GROWING FROM WITHIN: EXPANSION & RENOVATION INNOVATIONS AT UPMC MERCY HOSPITAL ED

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As a principal and project manager at GBBN Architects, Todd is focused on the healthcare environment and brings extensive experience leading projects of various sizes and demands. He has participated in many award-winning healthcare projects across the United States and abroad. His experience with numerous building types and construction methods provides creative and sensible solutions in alignment with the client's vision and goals.

Learning Objectives:
• Discover ways to integrate phasing into the early parts of the design process
• Discuss strategies for phasing and selecting the optimal number of phases to maximize space for operations
• Identify the phasing “tipping point” to balance operational needs with construction costs and duration
• Learn techniques hospital facilities, MEP, and architects can employ to manage life safety and infection control needs in complex multi-phase projects
“Change is inevitable, except from a vending machine.”

“The ED should be designed to protect, to the maximum extent reasonably possible consistent with medical necessity, the right of the patient to visual and auditory privacy.”

- ACEP

Fundamental Question
What is the single most important question regarding its operation that needs to be answered by every emergency department?

Do you want more patients or don’t you?

“Are we doing them a favor or are they doing us one? After all, we are here because of them.”

-Rick Bukata, MD

What we had:
• Acquired in 2008 by UPMC
• 492-bed, Level I Trauma Center and Primary Stroke Center
• 25-bed ED that saw 47,000 patients in FY09 [07/2008-06/2009]
  – 14-bed high acuity area (main)
  – 11-bed “urgent care” center (extension)
• Crowded work spaces
• “Double deep” trauma bays: Non trauma patients placed in ante rooms
• Limited number of medical patient care rooms
• Antiquated EMS Area
• Overcrowding conditions when multiple patients are backed up for admission to the hospital
Background Information

- Level 1 Trauma/Burn Center
- Psychiatric Services
- Pediatric Services (phasing out)
- 47,000 Annual Visits (crowded/chaotic)
- > 1.5% left without being seen
- Improving the back-end flow
- Re-orienting the staff
- Improving the front-end flow
- What’s next?

“Existing ER did not support the practice of Emergency Medicine”
NEDOCs

<table>
<thead>
<tr>
<th>Level 1-2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
<th>Level 6</th>
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<tr>
<td>NEDOC=0-60</td>
<td>NEDOC=61-100</td>
<td>NEDOC=101-140</td>
<td>NEDOC=141-180</td>
<td>NEDOC=181-200</td>
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**NEDOCS Interpretation**
- Not Busy
- Busy
- Extremely Busy, but Not Overcrowded
- Overcrowded
- Extremely Overcrowded
- Dangerously Overcrowded

**Care Management/Social Work**
1. Rehuddle with Unit Director/Charge RN and HUC to identify barriers for discharges that were slated to leave early but have not.
2. Identify any other barriers to discharges slated for a later time.
3. Escalate the barriers to discharge by emailing Patient Placement at "Mercy NEDOCS4".
4. SW to report to ED and respond to needs.

**Transport/EVS**
1. Contact ED Charge RN to determine need for additional stretchers in the hallway.
2. Determine if additional EVS needs are required from the ED Charge RN.

**Radiology**
Supervisor contacts ED Charge RN to prioritize cases.

**Unit Directors**
1. Determine if there any patients for his/her unit assigned, but not yet occupied in a bed.
2. Facilitate getting any of these patients to a bed.
3. Review pending discharges by having a unit-based huddle with Charge RN, HUC, and CM.
4. Formulate plan for execution.
5. Task CM to escalate barriers.

**GBBN Expansion & Renovation Innovations at UPMC Mercy Hospital ED**
- Early Wins

**Nurse Demand/Capacity**
- **Nursing Demand vs. Capacity – January 2010**
- **RN Demand by Hour**
- Opportunity!!!
Expansion & Renovation Innovations at UPMC Mercy Hospital ED

Project goals:
• Connecting Patient with Provider
• Increase patient care capacity
• Increase staff flow and efficiency
• Dedicated trauma bays
• Renovate/improve EMS Area
• Recondition EMS Parking Area
• Relocate Non-Emergent EMS Parking to alleviate congestion
• Improve bed request process
• Improve Surge Response
• Manage Real Time demand

Aligning the Vision
• New physician and nursing leadership in place
• Needed to rally the front-line staff to be involved
• Needed to create more capacity in a cramped space before renovations
• Created a reorientation, mandatory for all staff [including physicians] in February 2010

Core Operations Group
• Based on the reorientation, staff volunteered to be part of our ED Operations Committee (EDOC)
• Weekly meetings, 2 hours
• This group was fundamental in working through processes and design
  – Had a voice in the design of expansion
  – Redesigned supplies through use of carts [biggest frustration]
  – Improvement techniques to eliminate waste

