A Simulation Journey: Developing, Designing & Constructing the University of Wisconsin Health Clinical Simulation Program & Center

January 30, 2012

Graphics by FLAD Architects.
Photos by Philip Prowse
Course Director: George Keeler, MA, MBA
UW Health Clinical Simulation Program Manager

Faculty: Laura Serebin, BA, MArch
Principal, Flad Architects

Thomas Dongilli, AT
Director of Operations, WISER Institute

Disclosure: George Keeler and Laura Serebin have no financial relationships with entities producing healthcare and/or simulation-related goods and services. Tom Dongilli is the author of a course called “First 5 Minutes”, for which he receives royalties from Laerdal Medical for the sale of the course.
Learning Objectives

- Create a plan to integrate discrete simulation activities into an integrated inter-professional program that minimizes redundant activities and maximizes resources.

- Identify key steps in an integrated facility design process that builds ownership in the program.

- Illustrate how the facility establishes a centralized, unique identity and “front door” for all simulation activities.
It All Starts with a . . .

Business Plan

- Executive Summary
- Vision Statement
- Mission Statement
- Staffing
- Management
- Operating Requirements
- Marketing
- Product or Service
- Risk Assessment
- Projections And Financials
- Timeline
- Mission Statement
- Staffing
Vision: UW Health

‘Offer a world-class simulation program that promotes sharing of clinical knowledge and skills across disciplines and practitioner populations to improve the quality and safety of patient care in Wisconsin and beyond.’
Mission: UW Health

Create a comprehensive health care simulation program with focus on the health care team as well as the individual practitioner:

- Serving a variety of disciplines
- Benefiting learners of varied skill levels
- Defining and measuring competencies
- Enhancing safety and quality of care
- Improving outcomes
- Advancing simulation in health care
Simulation Programs

- Flexible simulation environment facilitating team interaction among various practitioners.
- Flexible simulation environment allowing usage by various practitioners.
- Dedicated simulation environment for discrete practitioners.
Support / New Joint Venture

New Clinical Simulation Program
January 2010

UWMF

SIM Center

UWHC

UWSMPH

UW Health Integrated Approach
UW Health Clinical Simulation Executive Board

- **Key Dept. Chairs:**
  - Anesthesiology
  - Medicine
  - Pediatrics
  - Surgery

- **Three COOs**
  - Hospital
  - Medical School
  - Medical Foundation

- **VP of Nursing Services**
Location
Location
Establishing the Baseline

Evaluation of current and future training based on

- 2008 survey information
- Detailed needs assessment questionnaire – June 2010
- 170 stakeholders, identified and prioritized by project leadership
- 22 questionnaires, representing 5 departments identified as priority
  
  Anesthesia    Emergency Medicine / Emergency Medical Services
  Nursing       Pediatrics    Surgery
Establishing the Baseline

Questionnaire focused on
- General demographics
- Class volumes
- Current and future training and simulation needs
- Currently owned simulation technology
- Simulation settings and scheduling
  - Specific times of day (reflected in the need for ID access off hours)
  - Specific days of week
- Multi-media and information technology considerations
- Office technology considerations
Establishing the Baseline

Analysis based on

- Common factors across departments (room type / class size)
- Primary utilization for each room, with secondary multi-disciplinary and/or multi-subject utilizations noted (flexibility of rooms required)
- Location-specific and location-independent simulation equipment
- AV systems to support flexibility of each room type

Dongilli, Thomas 2010
Establishing the Baseline

Recommendations – Departmental Integration

- During the first year of operations, courses focused on:
  - Continuation / enhancement of existing simulation programs
  - Anesthesia
  - Emergency Medicine / Emergency Medical Services
  - Nursing
  - Pediatrics
  - Surgery

- Operational years two and three, additional courses for:
  - Urology
  - Medicine
  - OB/GYN
  - Internal Medicine
  - Academic Affairs/ Office of Continuing Professional Development
Recommendations

- Hours of Operation: Normal business hours with card swipe access for particular areas during off hours.

