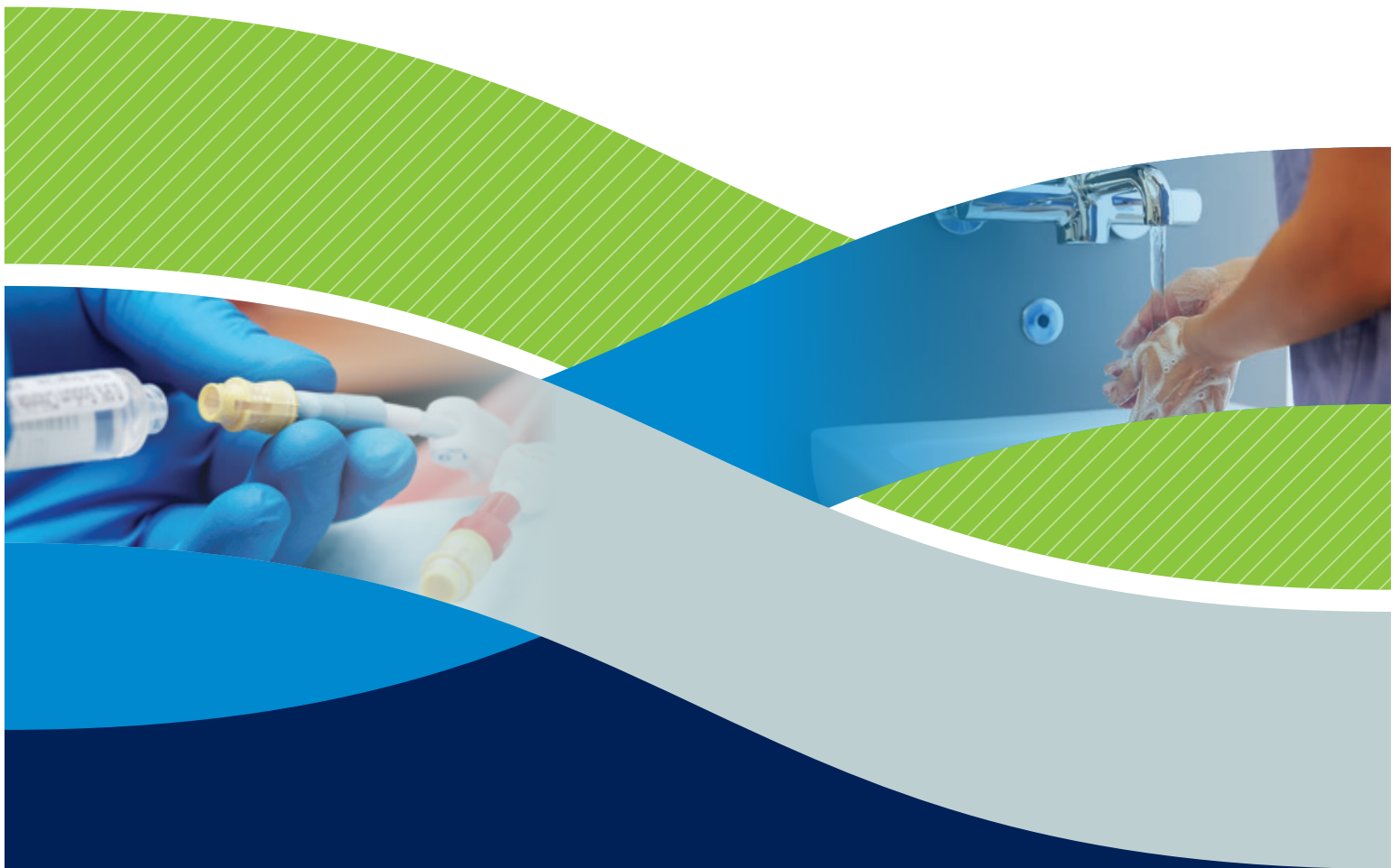




2018 ANNUAL REPORT

# Promoting Infection Prevention in Dialysis Facilities

July 2017 – July 2018



August 15, 2018

**SUBMITTED BY**

American Society of Nephrology  
Nephrologists Transforming Dialysis Safety

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Washington, DC 20005

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Contract No. 200-2016-88832





*Engaging nephrologists as team leaders to “target zero infections” by actively pursuing the elimination of preventable infections in dialysis facilities.*

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# Why NTDS: The Threat of Infection in Dialysis

Close to 10 million people worldwide have kidney failure. They represent all ages and races, and traverse the spectrum of geography, income, and gender. Although dialysis is not a cure, the invention of dialysis moved kidney failure from an impending death sentence to a manageable disease.