Attendees:
• RN's
• Doctors
• Architects
• MEP Engineers
• Facilities
• Administration
### Upgrading for Volume

- **Existing Volume – '09:** 47,000
- **Design Volume:** 70,000

<table>
<thead>
<tr>
<th>Annual Visits</th>
<th>Adult/Pediatric</th>
<th>Emergent</th>
<th>Super Track</th>
<th>Trauma</th>
<th>CDU</th>
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<tbody>
<tr>
<td>Existing</td>
<td>47,095</td>
<td>21,328</td>
<td>1,750</td>
<td>2,827</td>
<td>73,000</td>
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</table>

*CDU was not in original design

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### Applying the Concept

#### "Super Track"

- A "Super Fast" track located in or near triage for the purpose of promptly treating patients who require very low resource utilization.

#### The Results

![Graph showing discharge LOS for ED A/E patients](chart.png)
TRIAGE / WAITING
- Triage and patient registration combined in individual rooms screened from waiting room, but open to staff access and support
- Triage is non-value added (and a process, not a place)
- Carve out Space to make it happen!

Left Without Being Seen

DEFINE THE RIGHT PROBLEM TO SOLVE
- Define goals, but build in flexibility
- State everything in terms of the problem to be solved
- Encourage engagement of community and staff through focus group activities

Dealing with Resistance
Bring the resistance to the surface
- I’d like to hear your thoughts on this…
- Tell me what concerns you about this…
- You’re right that this will mean some pain…
- I can understand how that could be a problem…
- Is there anything else you see as a problem?

Listen and empathize
- Here’s what I’ve heard you say…
- Let me review what we’ve covered…
- How can this be made to work from your viewpoint?
- Summarize what you have heard
- Probe further and explore options
- I want to understand your assumptions about this…
EXPLORE DESIGN OPTIONS
- Collaborative design process
  - Allow everyone’s voice to be heard
  - Prioritize
  - Moderated Mockups

THE WAY YOU DID IT THE WAY YOU DID IT THE WAY YOU DID IT THE WAY YOU DID IT

DOESN’T HAVE TO BE THE WAY YOU DO IT

WITHOUT TRUE UNDERSTANDING OF HOW THINGS WILL WORK, BUYING IS IMPOSSIBLE

EVALUATE EVERYTHING WHAT DOESN’T ADD VALUE CONTRIBUTES TO WASTE

Example

Chest Tube Tray Example
Before After

Process Example:
- Beds were traditionally requested when patient was “ready-to-move”
- Added additional minutes to ALOS
- Physician adapted behavior to request bed 30 minutes prior to patient being “ready-to-move”
- Parallel vs. series
Where Do We Start? **REMOVE THE MAIN LOBBY!**

Partial Existing First Floor

**Phase 1A:**
- Move Existing Sculptures
- CT Scan
- Dec. '09-Feb '10

**Existing Sculptures Location**

**Phase 1**
- Plus 7 new beds
- Mar-May '10
Phase 1:
• Separate CM
• Relocate ER Admin.
• Relocate Sculptures—Again!
• Relocate Med Records
• Relocate Patient Access
• Jun-Aug ‘10

Phase 2:
• Plus 8 new beds
  (4 Private/4 Multi-bay)
• Total +15 beds
• Sep-Nov ‘10

Phase 2A:
• 17 CDU beds
• New Service
• Total +32 beds
• Nov ‘10-Feb ‘11

Phase 2b:
• New EMS Entry/Driveway
• No Waiting Room!
• Mar-Apr ‘11
**Phase 3-4 (combined):**
- Temporary Trauma Rooms
- +12 New beds
- No Waiting Room-Still!
- Temporary ERC location
- Waiting Room back
- Mar-Apr’11

**Phase 3a:**
- Renovate Radiology
- New Equipment
- One room at a time
- Dec’10-Feb’11

**Phase 3a:**
- ERC Renovation
- Separate CM
- Dec’10-Feb’11

**Phase 5:**
- Trauma Bays
- Plus 9 new beds
- Total +36 ER beds
- Total +17 CDU beds
- Jul – Oct’11
Phase 6:
• Corridor Finishes
• Are we done yet?
• Oct-Nov ’11

COMPLETE
• November 28, 2011
Overview
- Change: the why and the how?
- Culture: attitudes, values, and beliefs
- Team: roles, purpose, and expectations
- Quality/Safety: why it matters
- Operations: back to school
- Improvement: eliminating waste
- Movement: key flow concepts
- Execution: the will to succeed
- Tomorrow: bringing it all together

Conclusion
- Staff buys into design - successful work environment
- Any idea can work - it just needs a little planning
- Better flow - direct relation to better care
- Clearly defined procedures/policies re-written or developed new - Re-think how you do things.
- You can do this!
Conclusion

- You can be the expert!