- Specific Room Types
  - Lobby / Reception / Administrative Area with hoteling station
  - General simulation rooms to serve as multi-purpose training environments including patient rooms, ICU and OR settings.
  - Surgical Skills Lab
  - Multi-purpose procedural task area
  - Conference / Debrief rooms
  - Control Rooms
  - Storage
Designated Space

Influences and Opportunities

6,500 SF

Raised Flooring

Raised Flooring
Workplan

Concept Design layout based on program fit in designated space and input from Core Team leaders

“Super-User” group Open House to review Concept Design

Series of 3 “Technical User” group meetings to refine design

Established multi-disciplinary user groups organized by groups by work environments

Operating Suite   Trauma and Critical Care   Pediatrics

In-patient Care   Emergency Services
Planning & Design Process

Design
- Outline objectives & features required in each type of space
- Synthesize ideas in design options
- Test ideas with user groups and evaluate pro’s / con’s
- Refine design
- Translate to drawings, equipment lists & specifications

Ownership
- Promote open-mindedness and forward thinking
- Use transparent process
- Convert the zealots to champions/stakeholders
- Emphasize building a new culture
- Walk the talk
- ENGAGE, ENGAGE, ENGAGE!
## Planning & Design Process

### Which design elements matter the most

<table>
<thead>
<tr>
<th></th>
<th>Must-Have</th>
<th>Nice-to-Have</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexibility of space types</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dedicated rooms for specific equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High fidelity environments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adequate storage / support spaces</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expandability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to support evolving simulation technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic Observation Capabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unique identity / “front door”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow between rooms</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Planning & Design Process

**Which AV capabilities matter the most**

<table>
<thead>
<tr>
<th></th>
<th>Must-Have</th>
<th>Nice-to-Have</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operate and interact from control room</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Capture and playback locally for debriefing</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Live streaming locally</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Live streaming via web access</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Expandability</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Capture data from simulators &amp; medical equip.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>High definition cameras</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Tools which allow for assessment and analysis</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Video and data storage</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
Planning & Design Process

- Focus on user-centered interface throughout the design process
- Transparent decision making process
- Iterative process of discovery, synthesis, evaluation and refinement
- Objectives: Optimizing resources
  Define qualitative expectations and outcomes desired
  Build ownership at departmental and individual levels
Creating a Unique Identity

Finalizing the Design - Key Ideas

- Design for flexibility and adaptability at both facility and room level
- Consider adjacencies and flow between rooms
- Optimize support spaces and resources
- Continual re-engagement of participants to review and evaluate

Graphics by FLAD Architects.
Photos by Philip Prowse
Creating a Unique Identity: Simulation Rooms 1A/1B

Primary Use:
Patient Room / Trauma / ICU

Other Uses:
ED treatment room / Exam Room
Pre-op / recovery bay

Key Characteristics
• Operable wall partition to divide room
• 3 headwalls / multiple monitors

Degree of Flexibility: High

User Group Participants:
Nursing, ICU, Emergency Medicine,
Pediatrics, Medicine

Graphics by FLAD Architects.
Photos by Philip Prowse
Creating a Unique Identity: Simulation Rooms 1A/1B

3-bay ICU / PACU configuration

Individual rooms configuration

Graphics by FLAD Architects.
Photos by Philip Prowse
Creating a Unique Identity: Simulation Room 2 – “Swing”

Primary Use:
Trauma / Surgical OR / C-section / ICU

Other Uses:
Patient Room / Pre-op / recovery bay

Key Characteristics
• Supports use of high fidelity manikins
• Utilizes existing raised floor
• Headwall added for flexibility of use

Degree of Flexibility: Medium-High

User Group Participants:
Emergency Medicine, Surgical nursing, Critical Care, Trauma, Pediatrics, Anesthesiology

Graphics by FLAD Architects.
Photos by Philip Prowse
Creating a Unique Identity: Simulation Room 2 – “Swing”

Graphics by FLAD Architects.
Photos by Philip Prowse
Creating a Unique Identity: Simulation Room 3 – OR

Primary Use: Operating Room

Other Uses: Trauma, Technology Trials, Environmental Services

Key Characteristics
• Designed to accommodate METI HPS
• Utilizes existing raised floor
• Direct observation from Debrief Room

Degree of Flexibility: Low

User Group Participants: Anesthesiology, Surgery, Surgical Nurses

Graphics by FLAD Architects.
Photos by Philip Prowse
Creating a Unique Identity: Simulation Room 3 – OR

