


Quality Improvement

## SCOPE Dialysis Collaborative



### Continued Reduction in Peritonitis Rates in US Pediatric Dialysis Units: Results of the SCOPE Collaborative

Alicia Neu, Troy Richardson, Jonathan Rodean, Audrey Busch, Tessa Patterson, Bradley Warady  
For the SCOPE Participants

---

---

---

---


---

---

---

---


## SCOPE Peritonitis Project



- Increase implementation of standardized peritoneal dialysis catheter practices
  - PD catheter insertion
  - Child/caregiver training
  - Follow up care
- Lower rates of PD catheter related infections
  - Peritonitis
  - Exit Site/Tunnel Infection

Neu AM, et al. Design of the standardizing care to improve outcomes in pediatric end stage renal disease collaborative. *Pediatr Nephrol.* 2014 Sep;29(9):1477-84

SCOPE Dialysis Collaborative




---

---

---

---


---

---

---

---


## SCOPE 3 Year Results



- Increased likelihood of compliance with a standardized Follow up Care bundle
  - OR 1.15, 95% CI (1.11,1.19), p <0.001
- Decrease in annualized peritonitis rates
  - Pre-Launch 0.63(0.43, 0.92)
  - Post-Launch 0.42 (0.31, 0.57) (p=0.026)

Neu et al. *Kidney International*, 89(6):1346-54, 2016

SCOPE Dialysis Collaborative




---

---

---

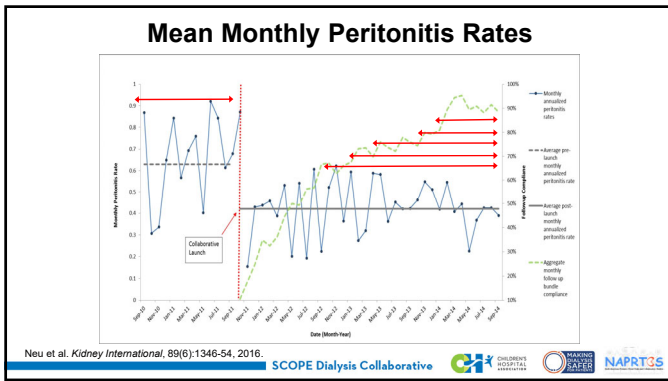
---

---

---

---

---




---

---

---

---

---

---

---

---

---

---

### Sensitivity Analysis

Follow Up Compliance %	Month/Year Mean Compliance Achieved	# Months to Mean Collaborative Compliance	Ratio of Peritonitis Rates (95% CI)	p-value
65%	November 2012	13	1.23 (0.86,1.77)	0.311
70%	March 2013	17	1.27 (0.89,1.78)	0.168
75%	July 2013	21	1.37 (0.95, 1.96)	0.086
80%	November 2013	25	1.42 (1.01,1.99)	0.045
85%	March 2014	29	1.65 (1.17, 2.34)	0.007

Neu et al. *Kidney International*, 89(6):1346-54, 2016.

SCOPE Dialysis Collaborative

CHS CHILDSHIP HOSPITAL OF CHICAGO

MAKING SAFETY A REALITY

NAPRT3S

---

---

---

---

---

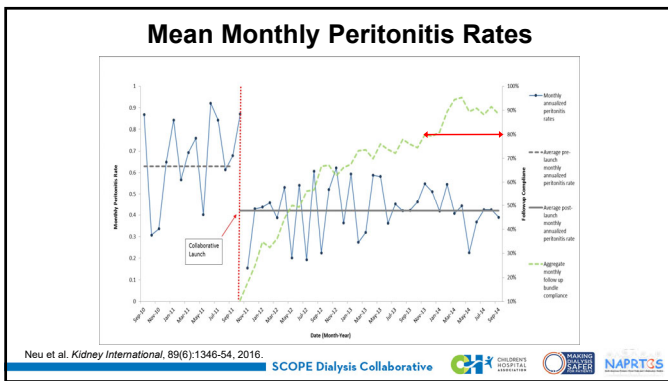
---

---

---

---

---




---

---

---

---

---

---

---

---

---

---

### Objective



- Describe the results of the first 6 years of the SCOPE Peritonitis Project
  - October 1, 2011- August 31, 2017
  - Rates of compliance with follow up care bundle
  - Peritonitis rates

SCOPE Dialysis Collaborative




---

---

---

---

---

---

---

---

### Methods



- Enrollment criteria
  - Any child/young adult ( $\leq 21$  years) with a chronic PD catheter at a participating center
- Demographics collected at enrollment
- Monthly reporting of compliance with care bundles
- Monthly reporting of infection events
- Historical demographic and infection data submitted for 13 months prior to launch

