



# Standardizing Our Approach: Blood Pressure in Pediatric Hemodialysis Patients

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# Agenda

- Background
  - Poll this group re BP practices
  - Show results for SCOPE BP practice result
- CV disease in Peds patients (research)
- Flynn 5<sup>th</sup> report → translating into HD patient population
- Developing the bundle – what’s in it?
  - in-center BP
  - Video of what to do vs what not to do
  - ABPM
- Implementing the bundle
  - Common fear → advice on how to get started
  - resources

## Poll:

Does your unit have a concrete and standardized procedure for obtaining and recording blood pressure for hemodialysis patients?

- Yes
- No

## Poll:

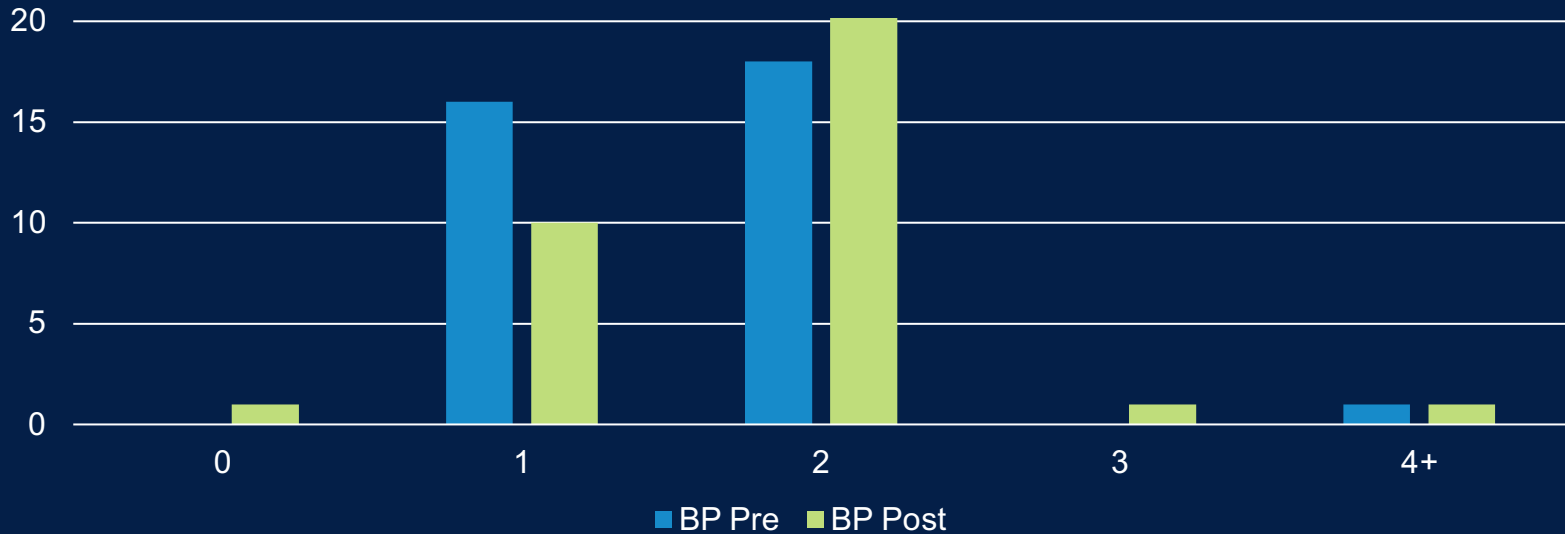
Are you confident that regardless of staff, blood pressure is being obtained and recorded the same on every patient every treatment??

- Not confident at all
- Slightly confident
- Fairly confident
- Completely confident

