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Author/Date	Setting	Research Design	Subjects	Methodology	Results
Satisfaction					
Feingold et al. (2004) <i>Journal of Nursing Education</i> 43(4)	BSN program	Students exposed to 2 acute care patient scenarios in a semester	65 senior students in Advanced Acute Care of the Adult Course	Researcher-developed 20-item Likert scale satisfaction tool	50.4% transferability 84.6% realism 92.3% value
Abdo & Ravert (2006) <i>Clinical Simulation in Nursing</i> 2(1)	BSN program	Students exposed to 5 scenarios--congestive heart failure, myocardial infarction, traumatic brain injury, diabetic ketoacidosis, and gastro-intestinal bleeding.	17 students in first med/surg course	Feingold et al. satisfaction tool	100% transferability 96% realism 95% value
McCausland et al. (2004) <i>International Journal of Nursing Education Scholarship</i> 1(1)	BSN program	Students exposed to CHF scenario during post-conference	72 students—no other info	Researcher-developed 10 item Likert scale satisfaction tool	97% transferability 88% realism 90% value
Bearnson & Wiker (2005) <i>Journal of Nursing Education</i> 44(9)	BSN program	Students exposed to 3 post-op scenarios to determine value of using HFS to replace clinical	Unknown	Researcher-developed satisfaction tool with 4 Likert items and 3 open items	Satisfaction scores ranged from 3.00-3.31 on scale of 1-4 Students did not feel HFS should take place of clinical

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<p>Henneman & Cunningham (2005)</p> <p><i>Nurse Educator</i> 30(4)</p>	BSN program	Students exposed to 3 critical care scenarios	5 senior students in a critical care elective course	Researcher-developed satisfaction tool with 4 Likert items and 2 open questions	Student satisfaction scores increased with each scenario Students most satisfied with interdisciplinary scenario
<p>Robertson (2006)</p> <p><i>Nurse Educator</i> 31(2)</p>	BSN program	Students exposed to PIH, abruption, C-section, and DIC	20 senior nursing students in an obstetrical course	Researcher-developed satisfaction tool with 8 Likert items and 2 open questions	Students enjoyed the activity and felt learning would transfer
<p>Rhodes & Curran (2005)</p> <p><i>CIN: Computers, Informatics, Nursing</i> 23(5)</p>	BSN program	Students exposed to HFS scenario of patient with hemorrhagic shock	Senior students in an acute medical/surgical care course	Researcher-developed 13-item satisfaction survey	Positive and useful Scenario was realistic HFS should be used in nursing education

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<p>Norris (2008)</p> <p><i>British Journal of Midwifery 16(4)</i></p>	<p>Midwifery program in Great Britain</p>	<p>Students in a midwifery program exposed to 4 high-fidelity simulation experiences (shoulder dystocia, postpartum hemorrhage, breech birth, and adult resuscitation)</p>	<p>23 midwifery students</p>	<p>No information regarding survey used to assess satisfaction of students</p>	<p>Students felt the simulation experiences were valuable in applying theory to practice in a safe environment; students felt the timing and level of difficulty was appropriate. Subjective comments were positive.</p>
<p>Gordon C.J. et al. (2009)</p> <p><i>Journal of Continuing Education in Nursing 40(11)</i></p>	<p>Graduate nursing students</p>	<p>Descriptive survey of graduate nursing students in a program in Australia</p>	<p>50 graduate nursing students from an Australian University</p>	<p>The researcher designed a descriptive questionnaire based on a 4 point Likert scale to address student confidence before and after immersion in high fidelity simulation training for patients with clinical emergencies</p>	<p>Nurses reported an increase in their ability to recognize an unstable patient after simulation $p = .02$ and $< .001$. Nurses also reported an increase in confidence in initiating interventions $p < .001$</p>

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Fountain and Alfred (2009) <i>Nursing Education Perspectives 30(2)</i>	Baccalaureate nursing students	Senior nursing students participating in 3 hour high-fidelity simulation experience related to cardiac diseases	78 senior nursing students in an advanced medical surgical nursing course	NLN Nursing Student Satisfaction and Self-Confidence in Learning Scale; nursing school entrance exams	Positive correlation between both social and solitary learning styles and satisfaction with simulation learning experience
HFS and Self-Efficacy/Confidence					
Henrichs et al. (2002) <i>AANA Journal 70(3)</i>	Graduate nurse anesthesia students	Nurse anesthesia students exposed to 4 anesthesia-related scenarios	12 nurse anesthesia students in first year of training	Qualitative analysis of interviews, journals, and observation forms	Students report a general increase in self-efficacy
Ravert (2004) <i>ProQuest Dissertation AAT 3133131</i>	BSN program	Experimental group--students exposed to 5, 90 minute scenarios over a 5 week period (med surg and OB) Control group—students exposed to five case studies	25 students in 3 rd semester of BSN program	Researcher-developed Self-Efficacy instrument	Students in both groups had significant increases in self-efficacy scores

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<p>Bremner et al. (2006)</p> <p><i>Nurse Educator, 31(4)</i></p>	BSN program	Students exposed to one healthy patient and one abnormal patient; asked to conduct assessment of each	41 novice students learning assessment skills	Researcher-developed Likert/open-ended evaluation survey	61% self-reported increase in self-confidence
<p>Schoening et al. (2006)</p> <p><i>Nurse Educator 31(6)</i></p>	BSN program	Students exposed to OB patient in pre-term labor	60 junior nursing students	Researcher-developed 10-item Likert item evaluation survey	Mean score of 3.71 on scale of 1-4
<p>Jeffries & Rizzolo (2006)</p> <p>http://www.nln.org/research/LaerdalReport.pdf.</p>	BSN and ADN program	Experimental group—HFS scenario involving care of the post-op client Control groups—post-op care scenarios using static manikins and case studies	403 nursing students	Researcher-developed Satisfaction and Self-Confidence in Learning instrument	Significantly higher levels of self-confidence in caring for post-op clients in students exposed to HFS
<p>Lasater (2007)</p> <p><i>Journal of Nursing Education 46(6)</i></p>	BSN program	Experimental group—exposed to 4 weekly HFS scenarios in addition to clinical Control group—given only clinical experiences	39 junior students in the experimental group/44 students in the control group	Researcher-developed 30 item confidence instrument	Increase in confidence in experimental group not significant

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Leflore et al. (2007) <i>Simulation in Healthcare 2(1)</i>	Graduate nurse practitioner students	Experimental groups—HFS group and HFS group with facilitated debriefing Control group—lecture only	16 students enrolled in a pediatric nursing course	No information	Significant difference in self-confidence between students in the two HFS groups and the lecture group
Weller (2004) <i>Medical Education 38</i>	Medical program	Students exposed to a 3-hour HFS simulation workshop on emergency care	34 fourth-year medical students enrolled in a course module on resuscitation	Researcher-developed 5-item Likert scale evaluation survey	Median self-confidence score of 2 on scale of 1-5
Shukla et al. (2007) <i>Simulation in Healthcare 2(1)</i>	Medical program	Pre-test/Post-test design using students exposed to 1 day workshop on lifesaving procedures	240 third-year medical students	Researcher-developed 10 item Likert scale evaluation survey	Statistically significant increase in confidence from pre-test to post-test
Pliego & Rajab (2007) <i>Simulation in Healthcare 2(1)</i>	Medical program	Pre-test/Post-test design using students exposed to day long simulation workshop	66 first-year medical residents	Researcher-developed Likert style Self-confidence instrument	Statistically significant increase in confidence from pre-test to post-test