SCOPE Dialysis Collaborative




---

---

---

---

---

---

---

---

### PD Catheter/Exit Site Follow-Up Care Bundle



- Monthly visit
  - Exit-site scored by RN (IPPN scoring tool)
  - Key aspects of hand hygiene, exit site care and aseptic technique reviewed
- Every 6 month demo test and concept test
- Re-training after peritonitis episode
- Prophylactic antibiotics with touch contamination or other break in aseptic technique according to ISPD guidelines

SCOPE Dialysis Collaborative




---

---

---

---


---

---

---




---

### Methods



---

- Monthly Compliance scoring all or none
- Infection rates for each center were calculated as an annualized rate =
 
$$\frac{\text{Number of infections during time period}}{\text{Peritoneal dialysis patient-years at risk}}$$
- Collaborative rates were calculated as the mean of the center rates

SCOPE Dialysis Collaborative




---

---

---

---


---

---

---




---

### Methods



---

- Rates and compliance modeled using generalized linear mixed model techniques assuming a negative binomial distribution with a natural log link function and a binomial distribution with a logit link function, respectively.
- A random effect for PD center was included in these models to accommodate for center-specific variability

SCOPE Dialysis Collaborative




---

---

---

---


---

---

---




---

### Results



---

Current SCOPE Participants	47 Centers	
	↓	
Participating at Collaborative Launch October 2011	29 Centers	
	↓	
Provided pre-launch patient and infection data	24 Centers	
	↓	
Participating on August 31, 2017	20 Centers	889 enrolments 11,174 follow up forms

SCOPE Dialysis Collaborative




---

---

---

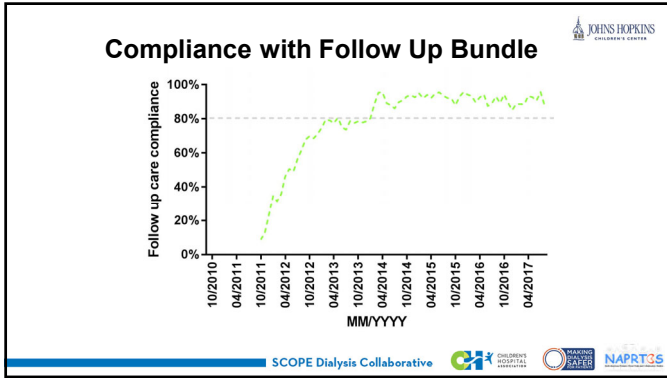
---

---

---

---

---




---

---

---

---

---

---

---

---

---

---

### Peritonitis Rates

- Pre-launch (13 mo)
  - 158 peritonitis episodes/3079 pt months
- Post-launch (71 mo)
  - 602 peritonitis episodes/17,160 pt months

JOHNS HOPKINS CHILDREN'S CENTER

SCOPE Dialysis Collaborative CHILDREN'S HOSPITAL BAYVIEW MAKING HOSPITAL SAFER NAPRT3S

---

---

---

---

---

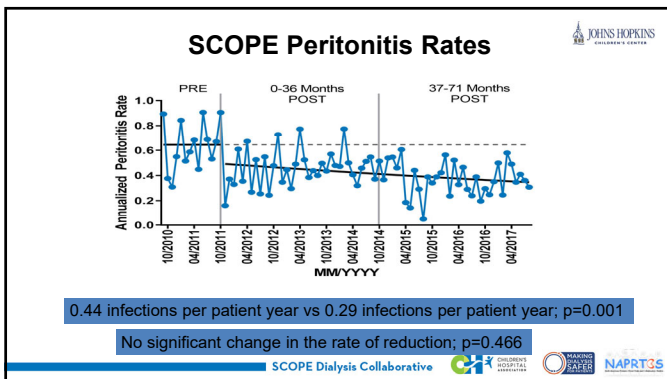
---

---

---

---

---




---

---

---

---

---

---

---

---

---

---



### Conclusions

- Using quality improvement methodology SCOPE centers have maintained a high level of compliance with follow up care and demonstrated a significant and progressive reduction in peritonitis rates over time
- Ongoing efforts to further reduce infections rates include identification of other modifiable risk factors and/or care practices



