Background

Ultrafiltration rates (UFR) >13 ml/kg/hr have been associated with increased cardiovascular mortality in hemodialysis (HD) patients. This has led to increased attention on implementing evidence-based ultrafiltration rates.

Purpose

• The 2020 End Stage Renal Disease Quality Incentive Program will require HD facilities to report UFR for each qualifying patient.

• Pediatric institutions will initially be exempt from this regulation. However,

• We felt it was important to follow the new guidelines to improve the cardiovascular health of our pediatric patients.

Strategy and Implementation

• Nurses and physicians partnered to educate all staff, patients, and families on the importance of maintaining UFR < 13ml/kg/hr. They were also educated on the importance of less than 5% fluid loss per hemodialysis treatment.

• To more easily calculate the correct UFR and fluid loss percentages, we partnered with our electronic health record team to revise the hemodialysis flowsheet.

- **Hemodialysis Treatment Record**

<table>
<thead>
<tr>
<th>Weight Type</th>
<th>Pre-treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Weight</td>
<td>43.5 kg</td>
</tr>
<tr>
<td>Post-Weight</td>
<td>42.2 kg</td>
</tr>
<tr>
<td>Dry Weight</td>
<td>2.0 ml</td>
</tr>
<tr>
<td>Net Fluid Gain/loss from estimated dry weight (liter/day)</td>
<td>1.2</td>
</tr>
<tr>
<td>Net Goal (liters or kilograms)</td>
<td>1.2</td>
</tr>
<tr>
<td>Total Goal (liters)</td>
<td>1.45</td>
</tr>
</tbody>
</table>

- Long, frequent treatments call for some fun distraction with our child life therapist!

- The revisions included calculations pre-treatment for predicted length of hemodialysis time needed to maintain <13 ml/kg/hr and the predicted fluid volume percent based off the net goal and the patient weights.

- In addition, the flowsheets were revised to automatically calculate the total ml/kg/hr completed and the total percent fluid loss post treatment.

Evaluation

• Complying with these low UFR has been challenging in the pediatric population because adherence results in increased treatment times and additional treatments.

• To overcome these challenges our unit worked to make treatments as positive as possible for the patients and families by:
  - increasing activities with child life
  - optimizing music and art therapy

• After benchmarking and team discussion, we now allow some patients to eat while on HD to help ease the burden of increased HD times.

Implications for Practice

• The flowsheet changes have made calculating the desired UFR and fluid loss goals easier for providers and safer for patients.

• Education about the health benefits of the new practice for fluid removal, coupled with greater use of distraction techniques provided to our patients, has allowed greater acceptance of this significant change by patients, families and staff.

• HD patients who had biannual echocardiograms since the start of this project showed improvement in left ventricular mass index.

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Special thanks to Ethan Jacobi, Senior Data Program Manager / Analyst for the revisions to the electronic medical record.