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<p>Bremner et al. (2008)</p> <p><i>Online Journal of Nursing Informatics</i> 12(1)</p>	<p>Nursing program in the southeastern United States</p>	<p>Experimental design over 2 consecutive semesters. Experimental group received high-fidelity simulation session one week prior to clinical; control group received skills lab experience with low-fidelity manikins one week prior to clinical. Pre-test measures as well as post-test measures one week after a clinical experience</p>	<p>149 sophomore nursing students in a baccalaureate program in the southeastern U.S.</p>	<p>Researcher-developed instrument assessing demographic information and evaluation of educational experience. Self-Assessment Inventory used to measure learning style and coping style. State-Train Anxiety Inventory used to measure anxiety</p>	<p>Significantly higher anxiety scores in control group. No significant differences in learning or coping styles and level of anxiety. Subjective responses revealed students felt it increased confidence</p>
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<p>Smith & Roehrs (2009)</p> <p><i>Nursing Education Perspectives 30(2)</i></p>	<p>Baccalaureate nursing program in the western United States</p>	<p>Descriptive, correlational study of an HFS respiratory scenario on student satisfaction and self-efficacy and factors correlating with these outcomes</p>	<p>68 junior baccalaureate nursing students in their first medical surgical course following a fundamentals course</p>	<p>Demographic survey, Simulation Design Scale, Student Satisfaction and Self-Confidence in learning Scale</p>	<p>Students generally satisfied; positively affected self-efficacy in caring for patient with respiratory condition; All five design characteristics were moderately correlated with outcomes; outcomes didn't depend on role</p>
<p>Bambini et al. (2009)</p> <p><i>Nursing Education Perspectives 30(2)</i></p>	<p>Baccalaureate students</p>	<p>Quasi-experimental, repeated measure design using survey measuring communication, confidence, and clinical judgment</p>	<p>112 students in first clinical course participating in 3 hour post-partum simulation experience</p>	<p>Researcher-developed pre-test, post-test, and survey using 10 point Likert questions and open-ended questions</p>	<p>Significant increase in confidence in performing post-partum exam, including specific skills of an exam. Qualitative comments noted students felt experience was valuable; increased confidence especially in fundal exam</p>

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<p>Leighton and Scholl (2009)</p> <p><i>Clinical Simulation in Nursing VOL (5)</i> doi: 10.1016/j.ecns.2009.05.058</p>	<p>Baccalaureate nursing students</p>	<p>Pretest/Posttest measurement of 28 baccalaureate nursing students randomly assigned to participate in mock code in groups of 3</p>	<p>Junior baccalaureate nursing students in their third medical-surgical course in a Midwestern college</p>	<p>Research-developed Likert instrument measuring experiences regarding use of CPR; evaluation of performance of CPR</p>	<p>Confidence in performing CPR increased; only 4 of ten groups performed CPR correctly; themes from debriefing included managing the code, future, simulation vs. reality, lack of knowledge, and personal feelings</p>
<p>Young and Burke (2010)</p> <p><i>Clinical Simulation in Nursing VOL (6)</i></p>	<p>Graduate RNs and new PharmDs in an orientation</p>	<p>Retrospective program evaluation of Advanced Clinical Education and Simulation (ACES) Course</p>	<p>28 newly hired RNs and PharmD graduates in a 8-week ACES program at a small community hospital in cooperation with a public university</p>	<p>Two researcher developed instruments: The ACES Evaluation Form (2-page, 12 item short answer evaluation) and The ACES Evaluation Form (Likert Scale) a 21-item Likert survey. Face validity info provided</p>	<p>Participants responses indicated overwhelming support for use of simulation for orientation experience and interdisciplinary understanding.</p>

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HFS and Critical Thinking					
<p>Howard (2007)</p> <p><i>Dissertation ProQuest AAT 3270096</i> <i>In press Computers, Informatics, Nursing</i></p>	<p>Simulation center</p>	<p>49 nursing students from a baccalaureate and diploma program randomly assigned to either a high-fidelity simulation experience or interactive case study experience. Pre-test/post-test design</p>	<p>Nursing students from a diploma and baccalaureate nursing program</p>	<p>HESI exam and researcher-developed evaluation form to assess student's perception of the teaching strategy used</p>	<p>High-fidelity simulation group scored higher on knowledge gain and critical thinking using the HESI exam. High-fidelity simulation group scores were significantly more positive in terms of stimulation of critical thinking, perceived value, transfer of learning, understanding concepts, nervousness, decreasing anxiety, substitution for clinical.</p>

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<p>Ravert (2008)</p> <p><i>Journal of Nursing Education</i> 47(12)</p>	<p>BSN program</p>	<p>Experimental group--students exposed to 5, 90 minute scenarios over a 5 week period (med surg and OB) Control group—students exposed to five case studies</p>	<p>25 students in 3rd semester of BSN program</p>	<p>California Critical Thinking Disposition Inventory and California Critical Skills Test</p>	<p>Statistically significant gain in score, but not related to learning style or group</p>
<p>Horan (2009)</p> <p><i>Nursing Education Perspectives</i> 30(1)</p>	<p>Baccalaureate nursing program</p>	<p>Evaluation of mini-scenarios using high-fidelity simulation to compliment didactic lecture</p>	<p>57 baccalaureate nursing students</p>	<p>Researcher developed evaluation instrument</p>	<p>91% students report scenarios enhanced critical thinking; other findings include students felt the simulation enhanced didactic content, enhanced confidence, improved ability to care for patients, and improved clinical decision making</p>

