![MedPro Group — a Berkshire Hathaway company]

The Business Case for Simulation Training

2017

Objectives

Discuss the current status of patient safety in healthcare

Examine current malpractice claims data

Evaluate human and financial costs related to malpractice claims

Explore the need for simulation training in healthcare

Assess the barriers to and costs of implementing simulation training

Analyze the return on investment for simulation training

Patient safety in healthcare

Which is most dangerous?		
Hospitalization	Flying in a commercial jet	Driving a car

Source: Bilotta, F. F., et al. (2013). Impact and implementation of simulation-based training for safety. *The Scientific World Journal.* Retrieved from http://dx.doi.org/10.1155/2013/652956

Preventable medical errors

Institute of Medicine (1999)

- Data from 1984
- Patient deaths: 44,000–98,000/year

Journal of Patient Safety (2013)

- Data from 2008–2011
- Patient deaths: 210,000–>400,000/year
- Increased complexity of healthcare system
- Increased use of technology

Costs: Approximately $1 trillion/year

Sources: James, J. T. (2013). A new, evidence-based estimate of patient harms associated with hospital care. *Journal of Patient Safety, 9*(3), 122–128; Andel, C., et al. (2012). The economics of health care quality and medical errors. *Journal of Health Care Finance, 39*(1), 39–50.

MedPro Group Claims Data

Top risk factors based on claims data

Risk factors are broad areas of concern that may have contributed to allegations, injuries, or initiation of claims.
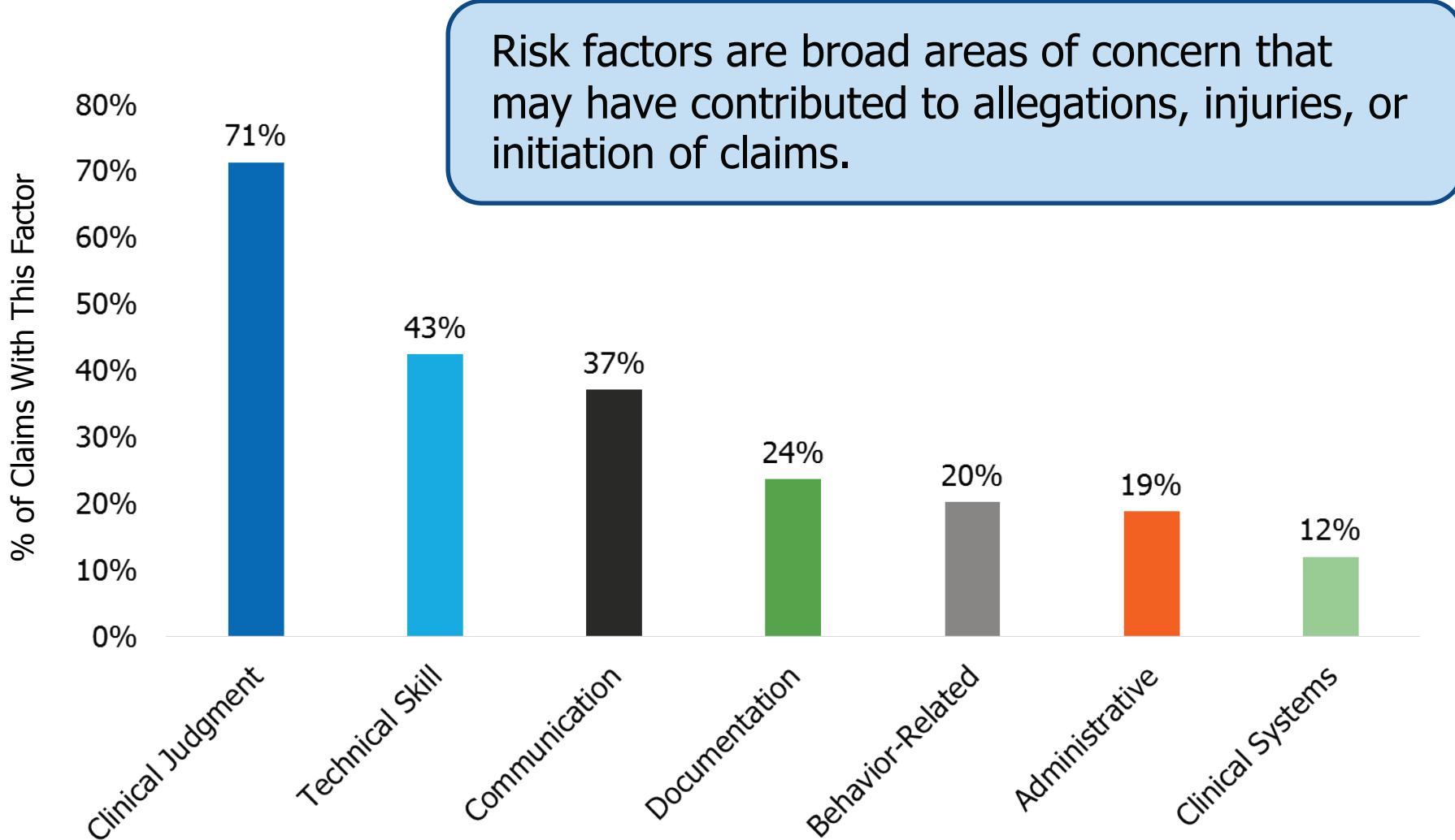
Source: MedPro Group closed claims, 2005–2014, N=>11,000. **Note:** More than one risk factor can be, and often is, attributed to each claim.