---

---

---

---

---

---

---

---

### Thanks to all the SCOPE Participating Centers, Patients and Families



---

---

---

---

---

---

---

---



---

---

---

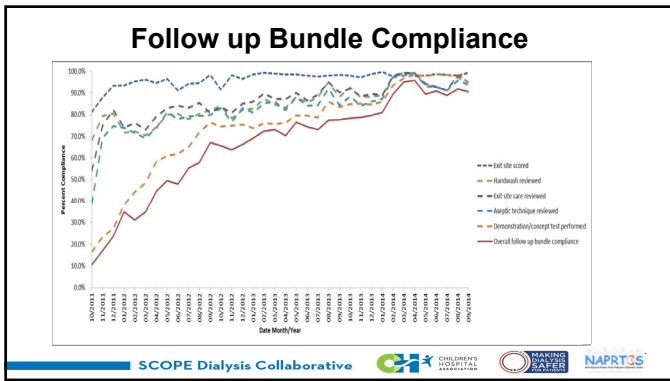
---

---

---

---

---




---

---

---

---

---

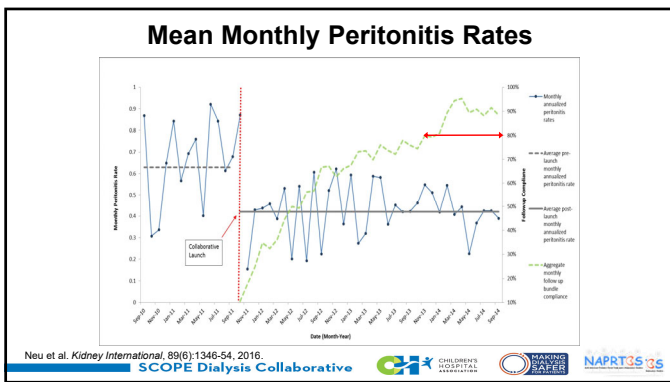
---

---

---

---

---




---

---

---

---

---

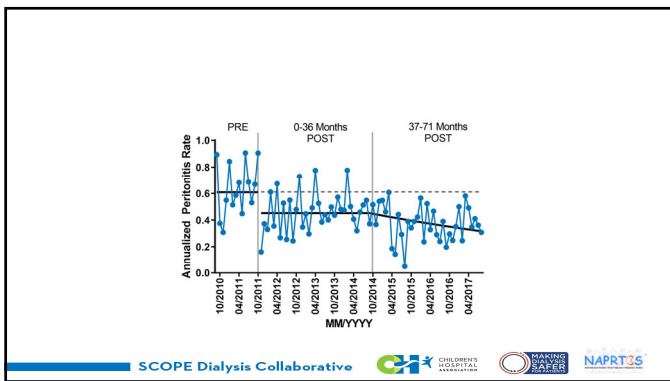
---

---

---

---

---




---

---

---

---

---

---

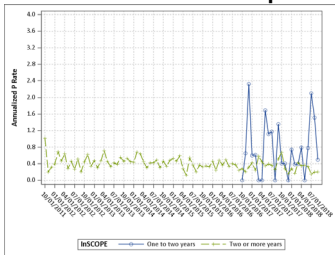
---

---

---

---

## Annualized P Infection Rates by SCOPE Groups



SCOPE Dialysis Collaborative CHILDREN'S HOSPITAL ASSOCIATION MAKING SAFER CARE A REALITY NAPRT3S

---

---

---

---

---

---

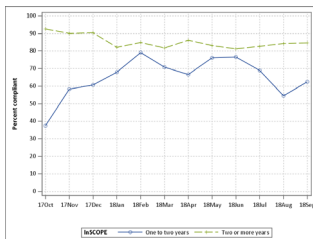
---

---

## FU Overall

PD FU YE SEP 2018

Hospitals grouped by time since first patient enrolled



SCOPE Dialysis Collaborative CHILDREN'S HOSPITAL ASSOCIATION MAKING SAFER CARE A REALITY NAPRT3S

---

---

---

---

---

---

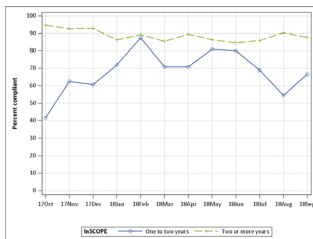
---

---

## Repeat demo and concept test

PD FU YE SEP 2018

Hospitals grouped by time since first patient enrolled



SCOPE Dialysis Collaborative CHILDREN'S HOSPITAL ASSOCIATION MAKING SAFER CARE A REALITY NAPRT3S

---

---

---

---

---

---

---

---





### SCOPE Care Bundle Compliance

Care Bundle Compliance	OR	95% CI	P-Value
Insertion	1.02	(0.99,1.04)	0.064
Training	1.02	(0.99,1.05)	0.105
Follow up	1.10	(1.10,1.11 )	<0.001
Follow up (w/ random Hosp Effect)	1.15	(1.11,1.19)	<0.001

Generalized Linear Mixed Model Techniques

SCOPE Dialysis Collaborative




---



---



---



---



---



---



---



---