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<p>Dillard et al. (2009)</p> <p><i>Nursing Education Perspectives 30(2)</i></p>	<p>Faculty and students in baccalaureate nursing programs</p>	<p>Evaluation of project utilizing Lasater Clinical Judgment Rubric</p>	<p>16 faculty participating in workshop; 68 students participating in simulation related to heart failure and clinical with faculty who had completed workshop</p>	<p>Modified tool for evaluating faculty workshop; Likert-style survey for students to evaluate simulation; analysis of student journals to assess transfer of learning in clinical situation</p>	<p>Faculty felt workshop was valuable and learned skills needed to use Clinical Judgment rubric; student's rated each of six objectives of simulation highly; range of clinical judgment levels in student journals. Overall faculty that implementing clinical judgment framework requires ongoing support and reinforcement</p>
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<p>Tiffen et al. (2009)</p> <p><i>Clinical Simulation in Nursing 5(3) doi: 10.1016/j.ecns.2009.01.009</i></p>	<p>Advanced practice nursing students</p>	<p>Experimental design with students enrolled in advanced physical assessment course randomly assigned to learn traditional method (lecture/lab) or traditional method along with simulation experience involving heart and lung assessment</p>	<p>18 first year advanced practice nursing students (NP and CNS students) enrolled in a large university in the Chicago area</p>	<p>Researcher-developed confidence instrument with 6 Likert-type questions. Face validity identified.</p>	<p>Significant difference in confidence between simulation experience group and control group</p>
<p>Sinclair & Ferguson (2009)</p> <p><i>International Journal of Nursing Education Scholarship 6(1) Article 7</i></p>	<p>Canadian baccalaureate nursing students</p>	<p>Mixed methods study examining perceptions of combination of lecture and simulation (mid-fidelity) related to self-efficacy, satisfaction, and effectiveness (experimental group) and lecture only group (control)</p>	<p>Convenience sample of 174 nursing students in 2nd year of BSN program in Canada in episodic challenges throughout the lifespan course</p>	<p>Demographic survey, modified Baccalaureate Nursing Student Teaching-Learning Self-Efficacy Questionnaire (16 Likert-style items)</p>	<p>Increased level of self-confidence following simulation experience as well as higher levels of satisfaction, effectiveness and consistency with their learning style compared to the control group</p>

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Learning/Other Outcomes					
Ravert (2002) <i>CIN: Computer, Informatics, Nursing</i> <i>20(5)</i>	Healthcare education	Meta-analysis of quantitative studies from 1980-2000	9 research studies	Meta-analysis	75% studies support simulation 12.5% did not support 12.5% neutral
Griggs (2002) <i>ProQuest Dissertation AAT 3100754</i>	BSN program	Pre-test/Post-test design using Experimental group—students exposed to 4-hour medical/surgical simulation experience Control group—traditional clinical only	27 senior nursing students in an advanced medical-surgical nursing course	Researcher-developed multiple choice knowledge exam and 40 item Likert scale assessing anxiety, competency, and decision-making ability	No significant differences between students given HFS experience and those receiving only clinical experiences in terms of knowledge, anxiety, competency, or decision-making
Nehring & Lashley (2004) <i>Nursing Education Perspectives</i> 25(5)	BSN program	Pre-test/Post-test design. Post-test immediately after and one-month post-simulation with students exposed to a pediatric asthma and PIH scenarios	84 baccalaureate nursing students	Researcher-developed knowledge exam	Significant increase in knowledge from pre-test to first post-test, but no significant difference at second post-test

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<p>Schumacher (2004)</p> <p><i>ProQuest Digital Dissertation AAT 3151333</i></p>	BSN program	<p>Pre-test/Post-test design with Experimental groups—HFS group and HFS and case study group Control group—case study group. Three scenarios: MI, DVT, and shock</p>	36 nursing students enrolled in a medical/surgical nursing course	60-item customized HESI Exam for pre-test; 20 item customized HESI for post-test after each scenario	Only the two experimental groups receiving HFS had significant differences in critical thinking and learning outcomes
<p>Issenberg et al. (2005)</p> <p><i>Medical Teacher 27(1)</i></p>	Medical education	Meta-analysis of 109 quantitative studies between 1969-2003	109 studies	Meta-analysis	0 reported unequivocal results with HFS 20% indicated positive effects with HFS
<p>Alinier et al. (2006)</p> <p><i>Journal of Advanced Nursing 54(3)</i></p>	BSN program	<p>Pre-Test/Post-Test design with Experimental group—two HFS pre and post-op care scenarios Control group—traditional clinical course content</p>	133 nursing students	Objective Structured Clinical Exam (OSCE)	Significantly higher increases in post-test OSCE scores in experimental group

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<p>Radhakrishnan et al. (2007)</p> <p><i>International Journal of Nursing Education Scholarship</i> 4(1)</p>	BSN program	<p>Experimental group—two HFS scenarios involving care of two complex patients</p> <p>Control group—traditional clinical experiences only</p>	12 second-degree, senior baccalaureate students	<p>Researcher-developed observation instrument evaluating safety, basic assessment, focused assessment, interventions, communication, and delegation</p>	<p>HFS group scored significantly higher on safety and basic assessment; no significant differences in other categories</p>
<p>Shepherd et al. (2007)</p> <p><i>Simulation in Healthcare</i> 2(1)</p>	Graduate nurses	<p>Experimental group—assessment skills taught using medium-fidelity simulation</p> <p>Control groups—assessment skills taught by self learning package and self-learning package with two PowerPoint workshops</p>	74 graduate nurses in a nurse transition program in four hospitals	Researcher-developed performance rating scale	<p>Simulation group had significantly higher performance scores than those in the other two groups</p>

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<p>Girzadas et al.(2007) <i>Medical Teacher</i> 29;472-476</p>	<p>Residency training program</p>	<p>Emergency medicine residents exposed to a simulated case of anaphylactic shock using HFS</p>	<p>44 Emergency medicine residents from 11 novice residents, 11 residents with 9 mos. Training, 11 residents with 21 months training, 11 residents with 33 months training.</p>	<p>The researcher used a standardized evaluation tool for observable and measurable events to determine levels of competency. (residents were timed)</p>	<p>Novice residents took longer than experienced residents; Time to completion of surgical airway 621 sec. vs.512 sec $p= 0.028$ Time to start of surgical airway 532 sec. vs. 442 sec. $p =0.043$ Time to completion of case 650 sec. vs. 513 sec. $p=0.006$</p>
<p>Kardong-Edgren et al. (2007) <i>Clinical Simulation in Nursing</i> 3(1)</p>	<p>Baccalaureate nursing program</p>	<p>Pre-test/Post-test design with 3 groups taught content related to congestive heart failure—lecture, lecture with static manikin, lecture with high-fidelity manikin</p>	<p>14 pre-nursing students</p>	<p>Researcher-developed cognitive test</p>	<p>No significant differences between pre-test and post-test scores of any group; no significant differences between three groups</p>

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<p>Kinney & Henderson (2008)</p> <p><i>Clinical Simulation in Nursing 4(2)</i></p>	<p>Associate degree program in the Midwest</p>	<p>Pre-Test/Post-test design. Students randomly assigned to learn medication administration by lecture or by lecture and low-fidelity simulation CD-ROM on medication administration. Both groups also took post-test 4 months after intervention</p>	<p>42 second-quarter nursing students in an ADN nursing program in the midwest</p>	<p>No information given on test used to assess knowledge of medication administration</p>	<p>No significant differences in test scores between groups immediately after intervention or at 4 months</p>
<p>Lambton et al. (2008)</p> <p><i>Clinical Simulation in Nursing 4(3)</i></p>	<p>Baccalaureate Nursing program simulation laboratory replicating a pediatric ward</p>	<p>Descriptive, repeated measures design. Students given opportunity to take part in 4 pediatric simulation scenarios on 4 different days; students surveyed after each experience</p>	<p>47 junior-level BSN students</p>	<p>Researcher-developed survey with 10 question Likert questions, 3 open-ended questions.</p>	<p>Difference in ability to detect medical error was statistically significant; open-ended questions indicated increase in student confidence</p>

