Designing a Radiolucent Extension Board for Vascular Patients in Day Surgery Centre

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Background
• With expansion of vascular services, it is difficult to get loan unit for vascular cases
• Medical equipment such as operating table extensions are very costly

Aim
• To design low cost and safe alternatives radiolucent board for the use of vascular patient

As-Is:
DSC has no alternative equipment accessories. Patient has to shift to the edge of the bed for optimal image. However, there is a stainless steel rail which is radio-opaque and will restrict x-ray penetration.

Method
To-Be:
1st Prototype – Use of Modern Plastic – DIY Acrylic Board
Properties: Low cost, radiolucent, scratch resistant & resistant to harsh chemicals. (Stress tests and checks were performed by team members)

2nd Prototype – DIY Phenolic board
Properties: Lower cost, radiolucent, scratch resistant, resistant to harsh chemicals & requires lesser radiation to capture image.

Results
Significant Cost and Time Savings Achieved

<table>
<thead>
<tr>
<th></th>
<th>Medical Classified Arm Table</th>
<th>DIY Board</th>
</tr>
</thead>
<tbody>
<tr>
<td>T20</td>
<td>S$ 44,000+</td>
<td>-</td>
</tr>
<tr>
<td>DIY acrylic arm board</td>
<td>S$ 780</td>
<td>save S$40,000</td>
</tr>
<tr>
<td>DIY table extension board</td>
<td>S$ 535</td>
<td></td>
</tr>
</tbody>
</table>

Time and Manpower Savings
• DIY boards were made locally, obtained in 3 weeks
• Do not need to wait for 3 months of full procurement process
• Less manpower needed and staff spends less time travelling to get the accessories

<table>
<thead>
<tr>
<th></th>
<th>Number of staff Needed</th>
<th>Time needed</th>
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</thead>
<tbody>
<tr>
<td>T20</td>
<td>2</td>
<td>30 mins</td>
</tr>
<tr>
<td>DIY boards</td>
<td>1</td>
<td>5 mins</td>
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</table>

Project Impact
Cheaper & Affordable Healthcare
Cheaper alternative material for healthcare industry

Patient Safety Achieved
Durable board with scratch resistant feature

Staff Safety Achieved
Lightweight and easy to assemble. Eliminate risk of pushing heavy equipment

Easy Maintenance
It can be cleaned with most of the chemical solutions

Conclusion
The team has achieved its objective by using economic alternatives as operating table accessory and extension in the operating room. The DIY board has the potential to breakthrough in healthcare.

Sustainability
Further tests needs to be done to achieve the desired thickness in the end product. It may not be impossible to customize an acrylic or phenolic operating table which is more cost-effective compared to the purchase of traditional medical classified operating table.