This life-sustaining treatment is provided yearly to nearly 494,000 people in the United States and administered by knowledgeable and dedicated professionals.

As leaders of the care team, nephrologists manage complicated comorbidities, often across multiple care

settings. Individuals on dialysis interact with their care team multiple times per week, often for years.

Despite the critical nature of dialysis and the vast numbers of individuals who receive it, the specific methods of treatment have changed very little since its inception. The five-year survival rate for dialysis patients is 35.8%, compared to a five-year survival rate of 85.5% for transplant patients. Dedicated care providers work with a fallible system that leaves patients susceptible to infection and medical error.

Within this challenging care system, the data indicate a consistent source of morbidity: infection.\*

In 2015, individuals undergoing hemodialysis spent 1.5 times as many days in the hospital with a cause of infection than with a cause of cardiovascular disease.<sup>1</sup>

## Nephrology in the United States: By the Numbers as of December 31, 2015

### Patients with Kidney Failure<sup>1</sup>

ESRD Patients Treated  
**701,352**  
Dialysis Patients  
**493,542**  
Functioning Kidney Transplant  
**207,810**

### Dialysis Facilities<sup>1</sup>

Total Dialysis Facilities  
**6,939**  
Hospital-based Dialysis Facilities  
**473**

### Nephrologists<sup>2</sup>

Direct Patient Care  
**8,885**  
Teaching Only  
**142**  
Research Only  
**331**  
Other  
**725**  
**TOTAL 10,083**

“

These stark numbers must not be a part of our future. As this report outlines, dialysis professionals are eager to shape the changes that transform care.

Alan S. Kliger, MD  
Chair, NTDS Project Committee

## U.S. Dialysis Facilities Do Not Follow Basic Infection Control

In 2017, 6 of the Top 10 Citations Given to Dialysis Facilities Related to Infection Control Practices

Standard Surveys - 2021 Surveys Conducted/7139 Active Providers

#	V-Tag	Tag Description	# Citations	% Survey's Cited
1	V113	IC - Wear Gloves/ Hand Hygiene	713	35.3%
2	V122	IC - Clean, Disinfect Surfaces & Equipment/Written Protocols	656	32.5%
5	V143	IC - Aseptic Techniques for IV Meds	369	18.3%
6	V147	IC - Staff Education Re Catheters/Catheter Care	318	15.7%
9	V116	IC - Items Taken to Station Disposed/Dedicated or Disinfected	293	14.5%
10	V117	IC - Clean/Dirty Areas, Med Prep Area, No Common Med Carts	291	14.4%

CASPER database. CASPER is part of the Centers for Medicare & Medicaid Services Quality Improvement and Evaluation Systems (QIES). <https://qcor.cms.gov/main.jsp#>

\*PEER Report: Dialysis Care & Outcomes in the US, 2014 (Hospitalization)

1] United States Renal Data System. 2017 USRDS Annual Data Report: Epidemiology of Kidney Disease in the United States. National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD, 2017.

2] Association of American Medical Colleges. 2016 Physician Specialty Data Report: Active Physicians in the Largest Specialties, 2015. Washington, DC, 2016.

## Background

The prominence and persistence of infection in dialysis settings prompted the Centers for Disease Control and Prevention's (CDC's) Division of Healthcare Quality Promotion (DHQP) to systemic change. As part of this effort, CDC funded a three-year initiative led by the American Society of Nephrology (ASN).

This initiative, Nephrologists Transforming Dialysis Safety (NTDS), launched in 2016. It engages nephrologists to take the lead in the cultural change necessary to transform the current state of infection prevention in dialysis facilities.

NTDS recruits nephrologists whose influence and leadership will strengthen the focus on controlling infection risks for these vulnerable patients. Directly involving nephrologists has the potential to reduce the burden of bloodstream infections (BSI) and other healthcare-related infections in dialysis patients by enlisting and encouraging all members of the team to accept greater responsibility for patient safety.



