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 |

## 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

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.

% of Claims With This Factor

- 71% Clinical Judgment
- 43% Technical Skill
- 37% Communication
- 24% Documentation
- 20% Behavior-Related
- 19% Administrative
- 12% Clinical Systems

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%)

Occurrence of recognized complications (68%)

Poor technique (17%)

Misidentification of an anatomical structure (6%)

Inexperienced with a procedure (3%)

Incorrect body site (3%)

Source: MedPro Group closed claims, 2005-2014, N=>11,000.
Inadequate informed consent (28%)

Inadequate education — medication (8%)

Inadequate education — follow-up instructions (8%)

Inadequate discharge instructions (5%)

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

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

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

Society for Simulation in Healthcare
History of simulation training
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

Operational

- 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
Legal/regulatory

Audits

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

- New equipment
- Power outages
- Cyberattacks
- Electronic health record issues
Hazard

- 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

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

<table>
<thead>
<tr>
<th></th>
<th>Web-Based</th>
<th>Face-to-Face</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time spent:</strong></td>
<td>1.5 hours</td>
<td>2 hours</td>
</tr>
<tr>
<td><strong>Location:</strong></td>
<td>On the ward</td>
<td>Away from the ward</td>
</tr>
<tr>
<td><strong>Staffing:</strong></td>
<td>One nurse removed from staffing, but available</td>
<td>Three nurses removed from staffing, requiring backfill</td>
</tr>
<tr>
<td><strong>Equipment</strong></td>
<td>- Computer</td>
<td>- Patient/actor</td>
</tr>
<tr>
<td></td>
<td>- Software</td>
<td>- Supplies</td>
</tr>
<tr>
<td><strong>Instructor:</strong></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Costs:</strong></td>
<td>Computer and software</td>
<td>Equipment, instructor, and additional staffing</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Area of concern</th>
<th>Back injuries caused by patient lifting activities, resulting in workers’ compensation, overtime expenses, and patient safety issues.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participants</strong></td>
<td>Nurses and nurse aides.</td>
</tr>
<tr>
<td><strong>Method</strong></td>
<td>Training, testing, and simulations focused on safe patient transfer.</td>
</tr>
<tr>
<td><strong>Findings</strong></td>
<td>Improvement in knowledge and performance of safe patient transfer was observed.</td>
</tr>
</tbody>
</table>

## Teamwork performance

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

## Skill performance

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

### Competency evaluation

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

### 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.

### New practitioner confidence improvement

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

<table>
<thead>
<tr>
<th><strong>Area of concern</strong></th>
<th>No quantitative analysis available to demonstrate the impact of simulation on clinical skills development.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participants</strong></td>
<td>A total of 203 graduate medical students in China between 2013–2014.</td>
</tr>
<tr>
<td><strong>Method</strong></td>
<td>Comparison of mean scores between traditionally trained students and simulation-trained students.</td>
</tr>
<tr>
<td><strong>Findings</strong></td>
<td>Simulation-trained students scored significantly higher in clinical skills development than traditionally trained students.</td>
</tr>
</tbody>
</table>
### 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!