**Malnutrition and the effect on length of hospital stay post cardiac surgery.**

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**Introduction:**  
Recent work considering the effect of malnutrition on length of stay, has shown improved nutrition status to within -1 to +1 z score can significantly reduce the median hospital stay (p<0.005) by up to 10 days.

**Methods:**  
Using Heartsuite database which included children < 60 months of age undergoing cardiac surgery during the time period 2012 – 2013 (n=196) in which the following variables were included diagnosis, weight and age at time of PICU admission.

**Results:**  
In children who had WAZ (Weight for age) score <-2 [N=132, 30.23; ± 42.69] at the time of surgery compared to those with a WAZ > 0 [N=64 SEM 21.44; ±19.85] had a significantly longer length of hospital stay of 8.79 days (p=0.0056). Interestingly those of normal WAZ at the time of surgery had a significantly greater RACHS score (p<0.0001) 3.01±1.63 vs.1.8±0.08.

**Table 1: Weight for age at time of surgery, risk adjustment for congenital heart surgery and total length of stay in children < 60 months of age**

<table>
<thead>
<tr>
<th>WAZ&gt;0 (N=64)</th>
<th>WAZ&gt;0 Surgery</th>
<th>LOS - total WAZ &gt;0</th>
<th>RACHS WAZ &gt; 0</th>
<th>WAZ&lt;-2 (N=132)</th>
<th>WAZ&lt;-2 Surgery</th>
<th>LOS- Total WAZ&lt;-2</th>
<th>RACHS WAZ&lt;-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean ±SD</td>
<td>1.39±0.49</td>
<td>4.76±2.33</td>
<td>21.44±19.8</td>
<td>3.01±1.63</td>
<td>-4.16±1.85</td>
<td>3.32±1.98</td>
<td>30.23±42.6</td>
</tr>
<tr>
<td>95%CI</td>
<td>1.26;1.51</td>
<td>4.18;5.34</td>
<td>16.48;26.4</td>
<td>2.6;3.42</td>
<td>-4.44; -3.87</td>
<td>2.97;3.65</td>
<td>22.8;37.5</td>
</tr>
</tbody>
</table>

*LOS=length of stay; WAZ=weight-for-age; RACHS= risk adjustment for congenital heart surgery

**Conclusion:**  
Children with CHD are at significant risk of growth faltering which negatively impacts on post-operative course which was evident in this cohort of children. Interestingly RACHS score was significantly higher in children with a normal WAZ suggesting that the complexity of the surgery did not impact on length of stay. It could also be that dietetic resources were targeted towards those with a more severe CHD lesion perhaps at the expense of infants with traditionally less severe anomalies. In order to improve nutrition service provision to this vulnerable population group, our aim is to develop a nutrition care pathway for children with CHD targeting growth and adopting red flag where targets are not achieved with the aim of reducing length of stay.