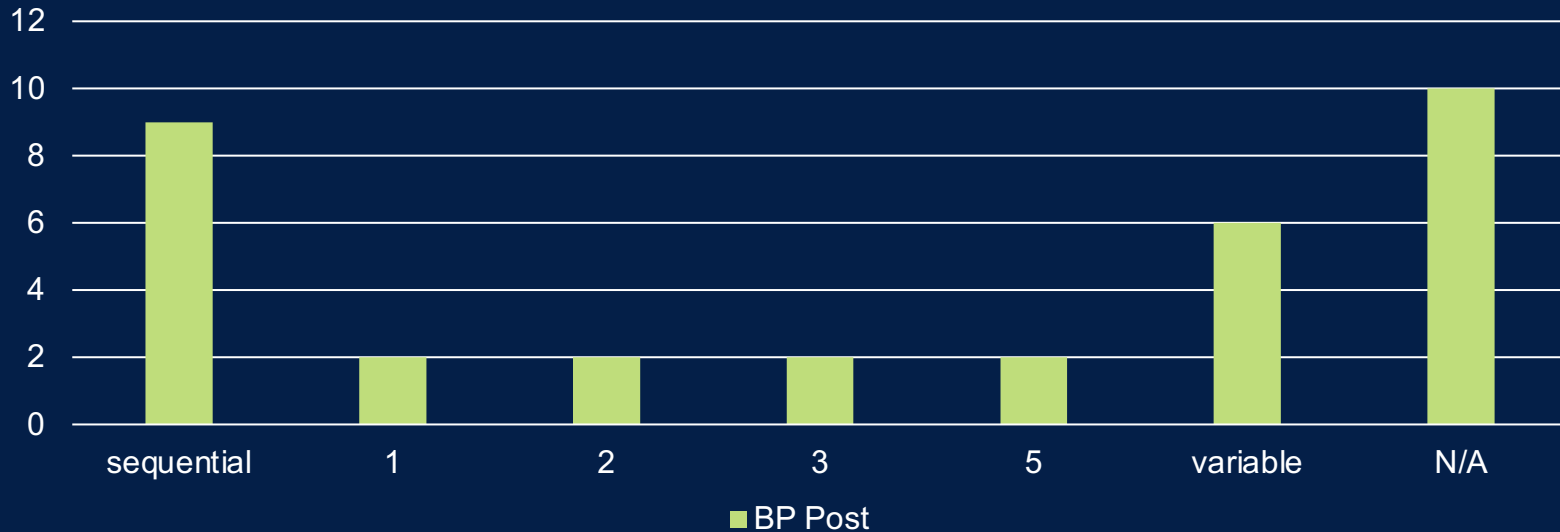
# And the survey says....

- In early 2017, we surveyed pediatric 40+ dialysis clinics across the country.
- We queried them on the *current* and *routine* blood pressure practices in their dialysis center.
- Here is what we found:

# How many BP measurements are *routinely* obtained on each patient *pre/post*-HD in your unit?



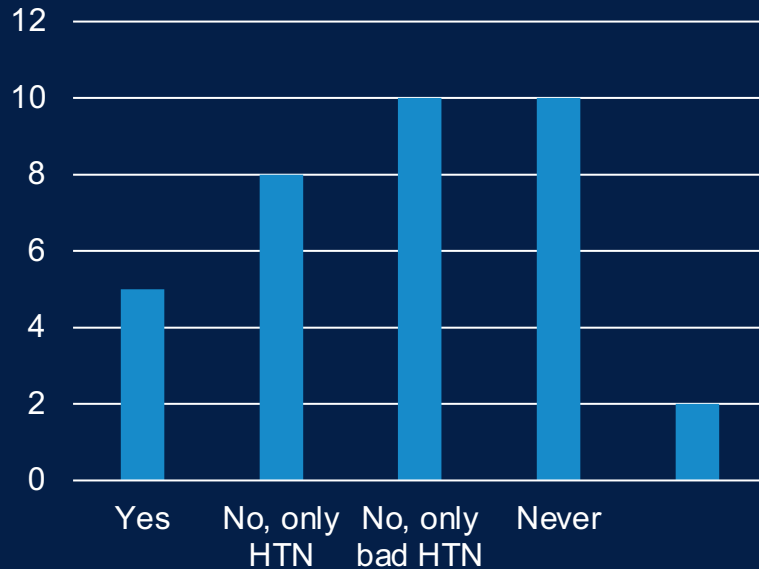
If two or more BP measurements are *routinely* obtained **post-HD**, how many minutes apart are they taken?



# ABPM – Ambulatory Blood Pressure Monitoring


Is your unit *routinely* performing ABPM?

If *routinely* performing ABPM, how often?





# Background

- Why is BP important in these patients
  - Research related to CV outcomes in pediatric dialysis patients
  - So we know that dialysis patients have  $\wedge$  risk for CVD and we take a lot of BPs but how do we know if they are good quality
- Goals of standardizing BP
  - Eventually we would like to know how to treat all of these cases but *FIRST we have to know if we are even measuring correctly and uniformly.*
  - *Comparing apples and oranges*
  - ~~The aim is STANDARDIZATION, we are not advising how to treat, simply elaborating on how to measure and when to confirm. to do.~~  *We just want to make sure we are at least gathering the right information.*

# How it works

- Adapted from Joseph Flynn's 5<sup>th</sup> reports.
- Two parts
  - In-Center BP Measurement –
    - Standardized measurement to be performed before and after every dialysis
  - Home BP Measurement
    - ABPM every 6 months
    - OR
    - Twice daily home BPs for 4 consecutive days

# In Center Blood Pressures

- Describe the criteria
- (site if/when possible)