Clinical judgment: Focus on patient assessment

Delay/failure in ordering diagnostic tests (39%)

Narrow diagnostic focus (35%)

Failure to reconcile symptoms and diagnostic test results (32%)

Misinterpretation of diagnostic test results (19%)

Inadequate assessment with premature patient discharge (18%)

Technical skill: Focus on technical competency

Occurrence of recognized complications (68%)

Poor technique (17%)

Misidentification of an anatomical structure (6%)

Inexperience with a procedure (3%)

Incorrect body site (3%)

Source: MedPro Group closed claims, 2005-2014, N=>11,000.

8

Communication: Focus on patient & family

- Inadequate informed consent (28%)
- Inadequate education — medication (8%)
- Inadequate education — follow-up instructions (8%)
- Inadequate discharge instructions (5%)
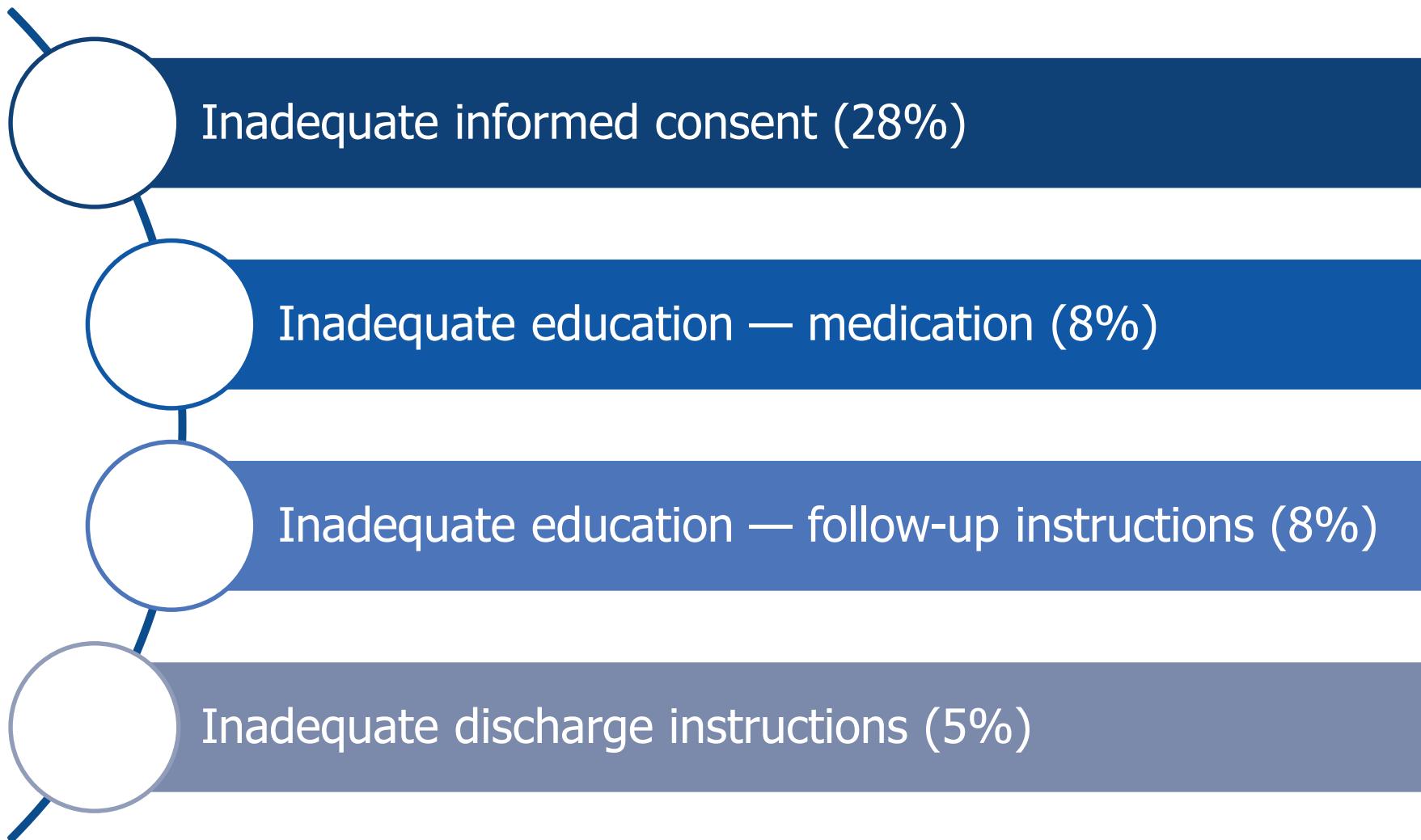
Top primary responsible clinical services

For every claim, a responsible clinical service is identified (i.e., a service deemed to have had primary responsibility for the patient's care at the time of the event which gave rise to the claim. Surgical specialties were identified most often, followed by family and internal medicine physicians. The category of "Medicine" includes the sub-specialties of cardiology, dermatology, gastroenterology, etc.

