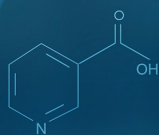


ANNUAL REPORT

# Promoting Infection Prevention in Dialysis Facilities

JULY 2019 – DECEMBER 2020



**SUBMITTED BY**

**American Society of Nephrology**

Nephrologists Transforming Dialysis Safety

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**PROJECT DIRECTOR**

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Contract # 200-2016-88832



**NTDS**

Transforming Dialysis Safety



**The COVID-19 pandemic has changed our lives. With no protective vaccine until the end of 2020, we needed to learn quickly about the virus and its effect on kidney patients, we needed new ways to keep our patients safe, and we needed powerful leadership to guide the way. This experience reinforced the mission of NTDS to target zero infections:**

**To share evidence-based knowledge of best practice**

**To support inspirational leadership to effect change, and**

**To redesign infection prevention processes to make them more effective.**



**Alan S. Kliger, MD**  
NTDS Project Chair

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## The Centers for Disease Control and Prevention (CDC) awarded a contract to the American Society of Nephrology (ASN) in July 2016 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.
- Collaboration with state and federal healthcare-associated infection prevention programs.

CDC expanded this foundation in May 2018, adding an initiative to understand the impact of human factors on the provision of safe and effective care in outpatient dialysis facilities.

These diverse areas of focus share the goal of reducing infection across the modalities of dialysis care. As the number of patients receiving dialysis treatment increases, the need to reduce the risk of infection becomes correspondingly critical.

To address these multifactored goals, ASN established the Nephrologists Transforming Dialysis Safety (NTDS) Project Committee, uniting nephrologists and other members of the nephrology care team, including patients, nurses, infection prevention specialists, and technicians. All these perspectives build crucial insights that improve the provision of care as complex as dialysis.

NTDS employs a wide array of communication approaches—including

**NTDS and ASN rose to the many challenges the COVID-19 pandemic presented, conveyed essential information, presented recommendations, exchanged best practices, and offered resources to the community.**

lectures, publications, webinars, focus groups, committees, and social media—to convey key information to reduce infection across the kidney care continuum. NTDS’s position within ASN has allowed it to reach thousands of health professionals, patients, and other stakeholders across the kidney community.

The past 18 months have presented extraordinary opportunities and challenges to NTDS, ASN, and the full health care community. An Executive Order on Advancing American Kidney Health (AAKH), issued in July 2019, focused on preventing kidney failure, increasing patient choice, and expanding access to transplant. This opened doors for NTDS’ efforts to improve care and options offered to people with kidney diseases.

The COVID-19 pandemic has profoundly affected health care—including the provision of dialysis services—highlighting the need for more stringent safety protocols, staffing and equipment shortages, and the rise in acute kidney injury in COVID-positive patients. The importance of infection prevention has never been clearer.

In 2020, as the pandemic shaped nearly every aspect of public health, the efforts of NTDS and the reach of ASN have proven even more vital. Although some aspects of the contract have had to be put on hold, due to pandemic-related travel restrictions, ASN has risen to the challenge presented by both the AAKH and the COVID-19 pandemic. Together, NTDS and ASN rose to the many challenges this crisis presented, conveyed essential information, presented recommendations, and exchanged best practices and offered resources to the community. With so much at stake, NTDS and its leaders contributed their expertise, ingenuity, and collaborative spirit to the provision of safe care in the most unprecedented of times. This is a charge that NTDS leaders embrace in partnership with other key areas within ASN, including policy and advocacy, and research, discovery, and innovation, as well as with key partners outside ASN.

ASN is proud of its association with the CDC, and will continue to advance the highest standards care delivery, whether that is routine or crisis care.



A handwritten signature in black ink, appearing to read 'JL Ibrahim'.

