



2019 Annual Report
**Promoting Infection
Prevention in Dialysis Facilities**
July 2018 – July 2019



July 2019

Submitted by:
American Society of Nephrology
Nephrologists Transforming Dialysis Safety

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NTDS has learned that transforming a culture to target zero infections requires a three-pronged approach:

First, to share **evidence-based knowledge** of best practices; second, to support **inspirational leadership** to effect change; and third, to employ human factors engineering to **redesign infection prevention processes** to make them more intuitive in dialysis facilities.

Alan S. Klinger, MD
NTDS Project Chair

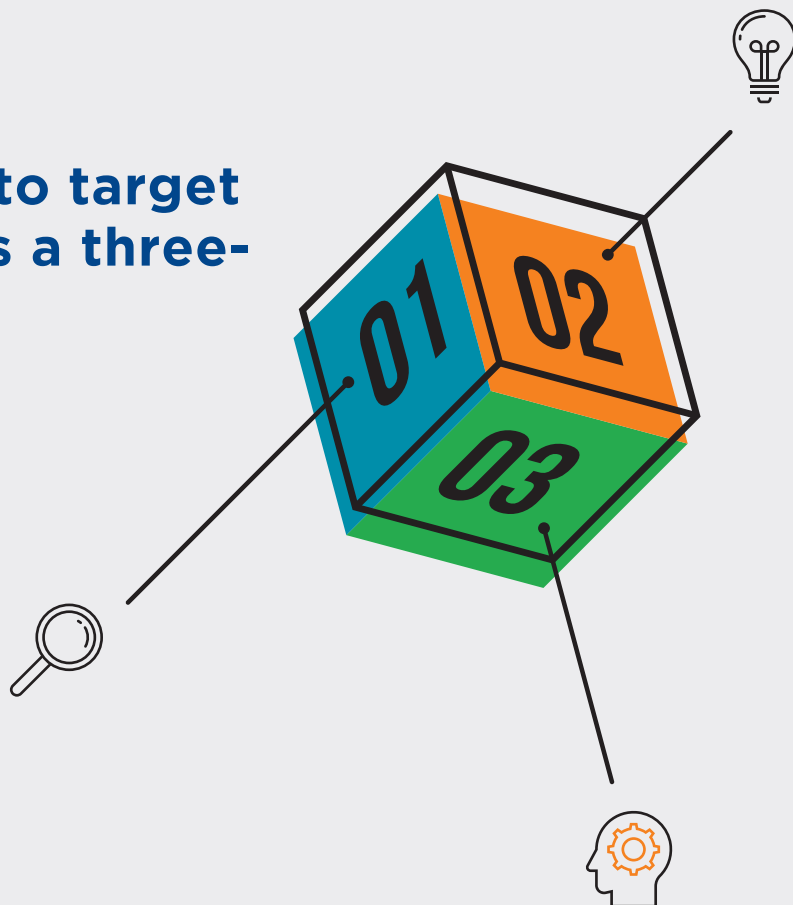


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NTDS Impact

The Centers for Disease Control and Prevention (CDC) awarded a contract to the American Society of Nephrology (ASN) in July 2016 to build on the programs CDC had created, aimed at preventing dialysis patient infections and improving patient safety. ASN is charged to engage nephrologists to improve:

- adherence to recommended infection prevention practices,
- screening and detection of infections,
- implementation of clinical protocols to ensure accurate detection and treatment, and
- collaboration with state and federal healthcare-associated infection prevention programs.

Under a contract modification received in May 2018, NTDS began to study the human factors that contribute to infection prevention practices.

The Nephrologists Transforming Dialysis Safety (NTDS) project team centered its initial work on engaging nephrologists and other members of the care team (to determine the most effective ways to target zero infections in dialysis), using ASN as a platform to reach the entire kidney community. This report details the impressive accomplishments that have resulted from these initial efforts and the ongoing work of NTDS.

With input from thousands of kidney professionals, NTDS has already made a lasting, positive impact on dialysis care. This remarkable influence is starting to change the culture of dialysis, nephrology, and kidney care.

In addition, the efforts of NTDS have improved many ASN initiatives. NTDS outreach has enhanced the society's engagement with clinicians across the United States. ASN policy staff have worked closely with NTDS leaders and staff to broaden advocacy efforts on behalf of all people with kidney diseases. ASN is developing a variety of leadership training resources, informed in large part by the work of NTDS leaders, volunteers, and partners. Finally, even the early stages of the NTDS human factors engineering pilots have demonstrated the immense promise of this exciting area of study.

ASN is proud of its association with CDC and the stellar work of NTDS leaders, volunteers, and staff.



Tod Ibrahim
Executive Vice President
American Society of Nephrology

From 2016-2019, NTDS Project Committee and Workgroup members have:

Reached
**>1 million
members**
of the kidney
community



Engaged with
**> 31,000
meeting
attendees**



Because of NTDS, ASN has:

1. Elevated engagement
with clinicians



2. Informed policy
initiatives



3. Created new
areas of focus

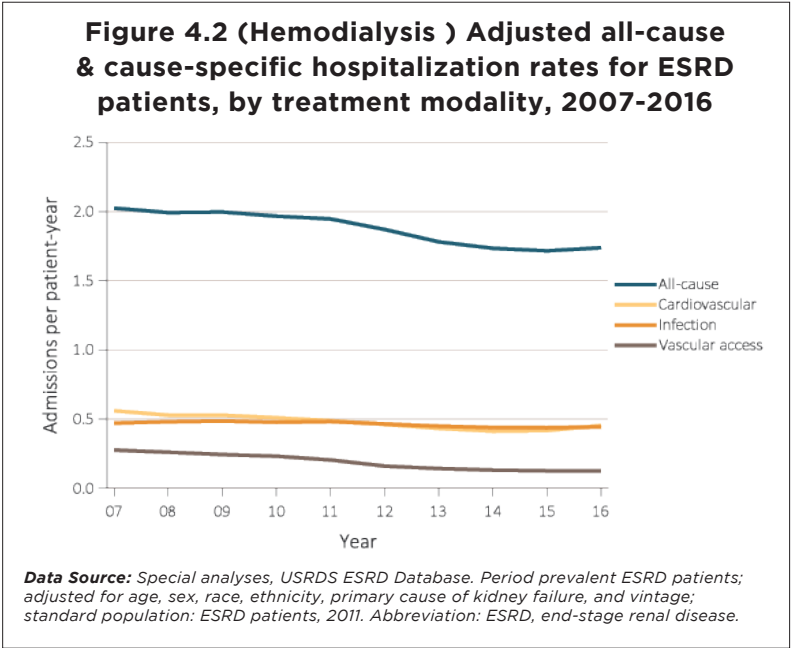


4. Improved care
for patients



Each year in the United States, more than 8,000 in-center hemodialysis patients die after experiencing sepsis or other serious infectious complications. United States Renal Data System (USRDS) data show that mortality of hemodialysis patients from infection is closely equivalent to cardiovascular-related mortality. The persistent challenge of infection in dialysis centers led CDC to fund the three-year agreement that launched NTDS.

In the third year of this contract, NTDS continued to expand its presence and reach in the kidney community. The multi-pronged approach launched in Year 1 has engaged dialysis medical directors, specialists in healthcare-associated infections (HAI), the full kidney care team, and many allied professionals. NTDS has become a vital resource in dialysis care, and an increasing number of kidney professionals and organizations seek assistance from NTDS to help them determine and apply the changes necessary to transform care.



NTDS has made contact with over 1 million people via publications, lectures, seminars, focus groups, webinars and social media.

Alan S. Kliger, MD
NTDS Project Chair



NTDS Year 3: Key Areas of Focus

Transforming dialysis culture requires leadership that prioritizes, values, and sustains critical prevention practices. To engage nephrologists to create lasting change and to embrace and implement new practices, NTDS developed a comprehensive infrastructure that encourages exchange with all stakeholders in dialysis care. NTDS continues to engage the community to identify barriers and opportunities that guide the NTDS Project Committee and Workgroups.

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. As a trusted agent in kidney care, NTDS has modified its focus from introducing NTDS and the challenge of infection control to supporting an increased level of engagement and a focus on areas beyond the scope of the original agreement, but still central to improving care for people on dialysis.

Key areas of focus in Year 3 of the contract include:

- Continuing the Targeting Zero Infections Educational Series
- Offering a fourth annual session and focus group at ASN's Kidney Week
- Promoting productive relationships between nephrologists and state and federal HAI professionals
- Providing ongoing education on the critical role of hand hygiene in preventing infections
- Promoting antibiotic stewardship in the dialysis setting through the development of precautions to prevent the transmission of C Difficile in out-patient dialysis facilities
- Developing analyses of, and community education on, current and emerging threats, including Multi-Drug Resistant Organisms (MDRO's)
- Informing the community through articles and a self-assessment program published in leading nephrology journals, including the Clinical Journal of the American Society of Nephrology (CJASN), American Journal of Kidney Diseases (AJKD), the Nephrology Self-Assessment Program (NephSAP), and others
- Using community forums to educate nephrologists on the key role of physician leadership
- Finalizing, distributing, and promoting tools developed to guide nephrologists and the kidney community; these tools include an infection prevention curriculum, Hepatitis C testing recommendations, and recommendations for standardization of blood culture collection for patients receiving in-center hemodialysis
- Developing electronic checklists and audit tools to reduce catheter-related blood stream infections (BSI) in dialysis facilities
- Partnering with experts in human factors engineering to perform outpatient dialysis facility assessments to identify barriers and facilitators to infection prevention

Transforming a Culture

Transforming a culture requires cumulative change. The NTDS strategy has built on each year's achievements and propelled positive, evolving changes that have improved dialysis care.



Engaging the Community

Through this project, CDC hopes to strengthen infection control practices in dialysis settings by communicating availability of the tools to a wider nephrology audience and engaging and recruiting the direct involvement of nephrologists as influential leaders.

CDC Solicitation #2015-N-17619

Responding to the Request for Proposal, ASN in 2016 noted “...the key risk associated with this project is resistance to adoption and adherence to best practices.” Through widespread and effective outreach, NTDS has armed nephrologists, and the full care team, with the tools and the desire to transform facilities from places that respond to infectious challenges to facilities that actively and purposefully control and prevent infection.

In Year 3, NTDS led 19 regional and national meetings on infection control in dialysis, reaching 10,462

professionals: nephrologists, pediatricians, medical directors, nurse managers, infection control experts, and more. NTDS supported 10 key presentations at Kidney Week 2018, and conducted an orientation and 6 on-site dialysis facility assessments for the Human Factors Engineering project.

reaching
10,462
professionals

ON-SITE ASSESSMENTS:

- Washington
- Missouri
- Louisiana
- Colorado
- Tennessee
- New York



NTDS Project Chair Alan S. Kliger, MD, leads a discussion during a dialysis facility assessment on how human factors engineering can improve dialysis care.

Human Factors Engineering: Designing Change

In the dialysis unit, staff members with diverse skill sets interact with one another and with complex patients with multiple comorbidities and with very complicated dialysis machines and other devices, ultimately to safely and efficiently deliver dialysis care. These complex interactions often present both barriers and facilitators to excellent team performance....Human factors engineers, specialists in assessing these complex environments, can help use evidence about human performance to redesign dialysis facility procedures to make them more intuitive and easier to accomplish.