### Infection Prevention Project Overview

**Project Objective:** Improve implementation of infection prevention and control efforts in dialysis facilities across the United States.

**Project Funding:** Centers for Disease Control and Prevention (CDC)

**Project Lead:** American Society of Nephrology (ASN)

**Contract Term:** July 15, 2016 – July 14, 2019

**Leadership:** Alan S. Kliger, MD – Project Chair

## Champions For Dialysis Safety

### *Project Committee*

The NTDS Project Committee consists of 33 kidney disease and healthcare associated infection (HAI) experts who provide a wealth of skills, knowledge, and experience while representing a wide range of training, geography, and expertise. They serve as the lynchpin of the NTDS project and have propelled a remarkable number of initiatives that will advance dialysis care.

### *Workgroups*

Dynamic Workgroups implement the vision of CDC and the Project Committee. These workgroups define the goals that support the overarching strategic vision. They have developed implementation plans, executed those plans, and have begun to evaluate performance measures. (For a list of Workgroup members, see page 14.)

## Project Committee

### Nephrology and Healthcare Community Members

- 16 Adult Nephrologists
- 3 Pediatric Nephrologists
- 1 Vascular Surgeon
- 1 Nurse
- 2 Nephrologists with Operational Responsibility From Dialysis Companies
- 1 Technician
- 1 Patient Liaison
- 2 Infectious Disease Physicians
- 1 Infectious Disease Specialist
- 2 State Hai Representatives
- 1 Hepatologist
- 1 ASN Councilor
- 1 Nephrology Fellow

### CDC Representatives

- 3 Physicians
- 1 Nurse Infection Preventionist
- 1 Dialysis Technician
- 1 Contracting Officers Representative

## Barriers to Infection Prevention in Dialysis Facilities 2018

Community input identified six broad barriers:

- Lack of infectious disease education and training
- Lack of policies, protocols, and procedures addressing infection prevention in dialysis facilities
- Absence of facility-specific blood stream infection data leading to ineffective quality improvement efforts
- Presence of catheters
- Lack of leadership and absence of a culture of safety, leading to apathy
- Lack of governmental collaboration

## Developing The Roadmap

Specific areas to focus on with each barrier:

### **Education and Training:**

- Assessment of current guidelines: policies, procedures, and protocols
- Infection prevention and leadership education and training for nephrology fellows
- Hand hygiene
- Education/training, including human factors engineering, continuous quality improvement, and best practices
- State/Federal HAI program introduction and mandates

### **Policy, Procedure, and Protocol Development:**

- Hepatitis C testing
- Antibiotic stewardship
- Hand hygiene
- General infection prevention guidelines
- HAI reporting

### **Data Availability and Training:**

- Infection-related data
- Information and techniques for quality improvement

### **Catheter Reduction Initiatives:**

- Reduction of catheter placement
- Innovations to improve catheter-related infection prevention

### **Leadership Mandates:**

- Dialysis organization collaboration
- Large-scale systems change
- Enhanced lines of communication
- Training for medical directors and fellows
- Identification of a dialysis facility infection prevention leader/coordinator
- Collaboration with State/Federal HAI programs and renal organizations

### **Government Collaboration:**

- Reduction of inconsistencies between government agencies
- Elimination of knowledge gaps between State/Federal HAI programs and dialysis facilities

# Changing the Culture

While tools and resources are vital to care, transforming dialysis culture requires leadership that prioritizes, values, and sustains critical prevention practices. Engaging nephrologists to create successful change and to embrace and implement new practices, required NTDS to establish a base within the kidney community, and develop an infrastructure that encouraged exchange with all stakeholders in dialysis care.

NTDS uses focus groups and public forums to determine community needs and goals. This annual process enables decision makers to identify barriers and opportunities across nephrology. The input of the community is distilled into an annual Roadmap that guides the Project Committee and Workgroups and shared with all stakeholders.

This input progressively builds upon the foundation established by NTDS, enhances infection prevention initiatives, and creates a community-wide goal of eliminating preventable infections in dialysis.

