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

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Introduction

Purpose

The purpose of this literature review was to identify the best evidence on the amount of time that should be spent in undergraduate nursing education; there is no standard ratio of clinical replacement time currently being used in the U.S.

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.

Methods

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

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

<table>
<thead>
<tr>
<th>Article</th>
<th>Type of Study</th>
<th>Results/ Key Findings</th>
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<tbody>
<tr>
<td>Beaumont &amp; Walker (2005)</td>
<td>Descriptive (used 2 hours of simulation to replace 1 clinical day)</td>
<td>Students self-reported increased knowledge of medication side effects, patient responses to medication, safety while administering medications, and confidence in medication administration</td>
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<td>Breymer, Rutherford-Hemming, Horstey, Aziz, Smith, Badowski, &amp; Connor (2015)</td>
<td>Descriptive - National Survey (U.S.)</td>
<td>60% utilized 1:1 simulation to clinical ratio; 10% utilized 1:2 simulation to clinical ratio</td>
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<tr>
<td>Cornelius (2012)</td>
<td>Descriptive – mixed methods</td>
<td>The intensity of simulation was cited as the reasoning behind why a 1:3 simulation to traditional clinical replacement ratio could be used</td>
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<tr>
<td>Gore &amp; Schaezler (2013)</td>
<td>Expert article – not research</td>
<td>The 1:3 simulation to clinical replacement ratio was utilized according to the authors because of the &quot;concentrated learning that would occur&quot; in simulation (p.e321)</td>
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<tr>
<td>Gore, Van Gele, Ravert, &amp; Mabire (2012)</td>
<td>Descriptive - international study</td>
<td>58% utilized 1:1 simulation to clinical ratio (U.S.); 9% utilized 1:2 simulation to clinical ratio (U.S.)</td>
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<tr>
<td>Hayden (2010)</td>
<td>Descriptive/ Survey</td>
<td>83% of prelicensure RN programs utilized a 1:1 simulation to clinical ratio; Substitution of clinical time with simulation was most common in medical surgical courses</td>
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<td>Meyer, Connors, Hou, &amp; Gajewski (2011)</td>
<td>Quasi-experimental prospective (Used a 1:1 simulation to clinical replacement ratio)</td>
<td>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; Adding the simulation experience to the clinical decreased the student faculty ratio from 8:1 to 6:1</td>
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<tr>
<td>Parker, McNeill, &amp; Howard (2015)</td>
<td>Quasi-experimental (Used a 1:2 simulation to clinical replacement ratio)</td>
<td>Students perceived significantly greater opportunities for collaboration with their peers in the simulated clinical setting; Students reported significantly higher satisfaction in learning in the traditional clinical setting</td>
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<tr>
<td>Richardson, Goldsamt, Simmons, Gilchrist, &amp; Jeffries (2014)</td>
<td>Comparative Descriptive Program Evaluation (Used a 1:2 simulation to clinical replacement ratio)</td>
<td>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</td>
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</table>

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

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

Contact Information

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