The Universal Bed Model
Bringing you the future of cardiac surgery today!

National Institutes of Health Heart Center
at Suburban Hospital
Johns Hopkins Medicine
Barbara Jacobs, RN, MSN, CCRN, CENP
Linda Krause, ACNP, MSN, CCRN-CSC
Periwinkle MacKay, RN, MSN, CCRN
Definition

• The universal bed (UB) model, or acuity adaptable concept is an innovative care delivery system that maintains patients in the same room or nursing unit from immediately post operation to discharge.
How the UB system works:

- In the UB model there are no patient transfers. The required level of care is brought to the patient according to his or her needs.

- This innovative care delivery is done by adapting equipment, staff, and other resources according to the patient’s level of acuity.
Benefits

- Improved continuity of care
- Improved patient safety and decreased medical errors
- Increased patient, staff, and physician satisfaction
- Decreased mechanical ventilation time
- Decreased rate of post-operative complications
- Decreased length of hospital stay
- System wide cost savings
Reduction in post operative complications

- Mechanical ventilation hours
- Arrhythmias
- Pneumonia
- Surgical site infections

Post operative complications are significantly lower in patients admitted to a UB cardiothoracic unit compared with regional/national centers.
## Suburban Hospital’s Cardiothoracic UB Model
### Procedure type and Post-operative features

<table>
<thead>
<tr>
<th>Post-operative feature</th>
<th>CABG</th>
<th>Valve Repair/Replace</th>
<th>CABG + Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ventilation (median, hrs.)</td>
<td>6</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Re-intubation</td>
<td>4.5%</td>
<td>4.2%</td>
<td>3.3%</td>
</tr>
<tr>
<td>ICU status (median, hrs.)</td>
<td>23.5</td>
<td>28</td>
<td>33</td>
</tr>
<tr>
<td>Re-admission to ICU status</td>
<td>1.3%</td>
<td>1.1%</td>
<td>0%</td>
</tr>
<tr>
<td>Atrial Fibrillation</td>
<td>14.9%</td>
<td>10.6%</td>
<td>16.7%</td>
</tr>
<tr>
<td>Sternal Wound Infection</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Length of Stay (median, days)</td>
<td>4.5</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Readmission to Hospital &lt; 30 days</td>
<td>5.4%</td>
<td>3.3%</td>
<td>0%</td>
</tr>
</tbody>
</table>
## Post-operative Complications

<table>
<thead>
<tr>
<th></th>
<th>UB unit Suburban Hospital</th>
<th>Regional</th>
<th>National</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumonia</td>
<td>1.2%</td>
<td>6%</td>
<td>5.5%</td>
</tr>
<tr>
<td>Atrial Fibrillation</td>
<td>16%</td>
<td>31%</td>
<td>32%</td>
</tr>
<tr>
<td>Sternal Wound Infection</td>
<td>0.0%</td>
<td>0.3%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Lower Extremity Infection</td>
<td>0.2%</td>
<td>0.5%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Mortality</td>
<td>0.7%</td>
<td>1.2%</td>
<td>1.0%</td>
</tr>
</tbody>
</table>

Society of Thoracic Surgeons National Data Base
Hospital LOS in Days
Post-operative, CABG and Valve Surgeries

Society of Thoracic Surgeons National Data Base
Reduction in the cost of hospitalization

The Maryland Healthcare Commission reported:

The cost of hospitalization per patient admitted to a UB unit was $6200 to $9500 lower than the regional average for a traditional admission.
Improved patient satisfaction

Overall patient satisfaction is enhanced for patients admitted to a UB unit as evidenced by consistently high scores (93.3%-99%) on the Press Ganey Patient Satisfaction Survey.
Challenges

- Recruiting and cross training nurses to assume multiple levels of care.
- Adjusting staffing ratios according to the patients’ acuity levels.
Conclusions

• The UB model of care is efficient, effective, and yields superior clinical outcomes, when compared to similar traditional programs in the region and nationally.

• The success of a cardiac surgery UB model is evidenced by decreased morbidity, shorter duration of stay, and a reduction in medical errors. All resulting in a significant reduction in hospital cost.

• Patient satisfaction remains high which is key in this current highly competitive era.
The Heart of Suburban Hospital’s Universal Bed Model
References


Special Thanks to Dr. Keith Horvath MD, for his consultation on this presentation.