walker (2005)	Descriptive (Used 2 hours of simulation to replace 1 clinical day)	Students self-reported increased knowledge of medication side effects, patient responses to medication, safety while administering medications, and confidence in medication administration.
Breymier, Rutherford-Hemming, Horsley, Atz, Smith, Badowski, & Connor (2015)	Descriptive/ National Survey (U.S.)	<ul style="list-style-type: none"> <li>60% utilized 1:1 simulation to clinical ratio</li> <li>10% utilized 1:2 simulation to clinical ratio</li> </ul>
Cornelius (2012)	Descriptive – mixed methods	The intensity of simulation was cited as the reasoning behind why a 1:3 simulation to traditional clinical replacement ratio could be used.
Gore & Schuessler (2013)	Expert article – not research	The 1:3 simulation to clinical replacement ratio was utilized according to the authors because of the "concentrated learning that would occur" in simulation (p. e321).
Gore, Van Gele, Ravert, & Mabire (2012)	Descriptive – international study	<ul style="list-style-type: none"> <li>58% utilized 1:1 simulation to clinical ratio (U.S.)</li> <li>9% utilized 1:2 simulation to clinical ratio (U.S.)</li> </ul>
Hayden (2010)	Descriptive/ Survey	<ul style="list-style-type: none"> <li>83% of prelicensure RN programs utilized a 1:1 simulation to clinical ratio</li> <li>Substitution of clinical time with simulation was most common in medical surgical courses</li> </ul>
Meyer, Connors, Hou, & Gajewski (2011)	Quasi-experimental prospective (Used a 1:1 simulation to clinical replacement ratio)	<ul style="list-style-type: none"> <li>After 4 weeks of clinical, students that had experienced simulation scored significantly higher on overall clinical performance than their peers who had not experienced simulation.</li> <li>Adding the simulation experience to the clinical decreased the student/ faculty ratio from 8:1 to 6:1</li> </ul>
Parker, McNeill, & Howard (2015)	Quasi-experimental (Used a 1:2 simulation to clinical replacement ratio)	<ul style="list-style-type: none"> <li>Students perceived significantly greater opportunities for collaboration with their peers in the simulated clinical setting</li> <li>Students reported significantly higher satisfaction in learning in the traditional clinical setting</li> </ul>
Richardson, Goldsamt, Simmons, Gilmartin, & Jeffries (2014)	Comparative Descriptive Program Evaluation (Used a 1:2 simulation to clinical replacement ratio)	The replacement of 50% of traditional clinical with simulation at a 1:2 ratio of simulation to clinical hours resulted in a 49% increase in faculty capacity without negative effects to work-life quality for faculty or student simulation/clinical experiences.

## Discussion

The majority of current studies on the ratio utilized for simulation to traditional clinical replacement time are *descriptive*.

Most (58-83%) prelicensure nursing programs utilize a 1:1 simulation to traditional clinical replacement ratio, followed by 1:2 (9-10%) and 1:3 (5-8%).

In some studies, 1:1 or 1:2 (simulation:traditional clinical) replacement ratios resulted in:

- decreased student to faculty ratios in both simulation and traditional clinical;
- increased faculty capacity by 45-49%;
- a significant increase in students' abilities to perform clinical skills and in students' overall clinical performance scores; and
- a student-perceived increase in peer collaboration and confidence in medication administration skills.

*The strongest evidence in the current literature supports utilizing a 1:1 simulation to traditional clinical replacement ratio.* However, anecdotal reports indicate a 1:1 ratio is inefficient, redundant, and unnecessary.

**More research needs to be conducted on the use of other simulation to clinical replacement time ratios.**

## References

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- For a full list of references, please contact Tiffany.

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