In 2018, NTDS has moved from introducing itself to the kidney community, to developing a strong system of exchange with stakeholders, and reaching the status of trusted agent in helping nephrology leaders improve a static and unresolved challenge in patient care.

The increased level of engagement by stakeholders, and the tangible achievements of the entire NTDS team have resulted in adding a Human Factors Engineering project (see page 13) to this contract and is a testament to the interest of all kidney professionals in improving care for their patients.

## What Do Doctors Say About Dialysis Units?

- “Nobody follows hand hygiene consistently.”
- “Dialysis staff have a ‘not my job’ attitude.”
- “Leadership for infection control is lacking.”
- “The nurse manager should be in charge.”
- “Everyone needs to be more engaged and empowered.”

*NTDS Focus Groups ASN Kidney Week 2016*

## Transforming Dialysis Safety

In 2017, NTDS defined the overarching goals of the project and created systems to support leaders, engage the community, determine the tactics necessary to support strategic goals, and communicated all this to the nephrology community. This year, NTDS drew from the broad themes identified by the community and outlined by the 2018 Roadmap, parlayed its growing presence in the kidney community to refine strategy and tactics, and significantly advanced its ability to engage nephrologists and transform dialysis safety.



### NTDS' multi-pronged approach to transforming safety in 2018 includes:

- Partnering with experts in human factors engineering to identify barriers and facilitators to infection prevention
- Developing an infection prevention curriculum for fellows and practicing nephrologists
- Developing a special edition of the Nephrology Self-Assessment Program (NephSAP)
- Collaborating with CDC to develop clinical guides for Hepatitis C testing and monitoring
- Collaborating with CDC to standardize blood culture procedures
- Initiating a pilot project to reduce catheter-related BSIs in dialysis
- Publishing an infection prevention series of manuscripts in CJASN
- Launching a vascular access initiative
- Adding an infection prevention section to the ASN Virtual Mentor Curriculum
- Promoting a nephrologist leadership platform through the development of nephrologist-focused vignettes
- Developing an antimicrobial stewardship education plan
- Creating state/federal HAI partnerships
- Promoting state/federal HAI reporting requirements
- Promoting hand hygiene compliance
- Collaborating with CDC to promote the functionality and use of the National Healthcare Safety Network (NHSN) data collection and reporting tool

# 2018 Successes: Education and Engagement

## Education Series

Education is vital to transforming any culture. The increasing interest in the Targeting Zero Infections Webinar Series provides a clear example of the current need for outstanding education in core areas. This venue has helped NTDS establish itself as a patient-safety resource for all members of the dialysis care team including Medical Directors, nephrologists, nephrology fellows, nurses, and technicians.

### Targeting Zero Infections Webinar Series

Following each live webinar, content is made available on the ASN Learning Center.

**689**

Participants

#### Targeting Zero Infections: Where Do We Begin?

May 23, 2017

**291**

Participants

#### Multi-Drug Resistant Organisms (MDROs) and Antimicrobial Stewardship in Dialysis

September 27, 2017

**432**

Participants

#### Infectious Disease Reporting: State Requirements and Resources

March 29, 2018

**1057**

Participants

#### Environmental Decontamination

June 18, 2018

“

These webinars are a great resource for all dialysis facilities because they separate all the criteria of infection control into individual webinars to educate everyone about the need to control infections. The biggest takeaway is that everyone, including doctors, nursing, technicians, other staff members, and patients can assist in reducing and eliminating infections for individual facilities.

Brittany Grace, MPH, LEHS  
Maryland Department of Health Epidemiologist  
Baltimore, MD

“

The problem of infections in dialysis patients is now truly taking center stage. The NTDS webinar I participated in helped focus my attention on this important issue. The moderators presented a real-life case of a hepatitis outbreak in a dialysis unit to illustrate how we nephrologists need to do better for our patients. My hope is that the NTDS seminar will galvanize nephrologists to appreciate the key role they play in the setting goals and priorities in the dialysis unit, such as reducing infection rates in our dialysis patients

James Wetmore, MD, MS  
Hennepin County Medical Center  
Minneapolis, MN



## NTDS in the Kidney Community

NTDS leaders and staff regularly create content across various media to inform, engage, and interest members of the kidney community. Vehicles included articles in peer-reviewed and online journals, *ASN Kidney News* and *Kidney News Online*, presentations, *ASN In the Loop* items, *ASN* website front page ads, popups, broadcast emails, and *Kidney Week* app alerts.