Clinical Service	% of Claim Volume
Surgery	14%
General Medicine	14%
Medicine	11%
Oral Surgery/Dentistry	10%
Nursing	9%
OB/GYN	7%
Emergency	7%
Orthopaedics	7%
General Surgery	6%
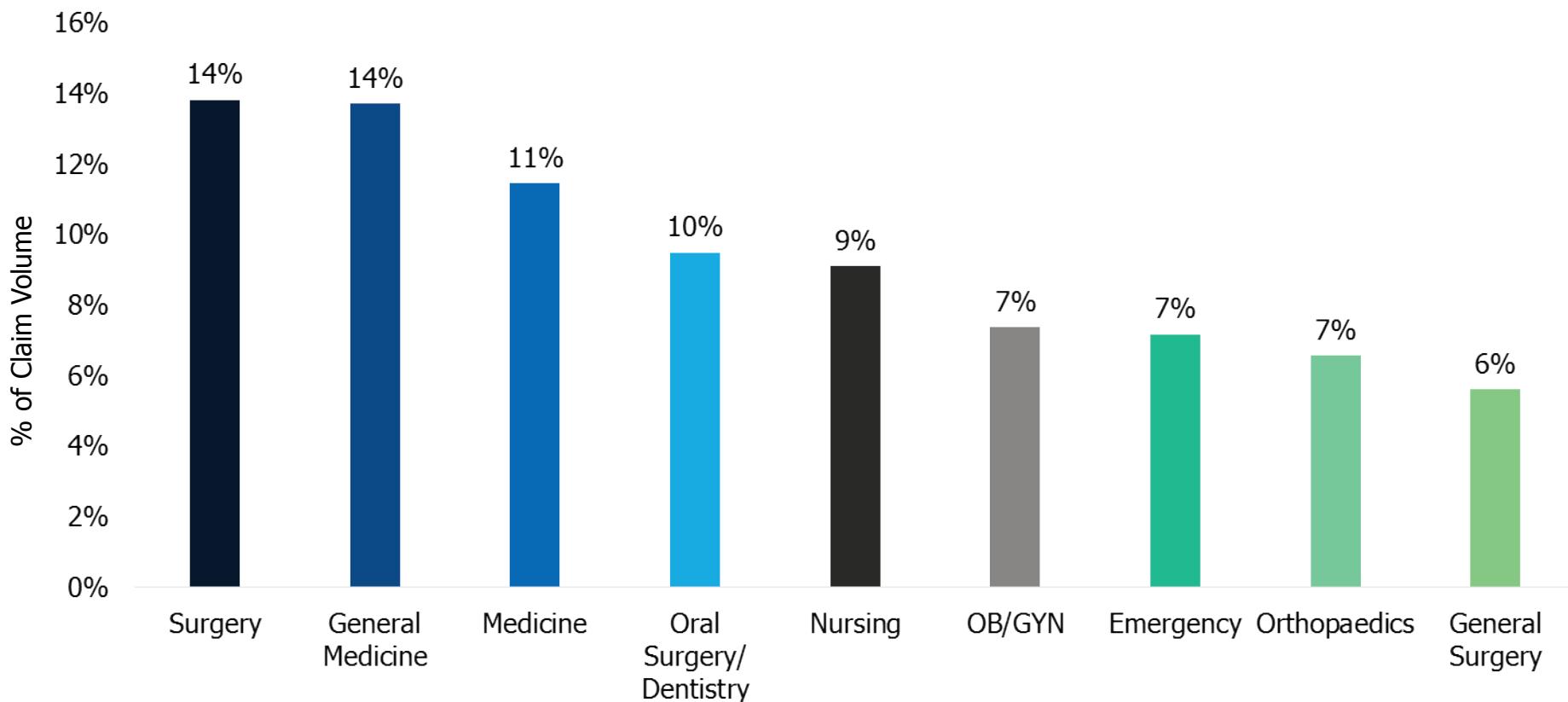
Total dollars paid by top primary responsible clinical service

Of note is that claims involving general medicine and OB/GYN physicians were the most costly in terms of total dollars paid. (Total dollars paid = expense + indemnity costs.)

Chart: % of Total Dollars Paid by clinical service

- Surgery: 10%
- General Medicine: 15%
- Medicine: 12%
- Oral Surgery/Dentistry: 2%
- Nursing: 6%
- OB/GYN: 15%
- Emergency: 8%
- Orthopaedics: 4%
- General Surgery: 6%
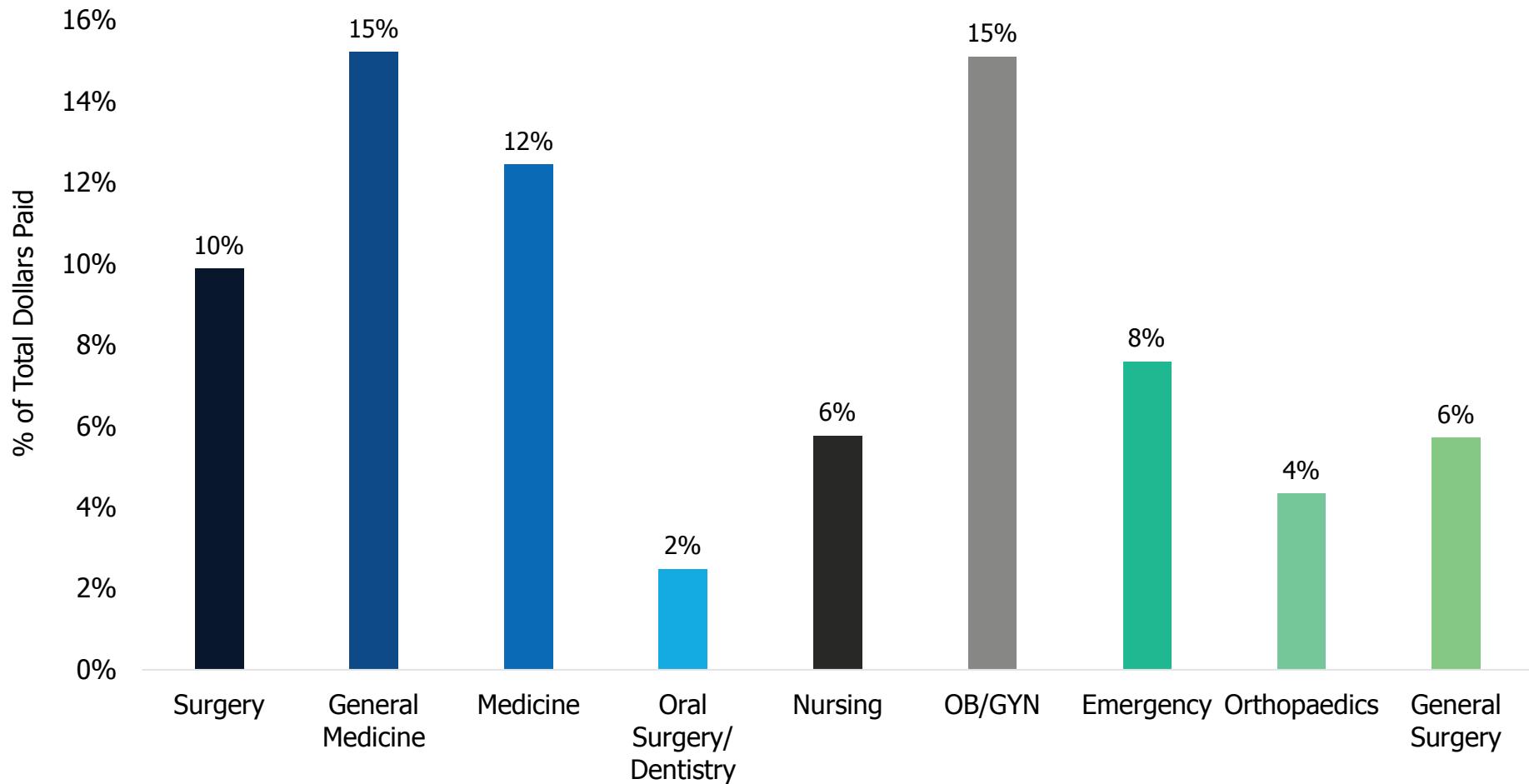
Proposed Benefits of Simulation