Alan S. Kliger, MD
NTDS Project Chair

Making the Case

As detailed in Appendix 2, throughout the course of this project, NTDS volunteers and staff have been tireless engaging with nephrologists and other dedicated professionals. These in-person exchanges have been key to the success of this project: they have built sustained interest in, and support for, the leadership and enduring attention necessary to improve dialysis safety.

Regional and National Presentations	Attendees
Virginia: human factors presentation 08/23/18	25
APIC – North Carolina Chapter: Dialysis: How to identify improvement opportunities in inpatient and outpatient units (Durham, NC) 9/25/18	100
ID Week: Infection Control and Antimicrobial Stewardship in Dialysis Facilities Symposium session 10/5/18	100
Northwest Kidney Centers: human factors presentation 10/10/18	12
ANNA Missouri Chapter Conference: Targeting Zero Infection: Environmental Decontamination in Dialysis (Columbia, Missouri) 11/1/18	75
Missouri: Examining the Effect of Human Factors on Infection Prevention, 1/15/19	16
Northwest Kidney Centers: human factors presentation 1/28/19	17
Louisiana: human factors presentation 2/6/19	6
Renal Grand Rounds – Albert Einstein School of Medicine 2/28/19	25
Colorado: human factors presentation 3/6/19	6
Renal Grand Rounds – University of Pittsburgh School of Medicine 3/8/19	30
DaVita Medical Director Meeting 3/8/19	1075
APIC webinar: Targeting Zero Infections in Hemodialysis 3/14/19	672
Tennessee: human factors presentation 4/3/19	8
SCOPE Workgroup, Dallas – HFE presentation 4/4/19	75
2019 Blood Purification Forum (BPF) of the Chinese Society of Nephrology (CSN) 4/27/19	8000
New York: human factors presentation 05/07/19	20
CDC Making Dialysis Safer for Patients Coalition Meeting”, 6/25/19; Atlanta, Georgia	100
IPC in Dialysis: From Nephrologists to Patients, 6/14/19; Philadelphia, Pennsylvania	100
TOTAL	10,462

NTDS Presentations Kidney Week 2018	Attendees
ASN Council 10/23/18	17
ASN Executive Committee 10/24/18	20
Summit of US Kidney Organizations 10/24/18	56
Training Program Directors and Program Chiefs Joint Meeting 10/24/18	88
NTDS Focus Group Luncheon 10/25/18	39
ASN-TV interview 10/25 18	14,513 (total views)
Developing a Total Quality Improvement Program in the Dialysis Unit, 10/26/18	168
Novel Therapies for Vascular Access: Championing a Multidisciplinary, Patient-Centered Approach 10/25/18	686
NTDS Annual Session: 21st Century Killers: How Nephrologists Can Fight Back	180
TOTAL	15,767

Informing the Community

Informing the kidney community is critical to CDC and NTDS goals. NTDS leaders have published vital information in peer-reviewed journals, *ASN Kidney News*, and *Kidney News Online*. ASN has enhanced these publications by promoting NTDS initiatives and achievements in ASN In the Loop, on the front page of the ASN website, in broadcast emails, and in Kidney Week app alerts and other Kidney Week material.

Journal of the American Society of Nephrology editorial: Targeting Zero Infections in Dialysis: New Devices, Yes, but also Guidelines, Checklists, and a Culture of Safety (Dr. Kliger)

Kidney News: Promoting Productive Relationships Between Nephrologists and Public Health professionals (Anitha Vijayan, MD, FASN)

ASN and CDC's "Nephrologists Transforming Dialysis Safety" Team Up with Human Factors Engineers to Target Zero Infections in Hemodialysis (Dr. Kliger and Sarah Hendrickson Parker, PhD)

NephSAP: Infection Control and Prevention in Outpatient Hemodialysis Facilities (Eduardo (Jay-r) Lacson, Jr., MD, MPH, FACP, FASN and Dr. Kliger)

Seminars In Dialysis: Achieving Dialysis Safety: The Critical Role of Higher-Functioning Teams (Leslie P. Wong, MD, MBA, FASN)

Others: Promoting Infection Prevention in Dialysis Facilities: Hepatitis C Testing and Monitoring Algorithm (approved by CDC, and distributed on the NTDS website)

NTDS Commitment to Improve Dialysis Care – Update (John T. Milliken Department of Medicine – Division of Nephrology)

ASN and CDC's "Nephrologists Transforming Dialysis Safety" Team (*Medical Health News*)

Submitted:

Editorial: "Targeting Zero Infections in Hemodialysis" (Authors: Dr. Kliger and Renee Garrick, MD, FACP, FASN) (submitted to *AJKD* in May 2019)



393,006

Total reach



96% increase over previous year



230,214

Total impressions



79% increase over previous year

Providing Levers for Change to the Community

In Year 1 of this project, NTDS engaged leaders across the nation to analyze challenges in dialysis care and developed a comprehensive roadmap for transforming the culture surrounding infection control. NTDS built on that foundation in Year 2, increasing engagement at all levels and producing a variety of very well-received webinars and tools for dialysis professionals. Some of the tools developed this year are noted below.

In Year 3, NTDS focused on human factors engineering assessments, programs for state and federal HAI professionals, a special issue of NephSAP, Nephrology Training Program Curriculum, Hepatitis C Algorithm, Standardization of Blood Culture Collection for Patients Receiving In-Center Hemodialysis, Vascular Access Task Force, Methods of Preventing C-difficile Transmission in the Outpatient Dialysis Facility, a leadership initiative, and enhancing the NTDS Resource Library.

Human Factors Engineering Assessments. One onsite orientation and 6 onsite assessments were conducted in Year 3.