Since its inception, NTDS has reached 630,000 health professionals.

### Feature NTDS Accomplishments

#### *Participated in Kidney Week*

- Early Program
- Focus Group
- Annual Session

**576**  
Reached  
at Kidney  
Week

#### *Presented to CDC Works in Progress (WIP) meeting*

#### *Launched Making Dialysis Safer for Patients Coalition “Days Since Infection” poster*

#### *Completed infection prevention section for the ASN Virtual Mentor Dialysis Curriculum*

#### *Compiled an Ebola Gap Analysis*

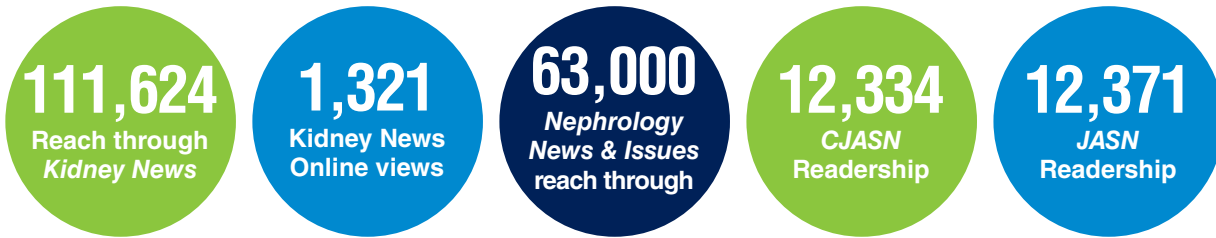
#### *Published five manuscripts in the Clinical Journal of the American Society of Nephrology (CJASN)*

- Systems Thinking and Leadership: How Nephrologists Can Transform Dialysis Safety to Prevent Infections
- Urgent: Stop Preventable Infections Now
- Addressing the Problem of Multidrug-Resistant Organisms in Dialysis
- What We Learned from Ebola: Preparing Dialysis Units for the Next Outbreak
- 100% Use of Infection Control Procedures in Hemodialysis Facilities: Call to Action



# Print and Online Publications Outreach

29 articles reaching 260,999 health professionals since project inception



## Regional Presentations

- ESRD Network 5 HAI LAN*  
July 25, 2017
- Greenfield Health Systems Medical Advisory Board Meeting*  
September 14, 2017
- Kidney Foundation of Ohio Symposium*  
September 17, 2017
- UCI Medical Center: Nephrology Fellow Grand Rounds*  
October 2, 2017
- ESRD Network 5 Network Council Meeting*  
October 10, 2017
- NYU Renal Grand Rounds*  
December 1, 2017
- QAPI and Infection Control*  
February 15, 2018
- Grand Rounds, Mayo Clinic Jacksonville: Management of HCV in CKD*  
April 18, 2018
- FMC East Medical Advisory Board*  
April 20, 2018
- DCI Medical Directors' Meeting*  
May 18, 2018



## National Presentations

- SCOPE Collaborative*  
January 12, 2018
- RRI Annual Conference*  
February 2, 2018
- Annual Dialysis Conference (ADC)*  
March 2018
- HAI/AR Grantees Meeting*  
March 20, 2018
- NANT Annual Symposium*  
March 2018
- NKF Spring Clinical Meeting: Protecting Patients from Technological Harm*  
April 11, 2018
- ANNA Meeting*  
May 2018
- Association for Professionals in Infection Control and Epidemiology (APIC)*  
June 2018



## Website and Social Media

NTDS has reached more than 630,000 health professionals and patients through multiple platforms. Strategic use of diverse communication platforms is essential to advance infection prevention. The strong community interest demonstrates the value of engaging nephrologists who are willing to take the lead to transform patient safety.

