

Background

Ultrafiltration rates (UFR) >13 ml/kg/hr have been associated with increased cardiovascular mortality in hemodialysis (HD) patients.

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



One of our patients promoting heart health!

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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

Weight Type	Pre-treatment
Pre-Weight	43.5 kg
Post-Weight	
Dry Weight	42.3 kg
Patient fluid gain/loss from estimated dry weight (Inter-dialytic)	1.2
Net Goal (liters or kilograms)	1.2
Total Goal (liters)	1.45
Net Goal (milliliters)	1200
Suggested time (hours) for net fluid removal (13 mL/kg/hr or	2.18
Predicted Fluid Loss Percent (goal 5% or less)	2.84
Treatment Number	43



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

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- 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.

Hemodialysis

Height	
Net Pos Ultrafiltrate (Post Wt minus Pre Wt)	
Net Neg Ultrafiltrate-Hemodialysis (mL)	1200
Total mL/kg/hr completed:	Net Pos Ultrafiltrate (Post Wt minus Pre Wt) 10.32
Fluid Loss relative to Dry Weight (%)	2.84
Pre-BUN (mg/dl)	
Post-BUN (mg/dl)	
spKt/V (single pool Kt/V for 3 days of hemodialysis)	
eKt/V	
stdKt/V (Kt/V for 4 or more hemodialysis session)	
URR	
estG	
nPCR	
Urine volume (mL)	

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.

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