Experts in human factors engineering from Carilion Clinic at Virginia Tech worked with NTDS and CDC to observe how staff work in complex outpatient dialysis environments in order to identify barriers and facilitators to infection prevention in those settings and to propose solutions to make infection prevention more intuitive and easier to accomplish. A report is being prepared for CDC review.

Programs for State and Federal Healthcare-Associated Infection (HAI) Professionals.

Publication: Promoting Productive Relationships Between Nephrologists and Public Health Professionals. Anitha Vijayan, MD, FASN, *Kidney News Online*

The State & Federal HAI Workgroup presented for a webinar hosted by the Council of State and Territorial Epidemiologists (CSTE), and developed a web-based compendium of resources that is housed on the NTDS Resource Library website.

NephSAP Volume 18, Number 3, July 2019. Infection Control and Prevention in Outpatient Hemodialysis Facilities. Dr. Lacson and Dr. Kliger

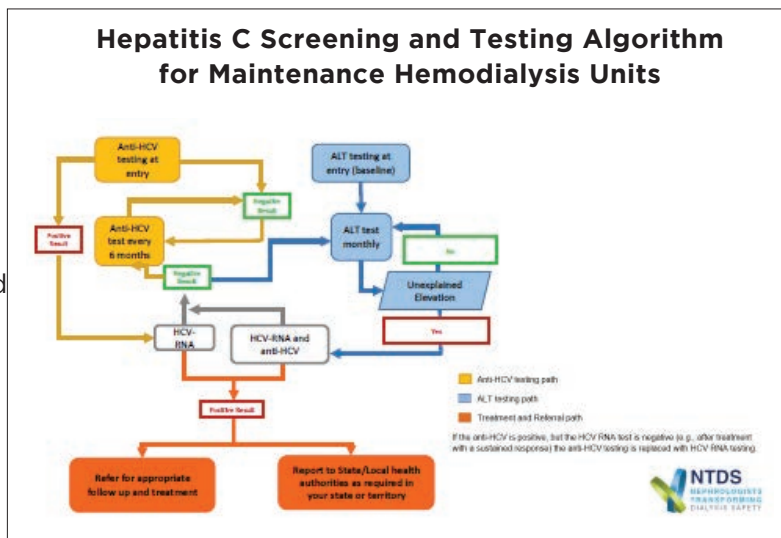
NephSAP is ASN's most popular member benefit. This issue presents the latest updates on key topics, including the roles of team members in addressing infection prevention and ensuring a culture of safety; universal precautions, such as safe injection practices and vaccination; environmental cleaning and disinfection; vascular access care; antimicrobial locks and caps; hepatitis B and C; MDROs; antibiotic stewardship; presentation of fever; and preparedness for emerging threats and disasters.

Nephrology Training Program Curriculum. Co-editors: Sharon G. Adler, MD, FASN, and Ibironke Apata, MD. (Pending CDC approval. Expected release: fall 2019)

This comprehensive curriculum centers on infection prevention in outpatient hemodialysis. It is a resource for training nephrology fellows, but with broad outreach to nephrologists and dialysis technicians and nurses. The curriculum is searchable and will be made freely available, after review by CDC, on the ASN website.

Hepatitis C Algorithm. Paul Martin, MD, and Paul Palevsky, MD, FASN. (Approved by CDC March 2019)

Preventing hepatitis C virus (HCV) transmission in dialysis units requires meticulous precautions to prevent contamination from body fluids. Prompt identification of HCV-infected patients is a key part of this strategy. The NTDS Current & Emerging Threats Workgroup, under the direction of Drs. Paul Martin and Paul Palevsky, developed this algorithm for the detection, prevention, and treatment of Hepatitis C for individuals on dialysis.



Standardization of Blood Culture Collection for Patients Receiving In-Center Hemodialysis. Alicia Neu, MD, and Kristina Bryant, MD. (pending CDC approval, expected release: fall 2019)

NTDS developed this document in response to requests from healthcare professionals engaged in outpatient hemodialysis care. The document seeks to provide an accessible summary of information from published guidelines, reports, and studies. It includes drafted protocols for obtaining blood cultures and communication tools, making the document a reference for dialysis facilities as they develop facility-specific procedures, policies, and protocols.

Using evidenced-based knowledge and the best available science, NTDS is committed to helping to protect dialysis patients and staff from current and emerging threats to their health and wellbeing.

T. Alp Ikizler, MD, FASN
Current and Emerging Threats Workgroup Chair

Vascular Access Task Force. Michael Allon, MD, lead:

The Task Force focuses on increasing observations of dialysis catheter connections, disconnections and exit site care, to improve infection prevention techniques during catheter care. The group plans to pilot an electronic version of CDC's catheter audit tools on several units to determine feasibility of the electronic version. Patients will be encouraged to complete the audits of their catheters to increase patient engagement in infection prevention.

Methods of Preventing C-difficile Transmission in the Outpatient Dialysis Facility. Erika D'Agata, MD, MPH, lead (CDC approval and publication expected in fall 2019)

As outpatient dialysis facilities are generally not equipped to handle C-difficile infections, a subcommittee composed of members of the NTDS Current & Emerging Threats Workgroup and community volunteers has formed to review and compile current recommendations. Members have divided into four groups focused on hand hygiene, contact precautions, environmental considerations, and educational resources for staff and patients.