**NTDS WEBPAGE TOTAL VISITS: 30,687**

**NTDS ONLINE COMMUNITY MEMBERS: 844**

**f FACEBOOK: 30,100 FOLLOWERS**  
Total Reach: 200,479  
[www.facebook.com/AmericanSocietyofNephrology](http://www.facebook.com/AmericanSocietyofNephrology)

**t TWITTER: 15,289 FOLLOWERS**  
Total Impressions: 128,223  
Hashtags: #ASN\_NTDS and #TARGETZEROINFECTIONS

**in INSTAGRAM: 459 FOLLOWERS**

# 2019: Moving Beyond Milestones

NTDS has established itself as a strong, transformative presence in dialysis. The accomplishments to date have already advanced infection prevention as a vital issue in dialysis care. More importantly, leaders and other members of the team have engaged at all levels with the need to change dialysis culture. This allows NTDS to continue to advance the original goals of the project and move beyond the initial milestones to incorporate exciting new initiatives that will help facilities across the U.S. successfully implement lasting change.

## Key Areas of Focus:

- Continuing the Targeting Zero Educational Series
- Promoting productive relationships between nephrologists and state and federal Healthcare Associated Infection (HAI) professionals
- Providing ongoing education on the critical role of hand hygiene in preventing infections
- Promoting antibiotic stewardship in the dialysis setting
- Developing analyses of, and community education on, current and emerging threats, including Multi-Drug Resistant Organisms (MDRO's)
- Informing the community through articles published in leading nephrology journals, including CJASN, AJKD, and others
- Offering a fourth annual session and focus group at ASN's Kidney Week
- Using community forums to educate nephrologists on the key role of physician leadership



## Projects

### Current & Emerging Threats Workgroup

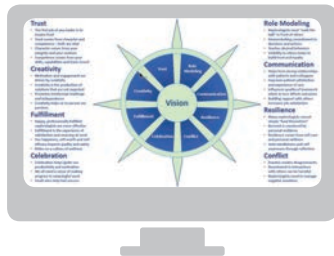
- Hepatitis C Screening Algorithm
  - The goal of this project is to update the current CDC HCV screening algorithm for use in persons on maintenance hemodialysis. Outstanding work includes the identification of reporting requirements to either state or local health authorities.
- Blood Culture Standardization Recommendations
  - A subcommittee has developed a set of standard recommendations, with rationale, based on literature and guidance from professional organizations. This will be accompanied by a sample SBAR (Situation, Background, Assessment, Recommendation) and competency recommendations connecting.
  - SBAR: a shared mental model around all patient handoffs and situations requiring escalation, or critical exchange of information (handovers).
  - Expected completion: Fall 2018

### Training Programs Workgroup: Fellows' Curriculum

- The NTDS Training Programs Workgroup will complete a curriculum that encompasses important aspects of infection prevention for nephrology fellows and nephrologists in practice so that they have the tools to meet the challenge of leadership in this arena. Key topic areas include:
  - Standard precautions
  - Environmental / equipment surface cleaning and disinfection and environmental precautions
  - Access care
  - Screening and management of other pathogens in hemodialysis
  - Preparedness for emerging threats
  - Water treatment
- Expected Publication: Fall 2018

### QAIE Workgroup: Leadership Vignettes

The QAIE workgroup will present core leadership concepts via graphic art vignettes. This medium, not previously used in education for dialysis providers, will distill key values and skills in brief, memorable, and easy-to-share animation sets.



### State & Federal HAI Programs Workgroup

This Workgroup will:

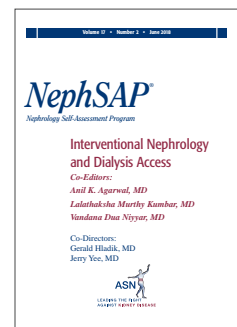
- Partner with State HAI epidemiologists to collect State Hepatitis C reporting requirements, and educate both epidemiologists and nephrologists on opportunities to partner.
- Ongoing projects include hand hygiene promotion and a “Getting to Know You” campaign to increase collaboration between nephrologists and state HAI programs.