Simulation Room #3
Debrief / Observation

Graphics by FLAD Architects.
Photos by Philip Prowse
Creating a Unique Identity: Skills & Procedures Lab

Primary Use:
Surgical Skills / Procedures Training

Other Uses:
Mass casualty

Key Characteristics
• After-hour controlled (card-key) access
• “Smart” walls
• Adjacent storage

Degree of Flexibility: Medium - High

User Group Participants:
Surgery, Nursing, EMS

Graphics by FLAD Architects.
Photos by Philip Prowse
Creating a Unique Identity: Skills & Procedures Lab

Individual task trainer configuration

Team Task Trainer Configuration

Mass Trauma Configuration

Graphics by FLAD Architects.
Photos by Philip Prowse
Creating a Unique Identity: Multi-Purpose Room

Primary Use:
Debrief / Procedures Training / Medical Product Demonstrations / Classroom

Other Uses:
Mass casualty

Key Characteristics
• Operable wall to divide room
• A/V enables the two rooms to be used independently
• Extra receptacles and compressed air to support a variety of scenarios.

Degree of Flexibility: Medium

User Group Participants: All user groups

Graphics by FLAD Architects.
Photos by Philip Prowse
Creating a Unique Identity: Multi-Purpose Room

Debrief Configuration

Mass Trauma Configuration

Team Task Trainer Configuration

Graphics by FLAD Architects.
Photos by Philip Prowse
Creating a Unique Identity: Control Rooms

Key Characteristics
- Strategic location
- AV racks in ventilated enclosure
- Large viewing windows
- Efficient use of space

User Group Participants:
Media experts and operators / instructors

Graphics by FLAD Architects.
Photos by Philip Prowse
Creating a Unique Identity: Lobby / Admin Area

Key Characteristics

• Public image that communicates vision / innovation of the center
• Open work area
• Includes hoteling work stations
• “Right-sized” space

User Group Participants:
Administration, Visitors, IT

Graphics by FLAD Architects.
Photos by Philip Prowse
Facility is “Front Door” to the Simulation Program
Summary: Lessons Learned

- Know what you want to be / Do not try and be all things to all people
- Provide flexibility in what you design
- Operate in a transparent, non-biased process / Keep users engaged
- Designate decision-makers
- Be prepared to make hard decisions
Thank You!  Questions?

http://www.med.wisc.edu/clinical-simulation-program/main/27978
# Schedule / Process

## 60 WEEKS

<table>
<thead>
<tr>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>8</td>
<td>12</td>
<td>16</td>
<td>20</td>
<td>24</td>
<td>28</td>
<td>32</td>
<td>36</td>
<td>40</td>
<td>44</td>
<td>48</td>
<td>52</td>
<td>56</td>
<td>60</td>
</tr>
</tbody>
</table>

### Program Validation / SD
- **Deliverable**
  - Questionnaire to Stakeholders
  - Present Stakeholder Report:
    - Stakeholder Summary
    - Space Utilization
    - Simulation Equipment
    - AV/IT Specs
    - Prelim Layout
    - Functional Narrative
    - Existing Facility Assessment
    - Basis of Design
      - Architectural
      - Structural BOD (as required)
      - MEP
  - **Design Development**
    - DHFS Meeting
      - UWHC / DSF / FPM Comments
    - Design Development
      - DHFS Review
        - UWHC / DSF / FPM Comments

### 8 weeks
- **Deliverable**
  - Scope of demo
  - Arch Drawings
    - Plan, RCP, Elev/Sect
    - Finishes, typ. details
    - Door schedule
  - MEP System plans
  - Structural plans, details (as required)
  - Equipment List
  - Draft Spec

### 8 weeks
- **Construction Documents**
  - DHFS Approval
    - UWHC / DSF / FPM Comments

### 12 weeks
- **Construction Documents**
  - DHFS Approval
    - UWHC / DSF / FPM Comments

### Move in Aug 2011

### 100% CDs

### Bid CD’s
- **4 weeks**
  - Cost Validation

### Demo
- **4 weeks**

### Construction
- **26 weeks**

---

Hire Contractor