Leadership Initiative. Dr. Wong and the Quality, Assessment, Improvement, and Education (QAIE) Workgroup (expected launch: fall 2019)

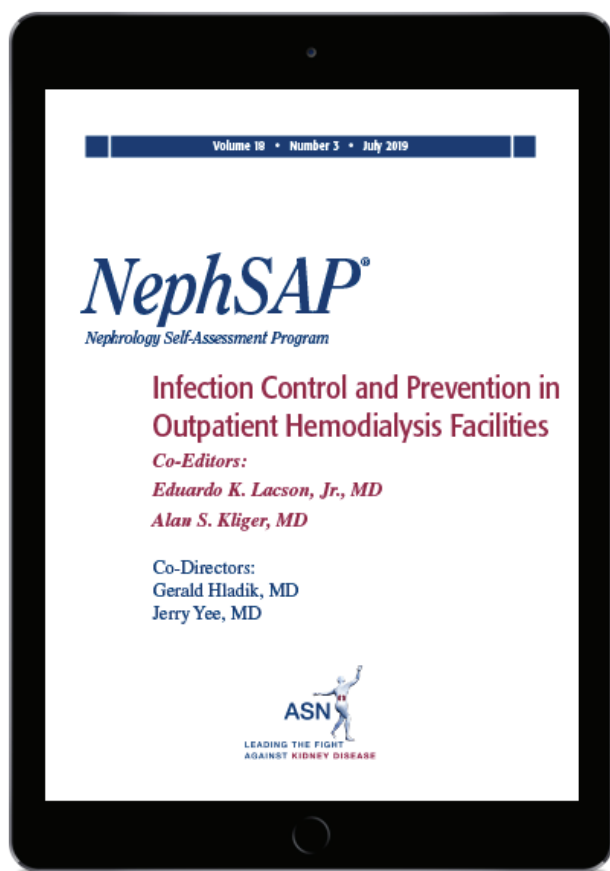
The QAIE Workgroup is designing a leadership academy for dialysis facility medical directors and nurse managers. The academy will emphasize that nephrologists must lead by example and will focus on leadership skills that are goal-directed, inspire commitment to patient safety, and create psychological safety and empowerment for all staff and patients.

NTDS Online Resource Library. With more than 200 assets, the NTDS Online Resource Library is valuable to the entire kidney community. In Year 3, three new categories were added to the library:

- HICPAC: Hospital Infection Control Practices Advisory Committee
- Ebola Resources
- Compendium of Infection Control and Prevention Resource (with 13 subcategories and 52 new resources)

Spotlight:

NephSAP Special Edition



The NephSAP special edition, “Infection Control and Prevention in Outpatient Hemodialysis Facilities,” was developed under the leadership of Dr. Lacson and Dr. Klinger. They led a team of 26 contributors, culled largely from the Training Programs Workgroup and CDC, to focus this issue on infections in patients undergoing maintenance hemodialysis. The prevalence of infection, and the high cost to patients in terms of safety and treatment, underscore the importance of improving care for patients in this realm.

NephSAP is one of the premier educational activities of ASN. It provides self-assessment, education and professional education credits. NephSAP disseminates updates on key topics in nephrology and challenging, clinically-oriented questions, to help clinicians assess their strengths and gain new knowledge.

NTDS 2016 - 2019

By the Numbers



33
Publications



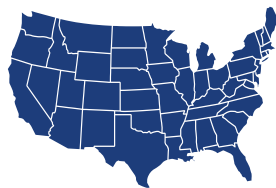
>41,000
NTDS website
views



>3,000
Webinar
attendees



>17,000
ASN Kidney Week
presentation
attendees



>15,000
Regional
and national
presentation
attendees



>706,000
Facebook reach
>437,000
Twitter
impressions



6
Human factors
dialysis facility visits



>250
Resource library
items

Looking Ahead

NTDS will continue to create positive change in the kidney community. Each of the initiatives below is an outgrowth of NTDS's success and of the expertise provided by CDC and NTDS leaders and staff. The interest this project has engendered among so many professionals focused on care for people with kidney failure portends a tremendous future for improving dialysis care and, therefore, kidney health.

This future will include the varied initiatives listed below, which will impact all members of the kidney care team:

Human Factors Assessments

- Plan additional human factors assessments in 2019/2020
- Data from the additional assessments will add to the analysis completed for the initial 6 dialysis facility assessments in 2019 to broaden the understanding of the impact humans and systems have on infection prevention

Leadership

- Leadership platform, including creating and presenting a one-day Kidney Leadership Academy at Northwest Kidney Centers in October 2019
- A whiteboard animation project demonstrating the importance of inspirational leadership
- Video vignette series on the power of mentors and physician leadership

Fellows' Curriculum

- An open access, searchable resource covering topics of paramount importance to infection prevention in outpatient hemodialysis facilities

Webinars (Targeting Zero Infections webinar series)

- Blood Culture Standardization
- Human Factors Assessment in Dialysis Facilities

Kidney Week 2019

- Is Dialysis Safe? A Critical Look at Hemodialysis and Peritoneal Dialysis in the United States (Thursday, November 7, 2019; 2:00 – 4:00 PM)
- Keeping the Bugs Away: Preventing, Diagnosis, and Treating Common Infections in the Dialysis Unit (Friday, November 8, 2019; 2:00 – 4:00 PM)

Current and Emerging Threats:

- Threats and the development of resources related to bloodborne pathogens, bloodstream infections, multi-drug resistant organisms, and the use of antibiotics.

Without leadership to organize people to work towards a shared goal, nothing happens. People won't naturally change behavior unless someone inspires them to. Leaders inspire others to follow by articulating a compelling reason for change and demonstrating the desired behaviors to those around them. People on teams look to leaders for direction, help or advice when faced with uncertainty. Nephrologists who recognize this and make an effort to provide leadership help promote communication, trust, and camaraderie among team members. In turn, this helps everyone work more effectively towards delivering the best care possible.

