Simulation Training in a Community Hospital

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Disclosures: None
First, a little about us.....
UnityPoint Health (Des Moines)

- **Primary Campuses**
  - IMMC and Methodist West
  - Iowa Lutheran Hospital
  - Blank Children’s Hospital
• **Iowa Methodist**
  - 364 beds, 44 bed ICU
  - Level I Trauma Center
  - Designated Stroke Center

• **Iowa Lutheran**
  - 224 beds

• **Blank Children’s Hospital**
  - 96 beds
  - Level III NICU

• **Methodist West**
  - 95 beds
  - Principally orthopedics, growing maternal services
• Regional Campus for the University of Iowa
  ○ 24 UI and 20 DMU students complete entire 3\textsuperscript{rd} year clinical rotations on our campus
  ○ Additional 60-80 students complete one or more rotations on our campus
  ○ Advanced electives and subinternships available to 4\textsuperscript{th} year students

• GME
  ○ 5 ACGME accredited programs and 1 CPME accredited residency program
    ▪ FM, GS, IM, PD, TY and Podiatry
  ○ 98 residents
  ○ Family Medicine is an unopposed residency program on campus at ILH
How we got to where we are......

- A Tale of Three Residents
- Resident A

- Good performance on standardized testing, but mixed – and often poor – clinical evaluations

- Described as “inefficient” and “slow” and received low scores in PC

- Evaluation: Observed and recorded 5 different clinical scenarios of varying severity

- Review revealed difficulty with prioritization and organization

- Result: extension of training and successful remediation
- Resident B

- Satisfactory medical knowledge and patient care

- Unsatisfactory communications skills with several early “sentinel events”

- Evaluation: Observed and recorded 5 different communication skills exercises – satisfactory performance

- Result: Continued intensive education and feedback, including reflection, with objective improvement in performance
- Resident C

- Placed a left IJ under indirect supervision at an affiliated institution

- Therapeutic misadventure

- Led to redesign of our curriculum using bedside US and placement CVL
Now, a literature review.......
Benefits of Simulation Training

- Improved performance in invasive procedures, including CVL \(^6,^8\)
- Improved performance in basic clinical skills when compared to cohort without sim training \(^3,^14,^17\)
- Use of “Virtual Human Technology” has been shown to improve diagnostic accuracy in trainees \(^5\)
- Simulation training in performance invasive procedures has been shown to be more cost-effective than traditional training \(^8\)
- Simulation training may play a critical role in teaching and evaluating communication skills \(^1,^9\)
What’s the down side?

- Space
- Expertise
- Time.... new curriculum must be written, implemented
- Money..... although costs may vary
Basic Facility Needs

- **Two Rooms**
  - One large enough to stage two simulations
  - One for small group discussion & de-briefing

- **Simulation Room**
  - Sink
  - Head Wall Units (oxygen, suction)
  - Monitors (to display heart rhythm, vitals, $O_2$ sat)
  - Two hospital beds
  - White boards (portable or wall mounted)

- **Discussion Room for De-Briefing**
  - Table and chairs
  - Large video monitor for de-briefing sessions
Basic Supplies Needed

- Camera system: ceiling mounted, iPad, hand-held
- Crash Cart & Defibrillator
- Mask + Bag-Mask Ventilation Equipment
- Intubation Tray & Supplies (for NT and ET intubations)
- IV Poles + IV containers and tubing
- Drug demo dose vials
  * Caution if doing in-situ (hospital) simulations *
- Blood draw equipment
Patient Care Mannequins: 3 Types

- **Task Trainers**
  IV Arms, Intubation Heads, Pelvis Models, Upper Torso Models

- **Patient Care Mannequins (Low Fidelity)**
  First Aid & ACLS Mannequins

- **Patient Simulators (High Fidelity)**
  Adult, Child, Infant, Maternal-Fetal
High Fidelity Mannequins

Three Primary Companies to Choose From

**CAE ~ Formerly METI (HPS® and PEDIASIM HPS®)**

**Gaumard (NOELLE® and Pedi HAL®)**

**Laerdal (SimMan® SimMom® SimJunior® SimBaby®)**
3 Patient Care Mannequin Types: Costs

- **Task Trainers**
  - IV Arms $600, Intubation Heads $2150 (adult) / $600 (peds),
  - Pelvis Models $2500, Upper Torso Models $1500