### Vascular Access Task Force

- The Vascular Access Task Force will look at promoting the use of chairside checklists in the dialysis community. Increased use of chairside checklists would ensure that no infection prevention steps are missed and that all professionals are connecting and disconnecting patients from treatment in a standardized way.
- The Task Force will consider ways to reduce catheter placement
- The Task Force will look at innovations to improve catheter-related infection prevention

### Infection Prevention Special Edition in NephSAP

- NephSAP provides a learning vehicle for nephrologists to renew and refresh their knowledge, diagnostic, and therapeutic skills. This enduring material provides nephrologists challenging, clinically oriented questions based on case vignettes, a detailed syllabus that reviews recent publications, and an editorial on an important and evolving topic.
- NTDS is completing a special issue that will reinforce infection prevention and treatment knowledge
- Expected Publication: July 2019



### Pilot Project

A pilot project is ongoing at Northwest Kidney Centers in Seattle. The project focuses on reducing and eliminating catheter-related bloodstream infections, establishing cultures of safety, and developing strong medical leadership.

## Spotlight: Human Factors Engineering

CDC expanded its contract with ASN in 2018 to use human factors engineering to identify barriers and facilitate adherence to CDC-recommended infection prevention practices.

Human factors engineering is an applied science that coordinates the design of devices, systems, and physical working conditions with the capacities and requirements of the worker to propel success. NTDS will partner with Human Factors Engineering (HFE) experts to conduct observations at six dialysis facilities nation-wide. These six facilities will represent diversity in facility location and accessibility; patient demographics; dialysis center leadership; and quality metrics including BSI rates.

The observations will:

- Examine workflow around the critical dialysis processes
- Consider individual human capabilities and limitations, as well as the environment of work, organizational factors influencing the work, the tasks, and the team performing the work
- Assess the design of equipment, procedures, tasks and work environments through the lens of human factors to identify high potential for error, or high consequence issues if an error should occur

Assessments will focus on the high-risk areas of:

- Central venous catheter care and accessing
- Injection safety
- Environmental disinfection of the dialysis station
- Hand hygiene
- Other areas of infection prevention concern noted or as determined through discussion with CDC, such as the water preparation room; the medication preparation area; patient scales; and patient sink for washing vascular access.

These observations will culminate in a final report to CDC outlining limitations, conclusions, and recommendations to improve infection prevention practices in US dialysis centers. The final report will form the basis of at least one peer-reviewed manuscript that will inform the community about the findings of this project and the benefits of further study.

This exciting outgrowth of the initial scope of the NTDS project has the ability to fully incorporate improved infection prevention into the dialysis care system. Beyond dialysis, much of what we learn through this project may help improve other areas of patient care.



## Thank You, Volunteers

The NTDS project is built on the insights of a community that recognizes the need to improve dialysis safety. These insights could not be molded in a constructive direction without the tremendous contributions of the volunteer members of the Project Committee and Workgroups.

Thank you to the Centers for Disease Control and the American Society of Nephrology for ongoing support.

NTDS operates under the direction of its **Project Chair, Dr. Alan Kliger**, whose passion, knowledge, experience, and thoughtful guidance are a vital reason for NTDS' successes.

### Four Workgroups and a Task Force support NTDS:

Quality, Assessment, Improvement, & Education Workgroup	Current & Emerging Threats Workgroup	Training Programs Workgroup	State & Federal HAI Programs Workgroup	Vascular Access Task Force
<b>Leslie P. Wong, MD, MBA, FASN</b>	<b>T. Alp Ikizler, MD, FASN and John Boyce, MD</b>	<b>Sharon G. Adler, MD, FASN</b>	<b>Anitha Vijayan, MD, FASN</b>	<b>Michael Allon, MD</b>
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Jerry Jackson, MD, FACP	Paul Martin, MD	Gregory Gorman, MD, MHS	Eileen McHale, RN	Renee Garrick, MD, FACP, FASN
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Bradley A. Warady, MD	Paul M. Palevsky, MD, FASN	Marie Philipneri, MD, PhD	Quinetta Taylor	Leslie P. Wong, MD, MBA, FASN
Sally Hess, MPH, CIC	Priti Patel, MD, MPH (CDC liaison)	Sana Waheed, MD	Nicole Gualandi, MS/MPH, RN, CIC (CDC liaison)	Stephanie Booth, BSHCA (CDC liaison)
Nathaniel Reisinger, MD (NTDS Intern)	Ibironke Apata, MD (CDC liaison)	Ibironke Apata, MD (CDC liaison)		
Priti Patel, MD, MPH (CDC liaison)	Duc Nguyen, MD (CDC liaison)			

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