Leslie P. Wong, MD, MBA, FASN
QAIE Workgroup Chair



This comprehensive curriculum will prove an indispensable tool for nephrology fellows, as well as nephrologists and other members of the full care team. The learning concepts here will serve as a fulcrum for nurturing a culture of safety in dialysis facilities.

Sharon G. Adler, MD, FASN
Training Programs Workgroup Chair

Appendix 1: Milestones Completed

- Hold kick-off conference call with CDC
- Confirm staff project team
- Confirm Project Committee, including representative from CDC
- Hold first Project Committee meeting (in person)
- Finalize a plan for needs assessment
- Finalize implementation plan with CDC
- Establish an ASN Online Community
- Publish article in *ASN Kidney News*
- Submit one quarterly report
- Conduct focus groups at ASN Kidney Week 2016
- Launch a dedicated infection prevention webpage on ASN's website
- Offer first webinar in four-part series
- Initiate social media campaign
- Complete needs assessment
- Submit two quarterly reports
- Submit first annual report
- Distribute summary of annual report to ASN members, state health departments, and other stakeholders
- Provide a report based on the discussion during the annual retreat of nephrology fellowship training program directors on how to help programs meet ACGME requirements
- Offer second webinar in four-part series
- Hold second project committee meeting (in person)
- Update the Virtual Mentor Dialysis Curriculum
- Publish article in *ASN Kidney News*
- Submit two quarterly reports
- Conduct focus group at ASN Kidney Week 2017
- Execute early program during ASN Kidney Week 2017
- Execute two-hour session during annual meeting at ASN Kidney Week 2017
- Distribute ASN Kidney Week On-Demand capture of early program and two-hour session
- Offer third webinar in four-part series
- Submit two quarterly reports
- Submit second annual report
- Distribute summary of annual report to ASN members, state health departments and other stakeholders
- Publish article in *ASN Kidney News*
- Offer fourth webinar in four-part series
- Hold third Project Committee meeting (in person)
- Submit two quarterly reports
- Distribute "special issue" of NephSAP
- Conduct focus group at ASN Kidney Week 2018
- Execute dedicated two-hour session during annual meeting at ASN Kidney Week 2018
- Distribute ASN Kidney Week On Demand capture of two-hour session
- Share educational material with state health departments for their use and supplemental implementation
- Submit two quarterly reports and third annual report

Appendix 2: Meetings, Presentations, and Webinars

Year 1

Arizona Dept. of Health ESRD HAI Subcommittee Meeting
September 6, 2016

DCI Medical Director Conference
September 30, 2016

City-Wide Clinical Renal Conference
October 26, 2016

Nephrology Ground Rounds, Harbor-UCLA Medical Center
October 31, 2016

Nephrology Nursing Certification Commission
November 12, 2016

Kidney Week: presentation to Summit of US Kidney
Organizations
November 16, 2016

Kidney Week: presentation to Training Program Directors
and Program Chiefs
November 16, 2016

Kidney Week session: NTDS Town Hall
November 17, 2016

Kidney Week session: Data Session with DOPPS, PEER,
and USRDS
November 18, 2016

Kidney Week focus groups
November 17 and 19, 2016

SCOPE Collaborative
January 31, 2017

Network Coordinating Center (NCC) Discovery Event—
Antimicrobial Stewardship
March 30, 2017

American Nephrology Nurses Association (ANNA)
Symposium
April 7, 2017

Renal Grand Rounds, Washington University School of
Medicine
April 13, 2017

ESRD Network 10 Medical Review Board
May 19, 2017

NTDS Webinar: Targeting Zero Infections: Where Do We
Begin?
May 23, 2017

ESRD NCC HAI Learning & Action Network (LAN)
Discovery Event – Infection Prevention:
Leadership, Intervention, Results
June 20, 2017

Year 2

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

NTDS Webinar: MDRO's and Antimicrobial Stewardship
September 27, 2017

UCI Medical Center, Nephrology Fellow Grand Rounds
October 2, 2017

ESRD Network 5 Network Council Meeting
October 10, 2017

Kidney Week: presentation to ASN Council
October 31, 2017

Kidney Week early program: The Dialysis Infection Crisis in
the United States: A Call to Action
November 1, 2017

Kidney Week: presentation to Executive Committee
November 1, 2017

Kidney Week: presentation to Training Program Directors
and Division Chiefs
November 1, 2017

Kidney Week session: Preparing for and Responding to
Disasters: Lessons from Hurricanes Harvey, Irma, and Maria
November 3, 2017

Kidney Week session: Infection Prevention: Are You
Prepared for the Next Ebola?
November 3, 2017

Kidney Week focus groups (2)
November 2017

NYU Renal Grand Rounds
December 1, 2017

SCOPE Collaborative
January 12, 2018

Renal Research Institute (RRI) Annual Conference
February 2, 2018

QAPI and Infection Control
February 15, 2018

Annual Dialysis Conference (ADC)
March 2018

HAI/AR Grantees Meeting
March 20, 2018

NTDS Webinar: Infections Disease Reporting: State Requirements & Resources
March 29, 2018

National Kidney Foundation (NKF) Spring Clinical Meeting: Protecting Patients from Technological Harm
April 11, 2018

Grand Rounds, Mayo Clinic Jacksonville, Management of HCV in CKD
April 18, 2018

Fresenius Medical Care (FMC) East Medical Advisory Board
April 20, 2018

ANNA Meeting
May 2018

Dialysis Clinic, Inc. (DCI) Medical Directors' Meeting
May 18, 2018

Association for Professionals in Infection Control and Epidemiology (APIC)
June 2018