> "A set of techniques to replace or amplify real experiences with planned experiences to evoke or replicate substantial aspects of the real world in an interactive fashion."

SSH
Society for Simulation in Healthcare

Simulation applications in healthcare organizations

Staff

Patients

Technology

Regulations

Operations

Finances

Services

Hazards
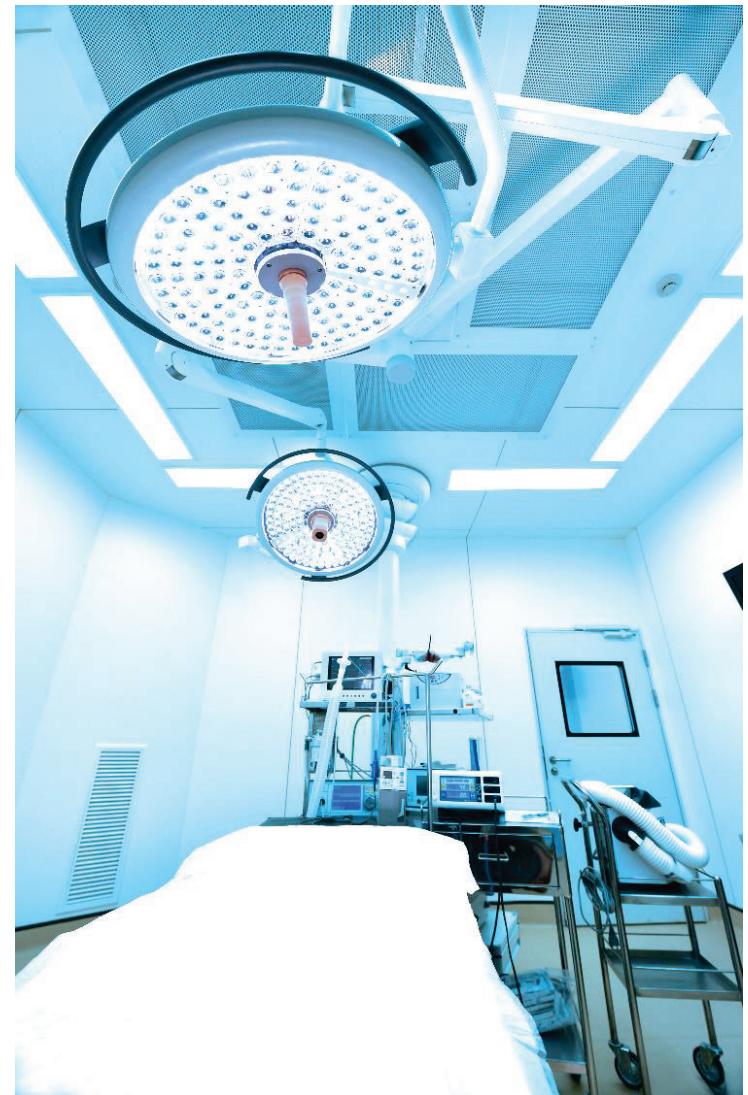
Simulation and enterprise risk management

8 domains of enterprise risk management

- Operational
- Clinical/patient safety
- Strategic/external
- Financial
- Human capital
- Legal/regulatory
- Technology
- Hazard

Source: Carroll, R.L. (2014). *Enterprise Risk Management: A Framework for Success.* American Society of Healthcare Risk Management. Retrieved from www.ashrm.org/resources/patient-safety-portal/pdfs/ERM-White-Paper-8-29-14-FINAL.pdf