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<p>Boley (2008)</p> <p><i>Nurse Educator 33(5)</i></p>	<p>Graduate nursing program</p>	<p>Descriptive study analyzing responses of students to use of mind maps in conjunction with simulation experiences related to care of critically ill patients. Experimental group received mind maps in addition to simulation; control group received only simulation</p>	<p>14 graduate students enrolled in a critical care course of an accelerated graduate program</p>	<p>Researcher-developed survey with 8 item survey (6 Likert and 2 open-ended questions); Course quizzes and exams</p>	<p>Students felt mind maps were easy to read and helped with the simulation; Mind map students had significantly higher test scores on all but one quiz.</p>
<p>Wolf (2008)</p> <p><i>Journal of Emergency Nursing 34(2)</i></p>	<p>Community hospital</p>	<p>Descriptive design with pre-test/post-test measurement of appropriateness of triage level before and after implementation of didactic and high-fidelity simulation experience related to triaging of emergency room patients</p>	<p>6 emergency room nurses in a community hospital setting</p>	<p>Analysis of charts prior to experience and after experience for appropriateness of triage level. Subjective assessment</p>	<p>Improved accuracy in triaging of emergency room patients; highest in nurses with less than 6 months experience. Nurses reported it increased their confidence in triaging emergency patients.</p>

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<p>Palmer et al. (2008)</p> <p><i>Nursing Outlook 56</i></p>	<p>Registered nurses, licensed practical nurses taking part in a continuing education workshop</p>	<p>Pre-test/Post-test design. Participants from 14 workshops experienced didactic content and clinical simulations related to older adults experiencing acute medical event or exacerbation of chronic condition</p>	<p>283 RNs, LPNs, and nurse educators who attended a geriatric nursing workshop</p>	<p>Described as a knowledge quiz related to geriatric nursing</p>	<p>Significant increase in knowledge scores pre and post simulation experience. Positive comments from participants including integration of theory from didactic content and transfer to clinical practice</p>
<p>Brannon et al. (2008)</p> <p><i>Journal of Nursing Education 47(11)</i></p>	<p>Baccalaureate nursing program</p>	<p>Quasi-experimental pre-test/post-test design comparing experimental group (taught care of MI using five stations including high-fidelity simulation) and control group (lecture)</p>	<p>107 BSN students in an adult health nursing course in both fall and spring semesters</p>	<p>Confidence Level Tool developed by researchers with 34 Likert type questions; Researcher-developed Acute Myocardial Infarction Questionnaire: Cognitive Skills Test, a 20 question multiple choice test</p>	<p>Significantly higher scores in cognitive test in HPS group; no differences in levels of confidence</p>

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<p>Laschinger et al. (2008)</p> <p><i>International Journal of Evidence Based Healthcare</i> 6</p>	<p>Research studies related to simulation</p>	<p>Review of research studies related to use of simulation in prelicensure programs in healthcare that addressed knowledge, skills, confidence, satisfaction, performance, critical thinking, or role identity</p>	<p>23 studies including simulation task trainers and high-fidelity simulation</p>	<p>Meta-analysis not possible, descriptive narrative review of results of all studies</p>	<p>High learner satisfaction, use of high-fidelity simulation in teaching higher level skills such as airway management are useful, indication of increase in knowledge and performance but no retention over time</p>
<p>Langhan et al. (2009)</p> <p><i>Canadian Journal of Emergency Medicine</i> 11 (6) 535-539</p>	<p>Residency training program</p>	<p>Residents were exposed to 8 hours of simulation skills based training</p>	<p>28 resident post graduate trainees from 4 different disciplines of medicine (10 post graduate year one residents, 9 post graduate year two residents, and 9 post graduate year three residents)</p>	<p>The researcher used pre and post training questionnaires to evaluate perception of knowledge and competence of clinical skills</p>	<p>Between-participants analysis found that residents' year of postgraduate training influenced both self-assessment of knowledge and skills.</p>

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<p>Bruce et al. (2009)</p> <p><i>Nursing Education Perspectives 30(1)</i></p>	<p>University Nursing Program</p>	<p>Pre-test/Post-test design of simulation experience involving care of patient in cardiac arrest involving both undergraduate and graduate nursing students</p>	<p>11 Acute and adult health nurse practitioner students enrolled in a clinical practicum course; 107 Second semester Senior undergraduate students enrolled in a clinical practicum course</p>	<p>Graduate students- Demographic instrument, 10 item multiple choice Knowledge Test, 16 Likert scale item Confidence Scale, 26 item Student Competency Scale, Evaluation Instrument with 12 Likert items and 4 open-ended questions. Undergraduate students- Combined demographic and Evaluation Instrument with Likert items & 4 open-ended and 10 question multiple choice Knowledge Test</p>	<p>Graduate students- significant increase in knowledge scores pre and post experience, no significant differences in confidence, no significant difference in performance scores, overall positive rating Undergraduate students-rated highly by students, significant difference in pre and post test knowledge scores</p>
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<p>Morrison et al. (2009)</p> <p><i>Clinical Simulation in Nursing, in press</i></p>	<p>LPN nursing program</p>	<p>Pre-test/Post-test experimental design evaluating surgical and maternal/child simulation scenarios for students in a distance learning program</p>	<p>33 LPN students in their first year from Ontario, Canada</p>	<p>Researcher-developed knowledge test (25 multiple choice questions), evaluation survey with 27 Likert type questions and 6 open-ended questions</p>	<p>Statistically significant increase in knowledge of care of surgical and maternal/child client, All felt it increased their confidence in practicing in a real environment and allowed safe practice of clinical skills. Themes from open-ended questions included advantages of simulation, opportunity to practice skills not available in clinical, confidence, and application of theory to practice</p>
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<p>Lambton & Prion (2009)</p> <p><i>Clinical Simulation in Nursing VOL (5)</i> doi: 10.1016.j.ecns.2009.02.006</p>	<p>Clinical Nurse Leader (CNL) Master's Students</p>	<p>Descriptive, observational pilot study</p>	<p>8 CNL students enrolled in a prelicensure master's program observed BSN students taking part in 2 pediatric simulation experiences</p>	<p>CNL observation instrument based on Microsystems. Analysis of student observation instruments and transcript of post-simulation debriefing with CNL students</p>	<p>Simulation observation can be a valuable strategy to assist CNL students in understanding issues at the Microsystems level</p>
<p>Dillon et al. (2009)</p> <p><i>Nursing Education Perspectives 30(2)</i></p>	<p>Baccalaureate nursing students and medical students</p>	<p>Pretest/Posttest design using convenience sample of 4th year nursing students and 3rd year medical students at a large urban university taking part in interdisciplinary mock code experience</p>	<p>68 nursing students and 14 medical students participated in mock code experience using high-fidelity simulation</p>	<p>Jefferson Scale of Attitudes Toward Physician-Nurse Collaboration; 4 open-ended questions regarding collaboration; demographic survey</p>	<p>Significant increase in medical students' scores related to collaboration and nursing autonomy. Narrative responses indicated nursing students felt relationships with medical students more collaborative post experience. Both felt experience valuable and worth continuing.</p>