NTDS Webinar: Environmental Decontamination
June 18, 2018

Year 3

Charlottesville, VA human factors presentation
August 23, 2018

APIC NC. Dialysis: How to Identify Improvement Opportunities
9/25/18

ID Week: Infection Control and Antimicrobial Stewardship in Dialysis
10/5/18

Northwest Kidney Centers: human factors presentation
October 10, 2018

Kidney Week presentation to Council
October 23, 2018

Kidney Week presentation to ASN Executive Committee
October 24, 2018

Kidney Week presentation to Summit of US Kidney Organizations
October 24, 2018

Kidney Week presentation to TPDs and Division Chiefs
October 24, 2018

Kidney Week Focus Group
October 25, 2018

Kidney Week session: Novel therapies for vascular access
October 25, 2018

Kidney Week TV interview
October 25, 2018

Kidney Week session: TQI Program in Dialysis
October 26, 2018

NTDS annual session: 21st Century Killers: How Nephrologists Can Fight Back
October 26, 2018

ANNA Missouri. Targeting Zero Infections: Environmental Decontamination
November 1, 2018

Kansas City, MO: Examining Human Factors in Infection Prevention
January 15, 2019

Northwest Kidney Center: Human Factors Engineering
January 28, 2019

Shreveport, LA, human factors presentation
February 6, 2019

Albert Einstein School of Medicine: Renal Grand Rounds
February 28, 2019

Aurora, CO, human factors presentation
March 6, 2019
University of Pittsburgh Renal Grand Rounds
March 8, 2019

DaVita Directors Meeting
March 8, 2019

APIC Webinar: Targeting Zero Infections
March 14, 2019

Nashville, TN, human factors presentation
April 3, 2019

SCOPE Workgroup, Dallas: Human Factors Engineering
April 4, 2019

Chinese Society of Nephrology Blood Purification Forum
April 27, 2019

APIC meeting: IPC in Dialysis: From Nephrologists to Patients
June 14, 2019

CDC Making Dialysis Safer for Patients Coalition Meeting
June 25, 2019

Appendix 3: Publications

In three years, NTDS leaders have built an impressive body of published work that will provide lasting benefit to the professionals who care for patients with kidney diseases.

Year 1

KIDNEY NEWS

- *ASN, CDC Effort to Prevent Dialysis Infections Addressed at Kidney Week Town Hall (January 2017, Dawn McCoy)*
- *How to Make Handwashing a Fun Experience for Patients in the Dialysis Unit (Fellows' Corner feature, May 2017) (Cheng Chu, MD)*

KIDNEY NEWS ONLINE

Improving Dialysis Care: ASN Partners with CDC to Prevent Infections (Raymond C. Harris, MD, FASN)

- *Improving Dialysis Care: Nephrologists Transforming Dialysis Safety (Dr. Kliger)*
- *NTDS Town Hall Generates Interest at Kidney Week*
- *Leadership, Motivation, and Transformational Change: What's in It for Nephrologists? (February 2017) (Dr. Wong and George Aronoff, MD, MS, FACP)*
- *Improving Care for Children on Dialysis (February 2017) (Alicia Neu, MD, and Bradley A. Warady, MD)*
- *Announcement: Targeting Zero Infections: A NTDS Webinar Event on May 23 (Parts I and II) (April 2017) (Jerry Jackson, MD, FACP)*

NEPHROLOGY NEWS & ISSUES

- *Initiative Aims to Significantly Reduce Infection Rate in Dialysis Patients (November 2016) (Rebecca Zumoff)*
- *Putting HAI's, The Nephrologist at Center Stage (March 2017) (Dr. Kliger, Susie Stark, BA, Darlene Rodgers, BSN, RN, CNN, CPHQ)*

OTHER

- *Nephrology: Leadership, Motivation and Transformational Change: Leader suggests ways colleagues can stay engaged (Cleveland Clinic Consult QD)*

Year 2

KIDNEY NEWS

- *Stopping Preventable Infections in Dialysis (Dr. Kliger)*
- *Promoting Productive Relationships Between Nephrologists and Public Health Professionals (Dr. Vijayan)*

KIDNEY NEWS ONLINE

- *Targeting Zero Infections: Multi-Drug Resistant Organisms (MDROs) and Antimicrobial Stewardship in the Dialysis Facility (Bonnie Freshly, MEd, CMP; Ms. Stark, Dr. Agata, Ms Rodgers, Dr. Kliger);*
- *Targeting Zero Infections webinar – Infectious Disease Reporting: State Requirements and Resources (Dr. Vijayan, Dr. Kliger, Eileen McHale, BSN, RN, Ms. Stark, Ms. Rodgers, Ms. Freshly)*

CLINICAL JOURNAL OF THE AMERICAN SOCIETY OF NEPHROLOGY (CJASN)

- *Long Overdue Need to Reduce Infections with Hemodialysis* (Dr. Klinger and Allan J Collins, MD)
- *Five manuscripts in one issue of CJASN* (April 2018)
 - *Feature: Systems Thinking and Leadership: How Nephrologists Can Transform Dialysis Safety to Prevent Infections* (Dr. Wong)
 - *Perspectives*
 - *Urgent: Stop Preventable Infections Now* (Dr. Collins and Dr. Wong)
 - *Addressing the Problem of Multidrug-Resistant Organisms in Dialysis* (Dr. D'Agata)
 - *What We Learned from Ebola: Preparing Dialysis Units for the Next Outbreak* (John M. Boyce, MD, and Jeffrey L Hymes, MD)
 - *100% Use of Infection Control Procedures in Hemodialysis Facilities: Call to Action* (Dr. Vijayan and Dr. Boyce)

NEPHROLOGY NEWS & ISSUES

- *Motivating Nephrologists to Lead Infection Prevention* (interview with Dr. Wong and Dr. Klinger)

OTHERS

- Infection prevention section for the ASN Virtual Mentor Dialysis Curriculum
- Ebola Gap Analysis