Processes

Protocols

Policies

Procedures

Trends/patterns

Areas of opportunity

Clinical/patient safety
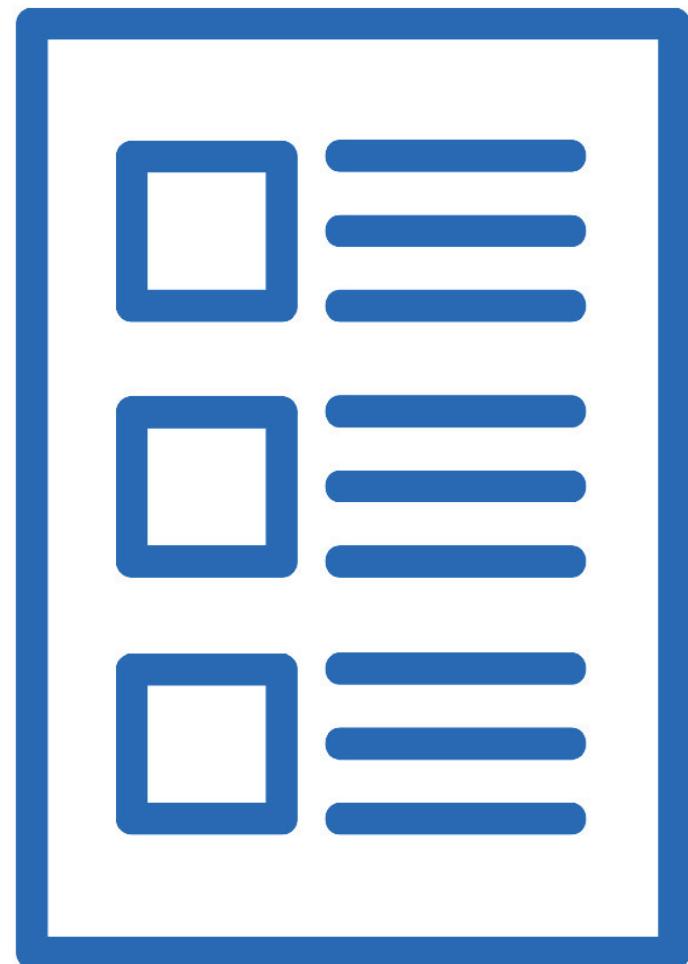
Common litigation factors

Adverse events

Near misses

Root cause analysis (RCA)

Preplanning for changes in:

- Service lines within your organization
- Closure of competitor facilities/services

Financial
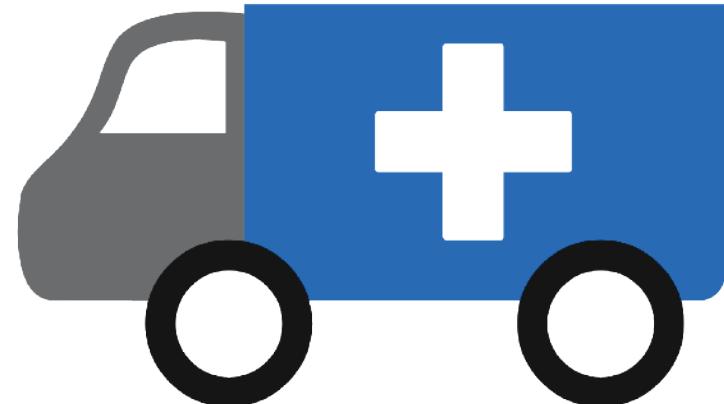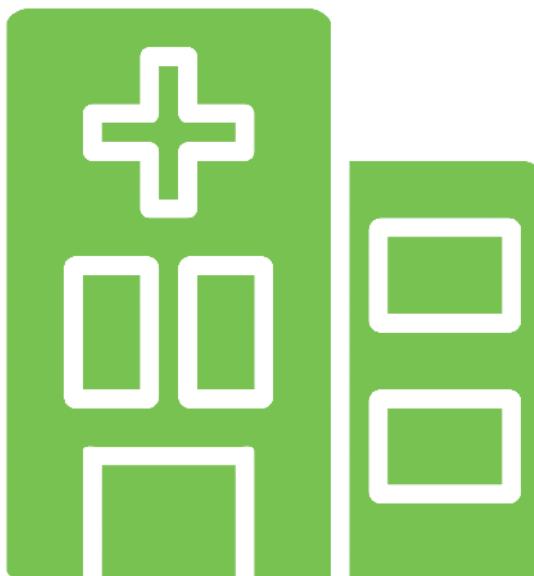
Billing system processes

- Accuracy and compliance
- Recovery Audit Contractor (RAC)

Reimbursements

- Uncompensated care

Contract management

Human capital

Staff cuts

- Temporary
- Permanent

Staff turnover

Staff availability
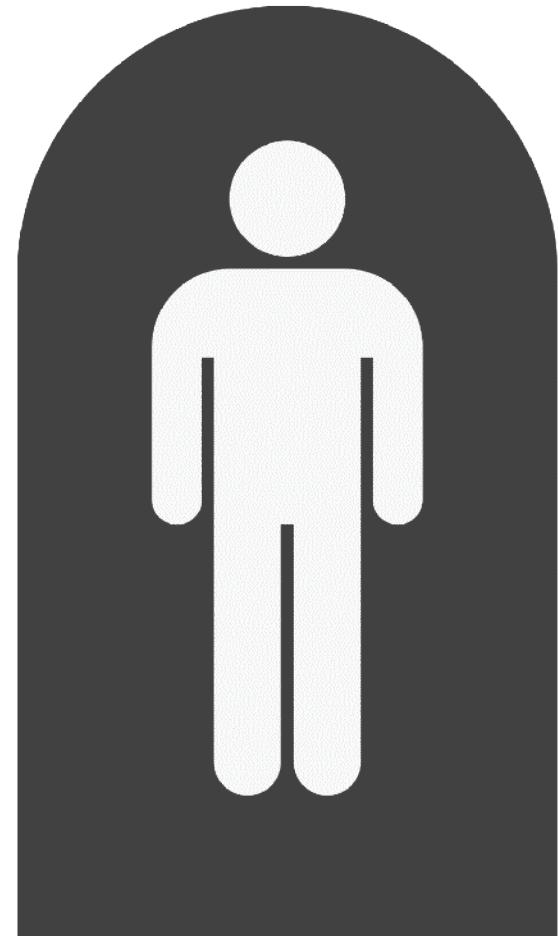
Audits

- HIPAA compliance
- EMTALA procedures
- Fraud and abuse
- Department of health measures