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<p>Morrison et al. (2009)</p> <p><i>Clinical Simulation in Nursing</i>5(2) doi: 10.1016/j.ecns.2009.01.004</p>	<p>Licensed practical nursing students in a distance learning program</p>	<p>Pretest/posttest experimental design with students randomly assigned to groups to learn skills in a simulation lab in groups</p>	<p>Nonprobability convenience sample of 33 LPN students in their first year of study</p>	<p>Researcher-developed 25 question multiple choice exam related to mother/baby care and surgical care. Researcher-developed evaluation survey with 27 Likert questions and 6 open-ended questions</p>	<p>Paired samples t-test indicated statistically significant increase in knowledge in mother/baby and surgical care. Students agreed that participation allowed them to practice important skills. Analysis of written comments included students benefited from meeting students in the distance program, limited time, and benefits of simulation.</p>
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<p>Sittner et al. (2009)</p> <p><i>Clinical Simulation in Nursing 5(3) doi: 10.1016/j.ecns.2009.02.007</i></p>	<p>Registered Nurses employed</p>	<p>Pretest/Posttest design examining impact on STEPS pneumonia simulation intervention with 3 month follow-up</p>	<p>11 RNs employed in a progressive care unit (PCU) in a Midwestern medical center</p>	<p>Researcher-developed 19-item multiple choice exam measuring knowledge. Content validity identified; NLN Simulation Instruments (Educational Practices Simulation Scale, Simulation Design Scale, and Satisfaction and Self-Confidence in Learning Scale) with established psychometric properties</p>	<p>No statistically significant difference in test scores over time. Nurses felt simulation was a satisfying learning experience and felt it was an effective teaching method. Nurses valued fidelity, collaboration, and constructive feedback.</p>
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<p>McKeon et al. (2009)</p> <p><i>Journal of Nursing Education 48(12)</i></p>	<p>Baccalaureate nursing Students</p>	<p>Pretest/Posttest design with students testing knowledge related to 6 QSEN competencies after computer-based simulation and 'traditional' simulation in a simulation laboratory using 2 scenarios (pediatric sickle cell; adult closed head injury)</p>	<p>53 BSN students in their 2nd term of a 3 term program from University of Tennessee Health Science Center</p>	<p>Pretest, posttest and computerized simulation developed by researchers using SimWriter simulation software focusing on 6 QSEN competencies</p>	<p>No significant differences in post-test scores between 2 groups; fewer faculty hours required for computerized simulation</p>
<p>Elfrink et al. (2010)</p> <p><i>Nursing Education Perspectives 31(2)</i></p>	<p>Prelicensure nursing students</p>	<p>Pretest/Posttest and follow-up exam using NCLEX-style questions with medical surgical and high-acuity students</p>	<p>Convenience sample of 84 nursing students (41 2nd year med-surg and 43 3rd year high-acuity students)</p>	<p>Researcher-developed test based on NCLEX-RN study questions related to the simulation content</p>	<p>Using paired t-test, significant in improvement in test scores from pre to post-test. Knowledge retained and follow-up test during final exams.</p>

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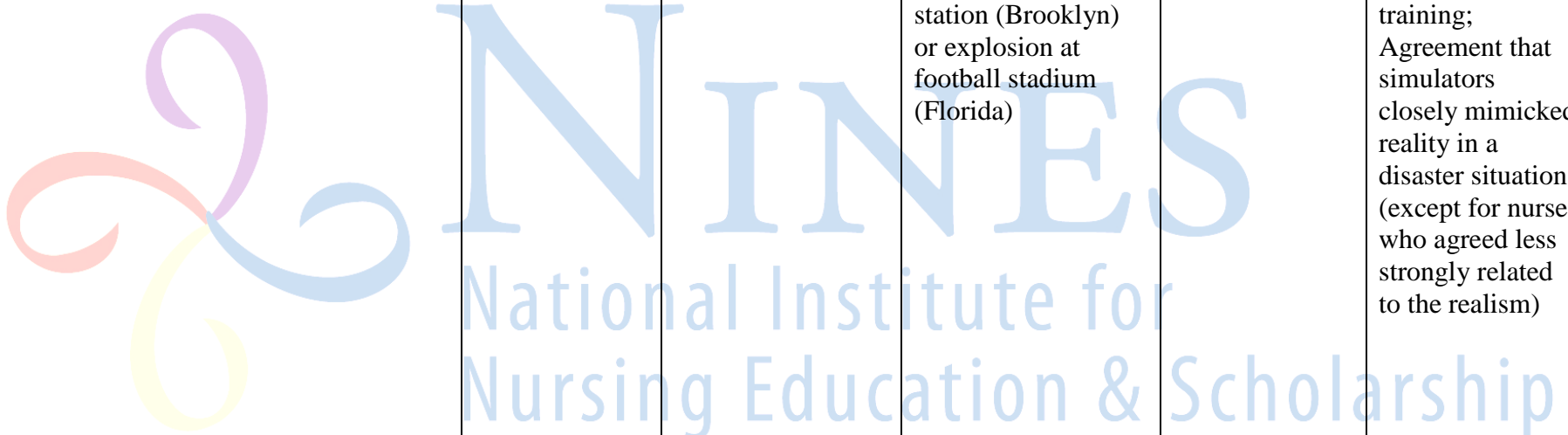
<p>Howard et al. (2010)</p> <p><i>CIN: Computers, Informatics, Nursing</i> <i>Jan/Feb 2010</i></p>	<p>Baccalaureate and diploma nursing students</p>	<p>Quantitative, quasi-experimental 2 group pretest/posttest design with students randomly assigned to either a high-fidelity simulation group or interactive case study group. Scenarios related to care of patient with ACS</p>	<p>49 traditional and accelerated BSN students and diploma nursing students from Pennsylvania</p>	<p>Researcher-developed knowledge test of 20 items based on the HESI test blueprint; researcher-developed Case Study Evaluation Survey to assess students' perceptions of the experience</p>	<p>Simulation group scored significantly higher on the examination with no significant differences between type of student. Students reported favorably regarding use of simulation as a teaching method</p>
<p>Schlairet & Pollock (2010)</p> <p><i>Journal of Nursing Education</i> 49(1)</p>	<p>Baccalaureate nursing students</p>	<p>2x2 crossover design and equivalence testing with randomization of students exposed to traditional clinical and simulated learning (experimental group) or traditional clinical experiences only (control)</p>	<p>74 baccalaureate students enrolled in a fundamentals course</p>	<p>Researcher-developed 25 questions multiple choice exam randomly selected from the NCLEX-RN®. Internal consistency reliability reported</p>	<p>Significant knowledge gain in both traditional and experimental/simulation group with no significant differences between groups</p>

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HFS and Performance					
Grady et al. (2008) <i>Journal of Nursing Education 47(9)</i>	Baccalaureate nursing program	Students randomly assigned to learn skills of urinary catheterization and nasogastric tube insertion by low-fidelity or high-fidelity mannikin	39 First year nursing students	Researcher developed performance checklists for nasogastric tube and urinary catheter insertion; Researcher developed Post-training questionnaire using 8 Likert questions to assess student perception of training; Researcher developed 6-item Likert scale addressing students perceptions of performance and confidence	Significantly higher performance scores by high-fidelity group; Positive comments by high-fidelity group especially in terms of realism.