**Tod Ibrahim**  
*Executive Vice President*  
American Society of Nephrology



## KIDNEY DISEASE TODAY

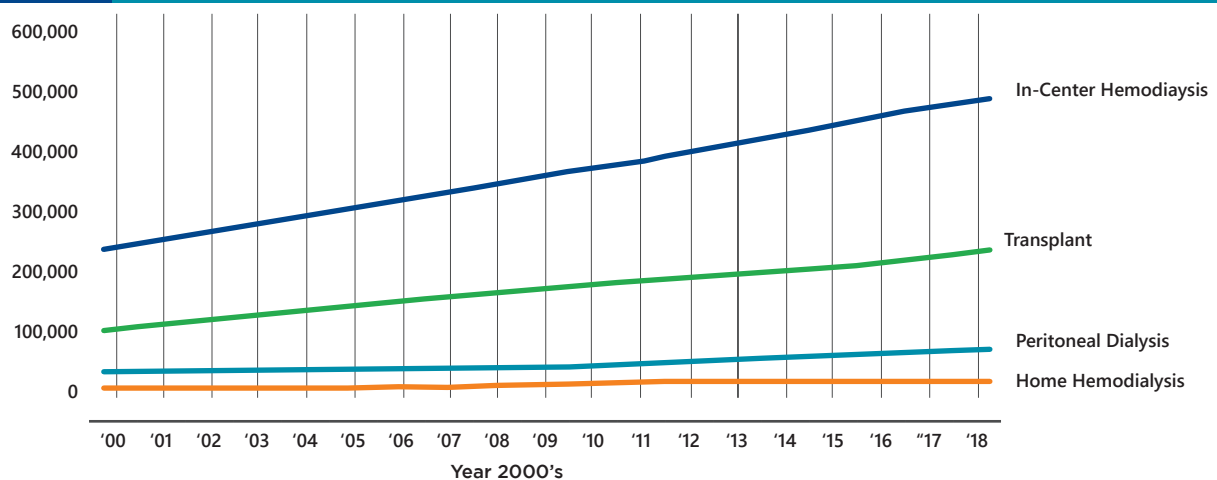
# Introduction

The prevalence of kidney disease in American society remains striking.

According to USRDS, “At the end of 2018, there were 485,052 patients undergoing in-center hemodialysis, up 2.3% from 2017. For the first time in U.S. history, there were more than 10,000 patients performing home hemodialysis at year’s end, with an increase of 8.8% between 2017 and 2018. The number of peritoneal dialysis patients increased to 58,636, representing 7.7% growth since 2017. Finally, the number of prevalent patients with a functioning transplant increased from 221,225 in 2017 to 229,887 in 2018, a year-over-year increase of 3.9%.<sup>1</sup>

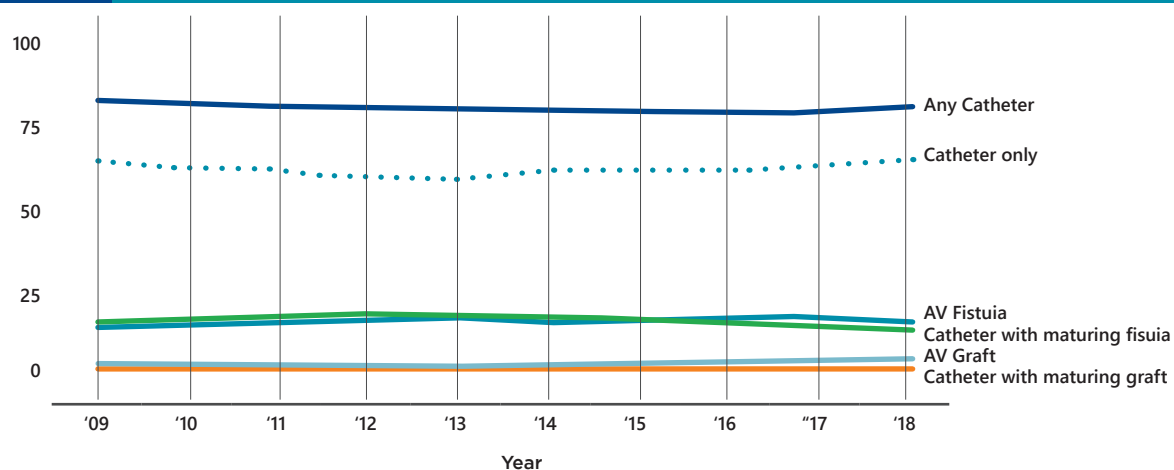
Additional data from USRDS show that in 2018, 80.8% of incident patients initiated hemodialysis with a catheter, 65.2% of all incident patients initiated with a catheter without another maturing access, and 17.6% of prevalent patients received hemodialysis with a catheter. The KDOQI Clinical Practice Guideline for Vascular Access 2019 Update states, “catheter-related infections alone have a reported incidence of 1.1 to 5.5 episodes per 1,000 CVC days”.<sup>2</sup>

**Figure 1** Number of prevalent ESRD patients, by modality, 2000–18



<sup>1</sup> Data Source: 2020 United States Renal Data System Annual Data Report, Figure 1.6