New equipment

Power outages

Cyberattacks

Electronic health record issues

Emergency planning

Disaster preparedness

Active shooter

Bomb threats

Benefits of simulation training

Safe learning environment

- Skills
- Competencies
- Teamwork
- Communication
- Emergency preparedness

Purposes

Education

Assessment

Research

Health system integration

Understanding human behavior
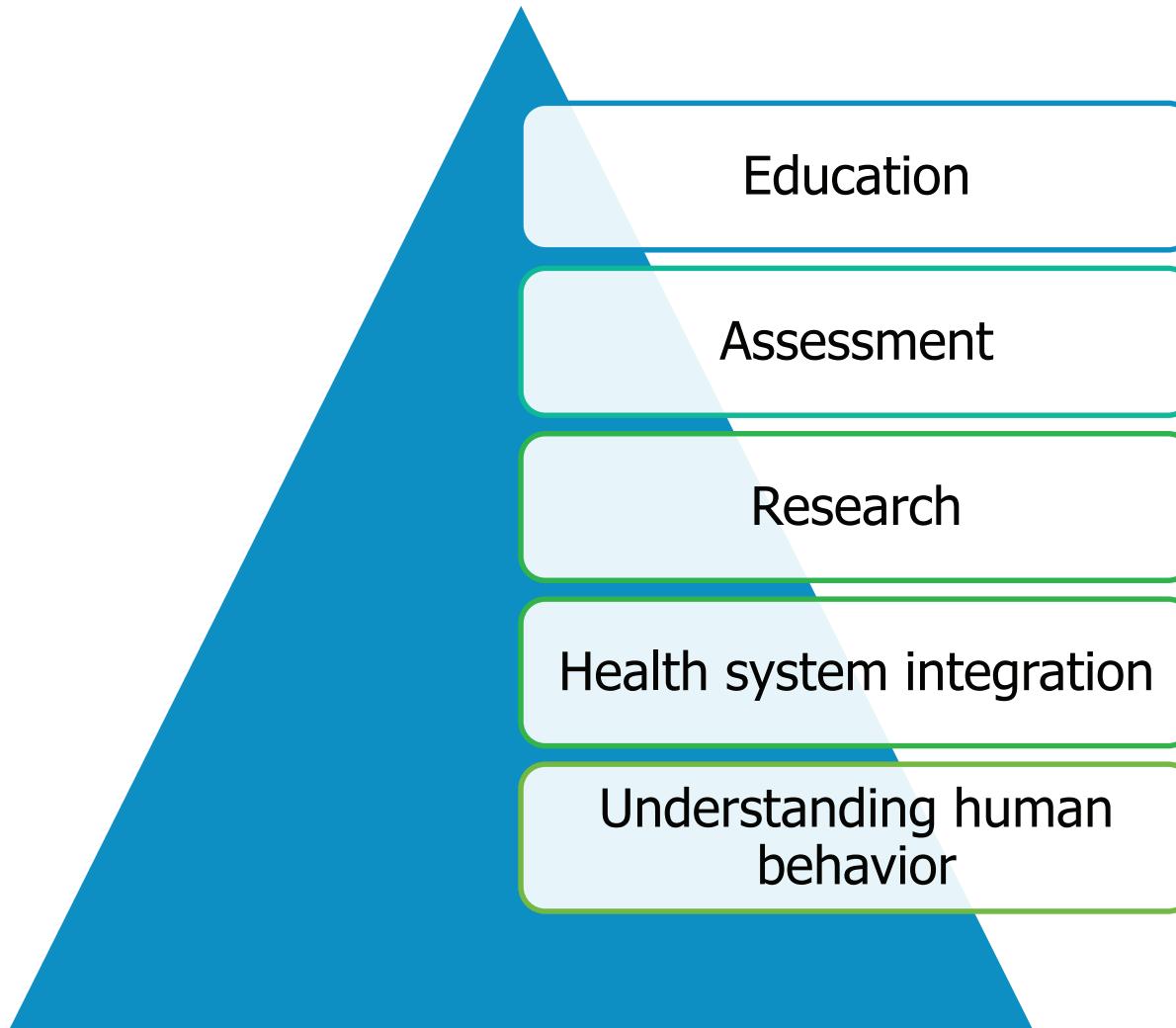
Source: Society for Simulation in Healthcare. (n.d.). About simulation. Retrieved from www.ssih.org/About-Simulation

Barriers to simulation implementation

Lack of leadership support

Poor organizational culture

Funding and staffing issues

Lack of prioritization

Credentials, licenses, and certifications — Are they enough?