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<p>Gillett et al. (2008)</p> <p><i>Academic Emergency Medicine 15: 1144-1151</i></p>	<p>Physicians, residents, registered nurses, clerks, paramedics, and medical students</p>	<p>Prospective cohort study conducted during 2 ED mass casualty drills in Florida and Brooklyn using both live actors patients and simulators in a</p>	<p>78 health care personnel participating as teams of at least 2 physicians 2 residents and 2 nurses who participated in either a drill involving an explosion at train station (Brooklyn) or explosion at football stadium (Florida)</p>	<p>Evaluation by observers of completion of 17 critical actions; posttest survey of participant responses</p>	<p>No difference in completion of critical actions between simulator and live-actor groups; participants disagreed that simulators detracted from training; Agreement that simulators closely mimicked reality in a disaster situation (except for nurses who agreed less strongly related to the realism)</p>
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<p>Hoadley (2009)</p> <p><i>Nursing Education Perspectives 30(2)</i></p>	<p>Health care personnel (RNs, MDs, EMTs, RTs)</p>	<p>Experimental two-group design comparing teaching of ACLS using low-fidelity simulation to high-fidelity simulation</p>	<p>53 health care personnel in an ACLS course randomly assigned to learn ACLS by traditional low-fidelity simulation or high-fidelity simulation</p>	<p>ACLS cognitive and Megacode performance tests; NLN Simulation Design Scale and Satisfaction and Self-Confidence Scale; demographic survey</p>	<p>High-fidelity group scored higher on cognitive and performance tests but not statistically different; Increases in both groups in terms of self-confidence in caring for cardiopulmonary arrest victim; greatest difference in satisfaction expressed by high-fidelity group—felt the high-fidelity should be the standard for teaching ACLS</p>
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<p>Pauly-O'Neill (2009)</p> <p><i>Clinical Simulation in Nursing VOL(5)</i> <i>doi: 10.1016/j.ecns.2009.05.059</i></p>	<p>Baccalaureate nursing students</p>	<p>Pretest/Posttest measurement of performance and knowledge related to pediatric medication administration</p>	<p>Observation of medication administration and knowledge test scores before and after implementation of simulation experiences practicing intense pediatric medication administration techniques (simulation not specified)</p>	<p>Researcher-developed observation instrument and exam related to pediatric medication administration. No psychometric properties provided</p>	<p>Increased performance accuracy in pediatric medication administration techniques.</p>
<p>Ackermann (2009)</p> <p><i>Clinical Simulation in Nursing VOL (5)</i> <i>doi: 10.1016/j.ecns.2009.05.002</i></p>	<p>Baccalaureate nursing students</p>	<p>Quasi-experimental design examining CPR knowledge and skills of nursing students. Experimental group received a mock code simulation experience; control group did not. Pretest/posttest design with 3 month follow-up</p>	<p>Convenience sample of junior-level traditional as well as accelerated 2nd Degree nursing students as a small liberal arts college in the Northeast</p>	<p>AHA BLS knowledge exam and performance checklist</p>	<p>Experimental group had significantly higher knowledge and performance scores after the experience and at 3 months</p>

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<p>Kardong-Edgren & Adamson (2009)</p> <p><i>Clinical Simulation in Nursing 5(2) doi: 10.1016/j.ecns.2009.01.006</i></p>	<p>Baccalaureate nursing students</p>	<p>Measurement of CPR skills during CPR certification and at 22 weeks post training using acute coronary syndrome simulation experience in groups of four</p>	<p>103 medical-surgical nursing students in their first simulation experience</p>	<p>AHA Public Access Defibrillation Assessment tool</p>	<p>No group could successfully perform CPR; all could perform AED</p>
<p>Sears et al. (2010)</p> <p><i>Journal of Nursing Education 49 (1)</i></p>	<p>Baccalaureate nursing students</p>	<p>Experimental study examining whether use of simulation clinical experience related to medication safety (treatment) and students receiving traditional lecture/clinical</p>	<p>2nd year BSN students in a Canadian university in either a med/surg or maternal child clinical course</p>	<p>Researcher-developed instrument used by faculty to record medication errors in the clinical setting. Face validity reported</p>	<p>Compelling difference in medication errors in the clinical setting by students who completed simulation experience</p>

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<p>Harder (2010)</p> <p><i>Journal of Nursing Education 49(1)</i></p>	<p>Simulation research studies</p>	<p>Systematic review of research related to high-fidelity simulation from 2003-2007</p>	<p>23 research articles from health sciences studies measuring performance or other outcomes</p>	<p>Categorization of article based on area of application, objective, methodology, effect size, type of simulation, results, and future directions</p>	<p>Increased clinical skills in a majority of the studies with no studies showing decrease in skills. Statistically higher scores of confidence or perceived competence. Suggestion to look at literature in all disciplines to gain a more holistic knowledge of the use of this technology</p>
<p>Gantt and Webb-Corbett (2010)</p> <p><i>Journal of Nursing Education 49(1)</i></p>	<p>Baccalaureate nursing students</p>	<p>Posttest evaluation of students performance of safety measures using simulation. Students randomly assigned to 1 of 5 clinical simulations encompassing average of 2-3 critical skills</p>	<p>194 senior nursing students in their final practicum</p>	<p>Performance checklist evaluating safety principles: hand washing, pt. id, allergy verification <i>'adapted from another nursing program.'</i> Inter-rater reliability reported</p>	<p>Decrease in inability to demonstrate safety skills satisfactorily from 61% to 38%.</p>