# Home Blood Pressures (ABPM or Home)

- Describe the criteria (site if/when possible)
- Home BP parent training document

# How it looks

The GOOD

# Common Concerns...And solutions

State clinic hesitations

Describe implementation tactic/strategies

resources

# Restate the goal of implementing this into practice

# Thank you!

**Contact information**

***Citations (where otherwise not cited)***

***Picture of UCSF and Ped Neph team.***



# LIVE FROM THE WATER TREATMENT ROOM

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RENAL AND PHERESIS DEPARTMENT



# OBJECTIVES

- Describe why water purification is important in dialysis
- Identify the contaminants of water that are toxic to dialysis patients and the associated symptoms toxicity
- Describe CMS conditional level findings related to water
- Identify the components of the water treatment room

# WHY IS WATER PURIFICATION IMPORTANT IN DIALYSIS

- Drink about 2 L water each day
- Patients exposed to 200 L each treatment
- Many published instances where water has caused harm in patients
- Centers for Medicare and Medicaid services (CMS) condition for coverage (CfC)

# WHAT MAKES WATER HARMFUL

- Chemicals added water to make it safe for consumption
- Exposure to large amounts is harmful
- Environmental Protection Agency (EPA) – minimum standards for drinking water
- Association for the Advancement of Medical Instrumentation (AAMI) – sets thresholds for acceptable levels of inorganic chemical contaminants in water used for dialysis treatments

# CONTAMINANTS TOXIC TO PATIENTS ON DIALYSIS

CONTAMINANT	ADVERSE EVENT
Aluminum	Encephalopathy, bone disease, anemia
Calcium/ magnesium	Nausea, vomiting
Chlorine/ chloramine	Hemolysis
Copper	Hemolysis, nausea, vomiting
Endotoxin	Pyrogenic reaction, chronic inflammation
Fluoride	Nausea, abdominal pain, pruritus, arrhythmia
Nitrates	Anemia
Zinc	Hemolysis, nausea, vomiting

RENAL

# CONDITIONAL LEVEL FINDINGS

- Lack of knowledge or training of staff assigned to operate and monitor water treatment or Dialysate preparation
- Failure to perform and document tests for chlorine and chloramine
- Unsafe practices in preparation, labeling or delivery of Dialysate
- Failure to address out of range tests

# TOUR THE WATER TREATMENT ROOM

Pre Treatment – Before RO If not treated before RO, it could damage the RO membrane

- City water
- Blending valve (blends hot and cold water)
- Backflow preventer
- Pump
- Multimedia filter
- Water softener (brine tank)
- Carbon tanks
- Ultrafiltration filters

# TOUR THE WATER TREATMENT ROOM

## Purification Process

- Reverse Osmosis (RO)
- Deionized tanks (DI) temporary
- Ultraviolet Light



# TOUR THE WATER TREATMENT ROOM

## Distribution

- Pipes
- Valves
- Regulator

# TESTING AND DOCUMENTING WATER SYSTEM

- Temperature
- Multi media filter - pressure drop across the filter
  - Daily
- Water softener
  - Monthly
- Carbon beds - product water total chlorine and chloriimine
  - Before shift and q 4 hours
- Sediment/carbon control head – backwash cycler timer setting
  - Once weekly???

# CULTURES AND ENDOXINS

## Cultures - test live bacteria

- Acceptable level: <50 colony forming bacteria (CFU)
- Action level: 50 CFU/mL-199 CFU/mL (can complete treatments for the day)
- Unacceptable level:  $\geq 200$  CFU/mL (must stop treatments)

## Endoxins -

- Acceptable level: <1 Endotoxin Units (EU)
- Action level:  $\geq 1$  EU to <2 EU
- Unacceptable level:  $\geq 2$  EU

# REFERENCES

RENAL AND PHERESIS DEPARTMENT





**Texas Children's  
Hospital<sup>®</sup>**

**COMMENTS/QUESTIONS?**

# Quality of Life Round Table Discussion

Kelli Scott, LCSW, LMSW



# Disclosures

I have no disclosures.

# Tools Used

- Core Version
- ESRD Specific



# CMS Requirements

- Completed within first 30 days and at least annually thereafter
- Completed if patient experiences a life changing event or change in health status

# Areas Assessed

- Physical
- Emotional
- Social
- School/Work

# Scoring

- Will add picture of scoring scale compared to general population

# Questions???

What questions do you have about the PedsQOL?

Have you come across concerns after QOL is completed?

For those that have experience with tool, how has it improved patient care?

How have you dealt with any identified concerns after the QOL is completed?

# References

- [Pedsq1.org](https://www.pedsql.org)