Implementation costs

- Staffing
- Educators
- Simulators/actors
- Partial task trainers
- Space
- Supplies and equipment
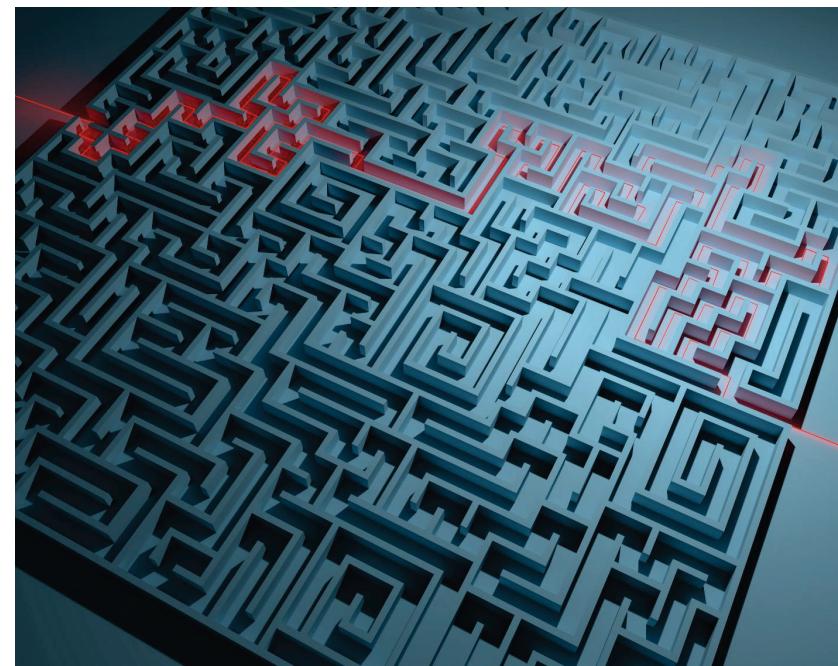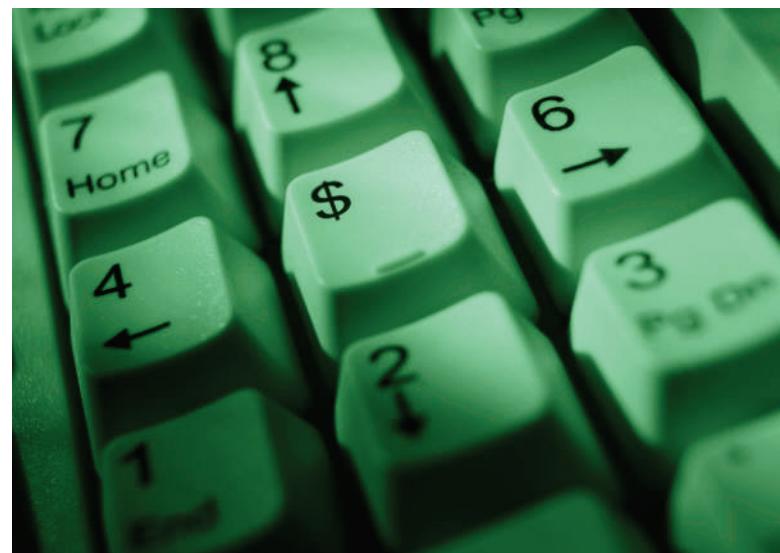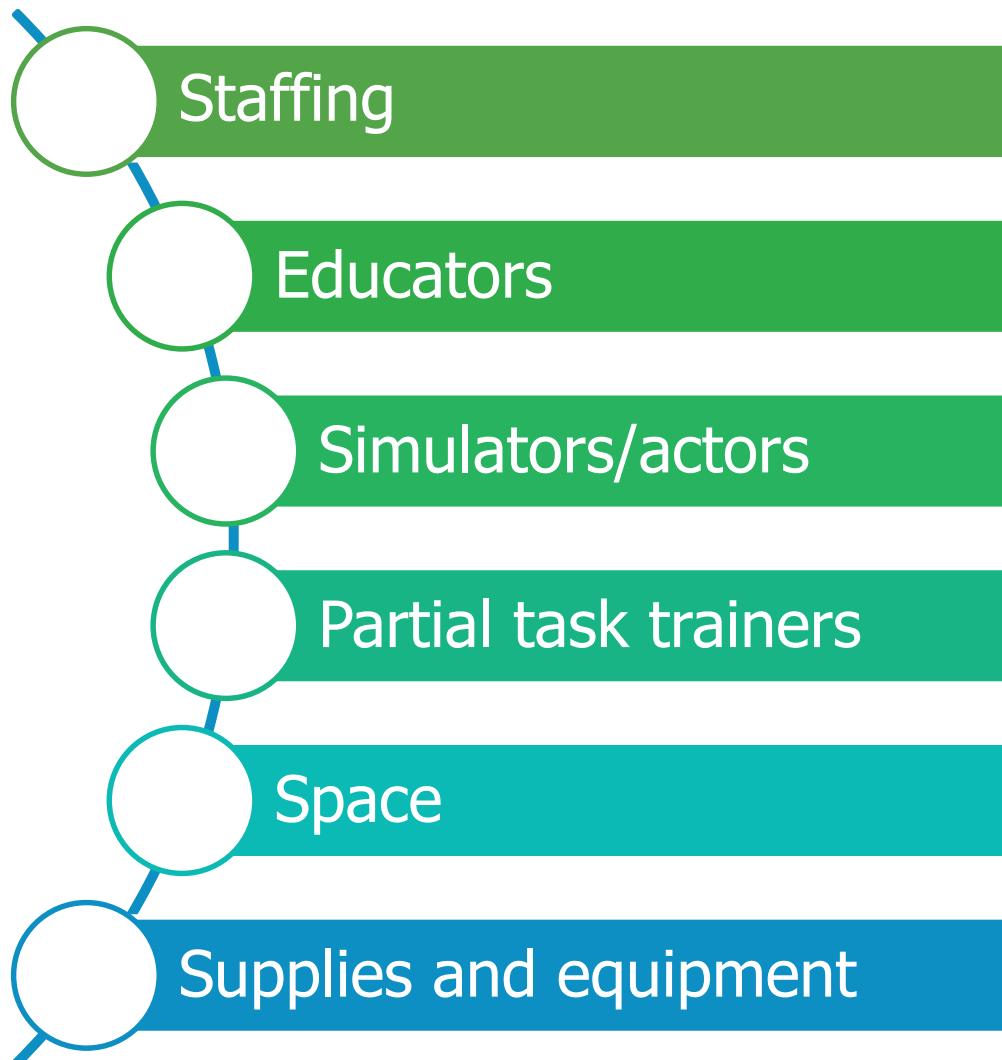
Simulation formats and costs