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Instrument Development					
Todd et al. (2008) <i>International Journal of Nursing Education Scholarship</i> 5(1) Article 41	Baccalaureate nursing program	Testing of reliability and validity of newly developed instrument to measure student critical thinking, communication, assessment, and technical skills using 16 simulations	72 senior nursing students and 6 faculty in a baccalaureate program in the midwest	Simulation Evaluation Instrument-- Newly developed instrument for assessing student performance during simulation	Content validity established with panel of 7 faculty experienced in simulation. Inter-rater reliability of 81.3%
Arnold et al. (2009) <i>Clinical Simulation in Nursing</i> 5(1)	Simulation center at a healthcare institution in the midwest	Pre/Post-Test Design with participants completing Emergency Response Confidence Scale and Knowledge Tool before and after participation in a simulation scenario involving a patient in Ventricular tachycardia	12 registered nurses from a Midwest healthcare institution in 3 groups (1-nurses with > 10 years critical care experience; 2-nurses with less than 13 months critical care experience, 3-nurses with med-surg experience but no critical care experience)	17-item Emergency Response Confidence developed by researchers based on BLS and ACLS 11-item knowledge tool (ERPT) developed by researchers - 8 multiple choice and 3 arrhythmia questions	Support for reliability, validity, and usability of ERPT knowledge and confidence tools. Significant differences between 3 groups were expected. Significant differences were found with Group 1 having significantly higher scores on both instruments

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<p>Hanberg (2008)</p> <p><i>ProQuest Dissertation AAT 3318406, In press Nursing Education Perspectives</i></p>	<p>Nursing educators across the United States</p>	<p>Survey of Nurse Educators across the U.S. regarding barriers to implementation of simulation and correlations to these barriers</p>	<p>Nursing educators across the United States</p>	<p>Researcher-developed BARRIERS instrument</p>	<p>Significant demonstration of instrument reliability. Identification of characteristics of the adopter and innovation as the most significant barriers.</p>
<p>Gantt (2010)</p> <p><i>Nursing Education Perspectives 31(2)</i></p>	<p>ADN and BSN Nursing Students</p>	<p>Pilot study of Clark Simulation Evaluation Rubric</p>	<p>69 ADN students in third semester of 5 semester program evaluated participating in OB simulation scenarios; 109 BSN students in their final year of nursing evaluated participating in medical-surgical scenarios</p>	<p>Clark's Simulation rubric based on Benner's five levels nursing experience and Bloom's six cognitive domains</p>	<p>No interrater reliability calculated. Faculty found they could generally use rubric to evaluate whether students 'passed' a scenario. However, could not readily assign scores to some criteria.</p>

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HFS and Design Characteristics					
Hotchkiss et al. (2002) <i>AANA Journal 70(6)</i>	Graduate nurse anesthesia program	Students exposed to HFS scenario involving an anesthesia patient crisis scenario	42 senior-level graduate nurse anesthesia students	Three observers evaluated video-taped performances using a researcher-developed authenticity instrument	Scenarios did not reflect OR culture, led to unnatural attention to monitors, and unrealistically short
Cleave-Hogg & Morgan (2002) <i>Medical Teacher 24(1)</i>	Medical program	Students exposed to anesthesia scenarios as a participant and as an observer	177 fourth-year medical students	Researcher-developed six item Likert style design feature survey	79% objectives clearly stated 83% realistic 54% comfortable with feedback
Issenberg et al. (2005) <i>Medical Teacher 27(1)</i>	Medical education	Meta-analysis of 109 quantitative research studies from 1969-2003	109 quantitative studies	Meta-analysis	Most significant factor affecting learning feedback, reported in 51 of reviewed articles
Dobbs et al. (2006) <i>Clinical Simulation in Nursing 2(1)</i>	BSN program	Students exposed to 15-minute role play of care of an IDDM	60 nursing students in an introductory medical/surgical nursing course	Simulation Design Scale	Mean scores for the subscales: Objectives 4.0 Support 4.0 Problem-Solving 4.1 Feedback 4.5 Fidelity 4.3

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<p>Jeffries & Rizzolo (2006)</p> <p>http://www.nln.org/research/LeardalReport.pdf.</p>	BSN and ADN students	<p>Experimental group—HFS scenario involving care of the post-op client</p> <p>Control groups—post-op care scenarios using static manikins and case studies</p>	403 nursing students	Simulation Design Scale	HFS group rated fidelity, feedback, support, and objectives significantly higher than students in two control groups
<p>Crooks et al. (2006)</p> <p><i>Nurse Education in Practice 5</i></p>	BSN program	Students enrolled in a post-diploma baccalaureate program	Unclear—students took part in two focus sessions with 6-10 students each	Qualitative analysis of focus group interviews	Reflection is an important factor promoting confidence
<p>Salvodelli et al. (2006)</p> <p><i>Simulation in Healthcare 1(2)</i></p>	Anesthesia residents	<p>Pre-test/Post-test design: students given exposure to HFS experience of a crisis resource management scenario</p> <p>Randomly assigned to groups-verbal feedback from instructor or verbal feedback with video-recording</p> <p>Experimental group:no feedback</p>	42 anesthesia residents	Unclear	Both groups receiving feedback had significant increases in performance scores after the experience

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<p>Welke et al. (2006)</p> <p><i>Simulation in Healthcare 1(2)</i></p>	<p>Anesthesia residents</p>	<p>Students exposed to 3 resuscitation scenarios randomly assigned to Experimental group—personal debriefing OR Control group—computer-based tutorial</p>	<p>Anesthesia residents</p>	<p>Researcher-developed performance instrument</p>	<p>Similar performance immediately and five weeks after the experience in both groups</p>
<p>Shepherd et al. (2007)</p> <p><i>Simulation in Healthcare 2(1)</i></p>	<p>Registered nurses</p>	<p>Nurses evaluated features of an intermediate-level fidelity simulator</p>	<p>72 nurses from two Australian hospitals</p>	<p>Researcher-developed evaluation instrument</p>	<p>Simulator was realistic Simulator suitable for teaching clinical skills</p>

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<p>Cantrell (2008)</p> <p><i>Clinical Simulation in Nursing 4(2)</i></p>	<p>Baccalaureate nursing program</p>	<p>Descriptive study using focus group to assess nursing student perceptions of structured-debriefing using review of video-tape of student performance of three pediatric high-fidelity scenarios (asthma, sickle-cell anemia, well child)</p>	<p>11 senior nursing students enrolled in a pediatric course</p>	<p>Analysis of content from a focus group interview of students during structured debriefing and review of video-tape of simulation performance</p>	<p>Three themes emerged as important from the focus group—adequate preparation of students, demeanor of faculty during simulation, and timing of debriefing. Students indicated that the type of debriefing (oral or accompanied by a video-tape) were not as important as timing—immediately after was suggested as most preferred.</p>
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<p>Roberson, et al. (2008)</p> <p><i>Ostomy Wound Management</i> 54(8)</p>	<p>Baccalaureate nursing program</p>	<p>First semester nursing students (n=137) randomly assigned to a wound care high-fidelity simulation experience. Experimental group given scenario that included addition of malodorous smell using cheese. Control group received simulation without addition of odor</p>	<p>First semester nursing students in a baccalaureate program</p>	<p>Laerdal Simulation Experience Evaluation Tool-5 point Likert Scale evaluating participation, realism, identification of patient problems, and incorporation of theory</p>	<p>Significantly different scores between experimental and control group in: active participation, realism, and ability to identify patient problems. Experimental group reported the addition of odor added to realism and to their ability to care for pts with malodorous wounds</p>
<p>Kuiper et al. (2008)</p> <p><i>International Journal of Nursing Education Scholarship</i> 5(1)</p>	<p>Baccalaureate nursing program</p>	<p>Students exposed patients in clinical and simulation settings; Debriefing with Outcome Present State –Test (OPT) Model used to format debriefing post clinical and simulation; student Scores on OPT Model Rating Tool</p>	<p>44 undergraduate nursing students in an adult health medical surgical nursing course</p>	<p>Researcher-developed OPT Model Rating Tool</p>	<p>Similar OPT Model Rating Score for both clinical and simulation experiences</p>