Year 3

JOURNAL OF THE AMERICAN SOCIETY OF NEPHROLOGY (JASN)

- *Editorial: Targeting Zero Infections in Dialysis: New Devices, Yes, but also Guidelines, Checklists, and a Culture of Safety* (Dr. Klinger)

KIDNEY NEWS

- *Promoting Productive Relationships Between Nephrologists and Public Health Professionals* (Dr. Vijayan)
- *ASN and CDC's "Nephrologists Transforming Dialysis Safety" Team Up with Human Factors Engineers to Target Zero Infections in Hemodialysis* (Dr. Klinger and Dr. Parker)

SEMINARS IN DIALYSIS

- *Achieving Dialysis Safety: The Critical Role of Higher-Functioning Teams* (Dr. Wong)

OTHERS

- *Promoting Infection Prevention in Dialysis Facilities: Hepatitis C Testing and Monitoring Algorithm* (approved by CDC, and distributed on the NTDS website)
- *NTDS Commitment to Improve Dialysis Care - Update* (John T. Milliken Department of Medicine, Division of Nephrology)
- *ASN and CDC's "Nephrologists Transforming Dialysis Safety" Team* (Medical Health News)

Appendix 4: Volunteers and Staff

NTDS

Kenneth Abreo, MD	6/01/17 to present
Sharon G. Adler, MD, FASN	7/15/16 to present
Anupam Agarwal, MD, FASN	7/15/16 to 12/31/18
Michael Allon, MD	6/01/17 to present
George R. Aronoff, MD, MS, FACP, FASN	7/15/16 to 7/15/19
John M. Boyce, MD	7/15/16 to 7/15/19
Gregory L. Braden, MD	12/16/16 to present
Virginia (Ginnie) Bren, MPH, RN, CIC, FAPIC	6/01/18 to present
Kristina Bryant, MD	7/12/17 to present
Danilo Concepcion, CBNT, CCHT-A, FNKF	7/15/16 to present
Debbie Cote, MSN, RN, CNN, NE-BC	7/15/16 to present
David L. Cull, MD, MBA	6/01/17 to present
Erika D'Agata, MD, MPH	7/15/16 to present
Kim Deaver, RN	7/11/17 to 7/14/19
Brandi Esposito, RN	10/11/18 to 7/14/19
Renee Garrick, MD, FACP, FASN	11/22/17 to present
Gregory Gorman, MD, MHS, FAAP; CAPT, MC, USN	9/15/17 to 07/15/19
Raymond L. Heilman, MD	7/15/16 to 07/14/17
T. Alp Ikizler, MD, FASN	7/15/16 to present
Jerry Jackson, MD, FACP	7/15/16 to 12/31/18
Edward R. Jones, MD	7/15/16 to 12/31/18
Alan Kliger, MD	7/15/16 to present
Eduardo (Jay-r) Lacson, Jr., MD, MPH, FACP, FASN	1/01/17 to present
Eugene Livar, MD	7/15/16 to 05/16/17
Paul Martin, MD	7/15/16 to present
Eileen McHale, BSN, RN	10/10/17 to 7/15/19
Jason Mehr, MPH	10/10/17 to 07/15/19
Michele H. Mokrzycki, MD, MS	6/01/17 to present
Barbara T. Murphy, MB, BAO, B.Ch	1/1/18 to present
Alicia Neu, MD	7/15/16 to present
Paul Palevsky, MD, FASN	4/19/17 to present
Marie Philipneri, MD, PhD	8/12/17 to present
Nathaniel Reisinger, MD	2/15/17 to 12/31/17
Quinetta Taylor	1/01/18 to present
Leanna B. Tyshler, MD	7/15/19 to present
Anitha Vijayan, MD, FASN	7/15/16 to 7/15/19
Sana Waheed, MD	9/15/17 to present
Bradley A. Warady, MD	7/15/16 to present
Leslie P. Wong, MD, MBA, FASN	7/15/16 to present

CDC

Ibironke W. Apata, MD	7/15/16 to present
Nicole Gualandi, MS/MPH, RN, CIC, FAPIC	7/15/16 to present
Duc Nguyen, MD	7/15/16 to 7/15/19
Priti Patel, MD, MPH	7/15/16 to present

CONTRACTORS

Stephanie Booth, BSHCA	7/15/17 to present
Sally Hess, MPH, CIC	7/15/16 to 7/14/18

NTDS STAFF

Bonnie Freshly, MEd, CMP	7/15/16 to present
Kerry Leigh, BA, BSN	6/5/18 to present
Darlene Rodgers, BSN, RN, CNN, CPHQ	7/15/16 to present
Katie Rogers	9/26/16 to 2/15/18
Susan A. Stark	7/15/16 to present

By having an active role as a care team member, patients are able to work with staff and together they can change and improve the culture of decreasing infections in dialysis facilities.

Quinetta Taylor
Kidney Transplant Recipient

The tremendous success reflected in this report results from the willingness of so many kidney professionals to provide feedback and contribute to NTDS goals.

First and foremost, the volunteers who dedicated time and expertise to shaping, supporting and refining all NTDS projects have been key to the success of NTDS. All volunteers are listed in Appendix 4, and I am grateful to each of them for what they have taught all of us, and for the contributions each has made to improving care for people with kidney diseases.

NTDS staff created and supported an infrastructure that made it possible for us to meet every project milestone, and more. They seamlessly accommodated change and growth, and were tireless in moving this project from an idea to concrete success. The support and guidance from the kidney community, ASN, and CDC have improved every aspect of the NTDS project.

Alan S. Kliger, MD
NTDS Project Chair



American Society of Nephrology
Nephrologists Transforming Dialysis Safety
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