Web-Based

- Time spent: 1.5 hours
- Location: On the ward
- Staffing: One nurse removed from staffing, but available
- Equipment
  - Computer
  - Software
- Instructor: 0
- Costs: Computer and software

Face-to-Face

- Time spent: 2 hours
- Location: Away from the ward
- Staffing: Three nurses removed from staffing, requiring backfill
- Equipment
  - Patient/actor
  - Supplies
- Instructor: 1
- Costs: Equipment, instructor, and additional staffing

Source: Cooper, S. J., et al. (2016). The impact of web-based and face-to-face simulation on patient deterioration and patient safety: Protocol for a multi-site multi-method design. *BMC Health Services Research, 16,* 475.

Return on investment

Benefits of simulation

- Patient transfers
- Medical emergency team training
- Training for basic life support (BLS), advanced cardiac life support (ACLS), and advanced trauma life support (ATLS)
- Mini-bronchoaveolar lavage (BAL)
- Cardiac arrest during pregnancy
- New practitioner recognition and confidence improvement in acute care
- Objective structured clinical examination (OSCE)

Patient transfers

Area of concern	Back injuries caused by patient lifting activities, resulting in workers' compensation, overtime expenses, and patient safety issues.
Participants	Nurses and nurse aides.
Method	Training, testing, and simulations focused on safe patient transfer.
Findings	Improvement in knowledge and performance of safe patient transfer was observed.

Source: O'Donnell, J. M., et al. (2011). Effect of a simulation educational intervention on knowledge, attitude, and patient transfer skills: From the simulation laboratory to the clinical setting. *Simulation in Healthcare: The Journal of the Society for Simulation in Healthcare*, *6*(2). 84–93.

Teamwork performance

Area of concern	ACLS training does not address coordinating team resources to quickly deliver treatment.
Participants	Critical care nurses, physicians, and respiratory therapists.
Method	Didactic instruction and multiple simulation encounters.
Findings	Significant improvements were observed in simulated patient survival and team task completion.

Source: DeVita, M. A., et al. (2005). Improving medical emergency team (MET) performance using a novel curriculum and a computerized human patient simulator. *Quality and Safety in Healthcare (now BMJ Quality and Safety), 14,* 326–331.

Skill performance

Area of concern	Apprenticeship training in BLS that offers limited opportunities to practice and reinforce skills.
Participants	Final-year medical students.
Method	Participants exposed to random worksite experiences or scheduled simulation experiences.
Findings	Simulation-trained students scored significantly higher than the apprentice-trained students.

Source: Bilotta, F. F., et al. (2013). Impact and implementation of simulation-based training for safety. *The Scientific World Journal.* Retrieved from http://dx.doi.org/10.1155/2013/652956

Competency evaluation

Area of concern	Skill retention among hospital-based respiratory therapists in performing mini-BAL procedures.
Participants	Hospital-based respiratory therapists.
Method	Competency assessments were performed prior to simulation training, after web-based training, after simulation-only training, and 90-days after simulation-only training.
Findings	90-day retention scores demonstrated a significant improvement from initial retention scores.

Source: Tuttle, R. P., et al. (2007). Utilizing simulation technology for competency skills assessment and a comparison of traditional methods of training to simulation-based training. *Respiratory Care*, *52*(3), 263–270.

Knowledge enhancement and skill performance

Area of concern	Management of cardiac arrest during third trimester pregnancy.
Participants	Obstetric/gynecology residents.
Method	Pre- and post-knowledge tests, confidence surveys, group critical performance scores prior to first simulation and following final simulation.
Findings	Scores improved significantly in knowledge, confidence, and group performance when comparing pre- and post-simulation training.

Source: Adams, J., et al. (2016). Management of maternal cardiac arrest in the third trimester of pregnancy: A simulation-based pilot study. *Critical Care Research and Practice.* Retrieved from www.ncbi.nlm.nih.gov/pmc/articles/PMC4983319/

New practitioner confidence improvement

Area of concern	New practitioners lack the clinical skills and confidence to recognize early signs of patient deterioration.
Participants	130 third-year medical students enrolled in a 5-year curriculum in Scotland.
Method	Pre- and post-perception and confidence surveys were completed in relation to didactic instruction and simulation encounters.
Findings	Significant improvements were observed when comparing pre- and post-perception and confidence scores.

Source: Hogg, G. & Miller, D., (2016). The effects of an enhanced simulation programme on medical students' confidence responding to clinical deterioration. *BMC Medical Education, 16,* 161.

Objective structured clinical examination

Area of concern	No quantitative analysis available to demonstrate the impact of simulation on clinical skills development.
Participants	A total of 203 graduate medical students in China between 2013–2014.
Method	Comparison of mean scores between traditionally trained students and simulation-trained students.
Findings	Simulation-trained students scored significantly higher in clinical skills development than traditionally trained students.

Source: Zhang, M., et al. (2015). Clinical simulation training improves the clinical performance of Chinese medical students. Medical Education Online. Retrieved from http://med-ed-online.net/index.php/meo/article/view/28796

Costs versus benefits/return on investment

Costs versus . . .

- Patient safety
- Confident and safe practitioners
- Effective communication
- Efficient and cohesive teamwork
- Staff satisfaction and retention
- Organizational stability
- Reputation
- Preparedness

"An ounce of prevention is worth a pound of cure."

— Benjamin Franklin

Simulation training is an investment in your organization for many years to come!