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<p>Elfrink et al. (2009)</p> <p><i>Nursing Education Perspectives 30(2)</i></p>	<p>Baccalaureate Nursing Students</p>	<p>compared</p> <p>Evaluation Research design with initial paper and pen formative evaluation followed by secondary focus group formative evaluation and a summative evaluation</p>	<p>114 Senior prelicensure students in a high- acuity nursing course</p>	<p>Summative evaluation of entire course using paper and pen survey including questions related to simulation; secondary focus group with 3 open ended questions; summative evaluation using 2 researcher- developed questions. Analysis of themes using domain analysis</p>	<p>Students felt 'singled out' during simulation and that collaborative learning could ease anxiety of feeling singled out. Final evaluation students reported that group planning eased anxiety during simulation experiences</p>
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<p>Reese, Jeffries, & Engum (2010) <i>Nursing Education Perspectives 31 (1)</i></p>	<p>Baccalaureate nursing and medical students</p>	<p>Descriptive study assessing perceptions of nursing and medical students after completion of patient in VT in groups of 4 (1 RN, 1 Medical student as caregivers; 1 RN, 1 medical student as observers)</p>	<p>13 Senior baccalaureate nursing students and 15 third year medical students from a large Midwestern university</p>	<p>NLN Simulation instruments (Simulation Design Scale, Satisfaction and Self-Confidence Scale). Researcher-developed Collaboration Scale with face validity and Cronbach's alpha reported</p>	<p>Both nursing and medical students felt simulation design features were positive. Feedback and guided reflection identified by both groups as important design feature. Collaboration Scale results indicated interdisciplinary simulation is beneficial for both students</p>
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Faculty/Nursing Program Related Research					
Jones & Hegge (2008) <i>Clinical Simulation in Nursing 4(2)</i>	Midwestern college of nursing	Descriptive survey of faculty in a baccalaureate nursing program in the midwest	29 full and part-time faculty in a Midwestern baccalaureate nursing program	Researcher-developed survey assessing demographic information, open-ended questions to identify courses applicable to use of simulation, and quantitative responses to questions regarding time requirements for use of simulation in nursing education	Majority of faculty felt that at least 0.50 FTE required to plan and implement simulation and 0.25 to evaluate use of simulation

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<p>Kardong-Edgren et al. (2008)</p> <p><i>International Journal of Nursing Education Scholarship</i> 5(1)</p>	<p>Baccalaureate nursing program</p>	<p>Prospective, descriptive repeated measures design involving evaluation of 3 faculty-developed high-fidelity simulation scenarios</p>	<p>8 Faculty in a baccalaureate nursing program; 100 undergraduate nursing students enrolled in their first clinical course</p>	<p>Feedback form for faculty; Educational Practices Questionnaire, Simulation Design Scale, Student Satisfaction and Self-Confidence in Learning Scale all Likert scale questionnaires</p>	<p>Three themes from qualitative analysis of faculty responses—simulation lead to creative, interactive learning environment, required time, and allowed for repetition to enhance learning. Students perceived that best practices were used in the simulations, rated design features highly, and felt positively about the experience.</p>
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<p>King et al. (2008)</p> <p><i>International Journal of Nursing Education Scholarship 5(1)</i></p>	<p>Associate Degree nursing program</p>	<p>Two Phased study to assess barriers to use of simulation and evaluation of an intervention based on Theory of Planned Behavior</p>	<p>15 Faculty in a large ADN program in the southeastern U.S.</p>	<p>Researcher-developed instrument using Likert Scale</p>	<p>Use of an educational intervention related to simulation resulted in significantly higher scores related to attitude, subjective norms, perceived behavioral control, and intent to use simulation.</p>
<p>Nehring (2008)</p> <p><i>Journal of Professional Nursing 24(2)</i></p>	<p>Boards of Nursing</p>	<p>Survey of state boards of nursing to assess substitution of high-fidelity simulation for clinical time</p>	<p>50 state boards of nursing as well as Puerto Rico and Washington, D.C.</p>	<p>Researcher-developed survey</p>	<p>Five states plus Puerto Rico have substitution regulations but only Florida describes a percentage. 16 states give approval for substitution with another 17 considering policies</p>

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<p>Jansen et al. (2009).</p> <p><i>Clinical Simulation in Nursing</i> 5(1)</p>	<p>Faculty from state University system</p>	<p>Qualitative descriptive design using on-line survey</p>	<p>Faculty from state of Wisconsin baccalaureate and ADN nursing programs</p>	<p>Researcher-developed online survey with 8 closed-ended and 1 open-ended question (The biggest obstacle to using simulation in teaching my courses is...)</p>	<p>Identification of 7 obstacles of: Time, training, attitude, lack of space/equipment, funding, staffing, engaging all students appropriately. Discussion includes list of several solutions for each obstacle</p>
<p>Akhtar-Dannesh et al. (2009)</p> <p><i>Western Journal of Nursing Research</i> 31(3)</p>	<p>Programs of nursing in Ontario Canada</p>	<p>Perceptions of faculty regarding implementation of simulation using Q-methodology</p>	<p>28 faculty from 17 nursing programs in Ontario Canada</p>	<p>Unknown</p>	<p>Four major viewpoints of faculty identified—positive enthusiasts, traditionalists, help seekers, and supporters. Identified that simulation requires time, additional human resources, and other resources such as a database of scenarios</p>

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<p>Bray et al. (2009)</p> <p><i>Clinical Simulation in Nursing VOL (5)</i> doi: 10.106/jecsn/2009.02.002</p>	<p>Inter-disciplinary group of healthcare faculty and nonuniversity health care educators who were not users of simulation</p>	<p>Solicitation of perceptions of specific instructional uses for simulation for teaching clinical skills. Assessment of barriers</p>	<p>45 faculty from urban campuses from 2 universities, one private university, 2 local community colleges, and health care educators and providers from inpatient and ambulatory care centers</p>	<p>Researcher-developed survey to assess perceptions in themes of potential role of simulation in learning, clinical skill development, and evaluation of performance/learning as well as identification of barriers to implementation in web format</p>	<p>Opinions about use and barriers were consistent among all providers. Researchers conclude that findings demonstrate the importance of an interdisciplinary approach to simulation use.</p>
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