- **Patient Care Mannequins (Low Fidelity)**
  - First Aid & ACLS Mannequins $3000-4000

- **Patient Simulators (High Fidelity)**
  - Adult $60,000 – $80,000
  - Pediatric/Infant $30,000 - $40,000
  - Birthing Mom & Infant $60,000
Personnel Costs

- Simulation Center Staffing
  Nurse-Educator vs. Paramedic-Educator
  Equipment Maintenance (IT support critical)

- Physician Educator Support
  Develop Scenarios
  Assist at Simulations

- Simulated Patients: Volunteers?
Sources of Funding Support

- Hospital
- Medical Staff
- Nursing Schools
- EMS Programs
- Physician Groups
- Foundations
- Other Philanthropy
- Program Charges: BLS, ACLS, ATLS, Nursing Orientation, Residency Program Use
• The Dorner-Villeneuve Simulation Center

• Center Director = Wanda Goranson, MSN, RN-BC, CHSE, CHSOS

• Thank you to Wanda for assistance with information about facilities, supplies, costs, center design
1st Floor: OR Simulation Center

2nd Floor: Clinic Room, ICU & ER Suites, 3 Hospital Rooms, Classroom/Debriefing Rooms
<table>
<thead>
<tr>
<th>Space Description</th>
<th>Square Feet</th>
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<tbody>
<tr>
<td>OR Simulation (1st floor)</td>
<td>900 sf</td>
</tr>
<tr>
<td>Classrooms</td>
<td>890 sf</td>
</tr>
<tr>
<td>Simulation Rooms (2nd floor)</td>
<td>1200 sf</td>
</tr>
<tr>
<td>Control Rooms</td>
<td>520 sf</td>
</tr>
<tr>
<td>Offices</td>
<td>800 sf</td>
</tr>
<tr>
<td>Laundry/Storage</td>
<td>960 sf</td>
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</tbody>
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**Simulation Center Total Space**  5270 sf
Hospital Hallway
Emergency Room Suite
ICU Room
Control Rooms
How we have done it......
IM Curriculum

- ACLS: Initial certification, recertification, and skills reinforcement
- Procedures
- Diagnostic Skills Exercises
- Communication Skills/IPE Teams/Leadership Skills
ACLS

- Initial certification incoming R1s
- Recertification more senior residents
- Reinforcement ACLS skills for R1s early fall and late spring
- Reinforcement ACLS skills in winter, now including IPE
Procedures

- **Basic Procedures (MS and R1s)**
  - Phlebotomy, IV Lines, NGT Placement, Foley Catheter Placement
  - Taught principally by nursing staff/educators

- **Advanced Procedures**
  - CVL, LP and advanced airway management
  - Taught by physician faculty

- **Workshops**
  - CVL Placement
  - IO Placement
  - Joint Injections
Diagnostic Skills Exercises

- **On Call:**
  - Initial exposure to “best practice” at orientation
  - Series of individual exercises involving common problems encountered on call
  - Designed to evaluate professionalism, communication skills and clinical reasoning skills

- **Team Based Exercise:**
  - Group exercises using standardized “unknown” cases
  - Designed to evaluate professionalism, leadership and communication skills, and teamwork through collective reasoning
Communication Skills Exercises

- Informed Consent
- Advanced Directives
- Disclosure of Medical Error
- Disclosure of “Bad News”
- Leading a Family Meeting
How do we do this?

- I write the scripts

- We arrange for simulated patients/family members..... mostly volunteers

- Exercises limited to 20 minutes with few exceptions

- Interaction is recorded...... followed by the “debrief”

- Evaluations completed by experienced faculty
Other opportunities......

- Diagnostic Tool – have used to evaluate resident performance and “diagnose the learner”

- Teaching and evaluating IPE, including teamwork and leadership skills
Simulation training is beneficial (critical?) in teaching and evaluating procedural skills and communication skills.

May prove to be equally valuable in teaching teamwork and as component of IPE.

May also be beneficial in recredentialing and remediation.

Can be done effectively with limited facilities and resources, and build in step-wise fashion.


References


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Any questions?