**Figure 2** Vascular access use at HD initiation, 2009–18



Data Source: 2020 United States Renal Data System Annual Data Report, Figure 3.1

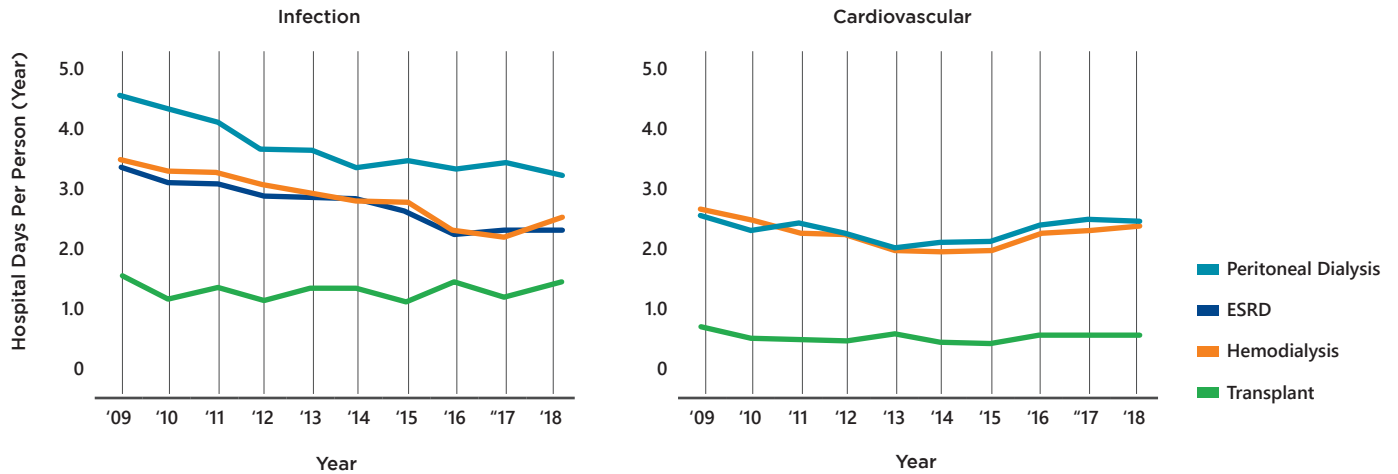
1.1 Source: Lok CE, Huber TS, Lee T, et al; KDOQI Vascular Access Guideline Work Group. KDOQI clinical practice guideline for vascular access: 2019 update. *Am J Kidney Dis.* 2020;75(4)(suppl 2):S1-S164.

As described by the USRDS, in 2018, “adjusted hospitalization days per person-year for infection-related causes were higher than for cardiovascular causes among all groups.”

The core purpose of NTDS, infection prevention in dialysis facilities, remains as relevant today as when the project was initiated in 2016.

**Figure 3**

**Adjusted hospital days for cardiovascular and infection-related causes per person-year among Medicare beneficiaries with ESRD, by modality, 2009-18**



Data source: USRDS Figure 4.7. ESRD database.  
Yearly period prevalent ESRD patients 2009-2018 covered by Medicare.  
Age, sex, race, ethnicity, and ESRD cause were used in adjusted analyses.

## NTDS YEAR FOUR

# Key Areas of Focus

NTDS has four workgroups: Vascular Access; Human Factors; Continuing & Emerging Threats (CET); and Quality, Assessment, Improvement, and Education (QAIE). These share responsibility for fulfilling CDC contract requirements.

During this reporting period, these Workgroups developed diverse resources, and extended NTDS' reach into the community via human factors assessments and engagement at the 2019 Kidney Week, the world's premier nephrology meeting. These resources fulfill contact requirements, and address essential needs identified by members of the nephrology care team.



### Focus Area

## Educational Highlights and Infection Prevention Resources

### Standardization of Blood Culture Collection for Patients Receiving In-Center Hemodialysis”, dated January 16, 2020; shared with the community on January 23, 2020

This document, developed by the CET Workgroup in response to requests from outpatient hemodialysis professionals, coalesces information from published guidelines, reports, and studies. It also provides sample protocols for obtaining blood cultures and communication tools. These resources advance the ability of dialysis facilities to develop facility-specific procedures, policies, and protocols.

### A Curriculum to Achieve Zero Preventable Infections

Focused on outpatient hemodialysis facilities staff, this online curriculum addresses key infection prevention techniques and patient safety concepts. It can be updated to reflect current knowledge and emerging topics of interest to the kidney community.

### Suggestions for the Prevention of *Clostridioides difficile* Spread Within Outpatient Hemodialysis Facilities

These best-practice examples help outpatient dialysis facilities prevent transmission of *Clostridioides difficile* infection (CDI). The recommendations fall into seven categories, including infection prevention and control measures, hand hygiene recommendations, personal protective equipment to be used when caring for a patient with confirmed or suspected CDI, physical placement for dialysis treatment for patients with CDI, recommendations for bathroom facilities, length of time to maintain precautions, and environmental disinfection.

### Electronic Catheter Checklist Pilot

CDC developed a list of nine core interventions proven to prevent bloodstream infections. These include ongoing assessment of competency and catheter access care observations and have been shown to improve outcomes. CDC provides on its website, audit tools and checklists which are available to be printed. The Vascular Access Workgroup developed an electronic version of the CDC chairside catheter audit tools and piloted the audit tools in seven outpatient dialysis facilities, to determine the feasibility of incorporating the electronic audit tools into practice. ASN hosted a post-pilot townhall and a writeup of the study will soon be published in *Kidney360*.

The image shows a sample of the electronic catheter checklist form. It is titled "Dialysis Care Checklist" and includes a "Required" section for "Who is observing the procedure?". The options are Technician, Nurse, Social Worker, Dietician, Physician, and PA/APRN. Below this is a "Procedure" section with options for Catheter Connection, Catheter Disconnection, Catheter Exit Site Care, Watch Proper Procedure videos, and View Checklist Results. The form also features the NTDS logo and the "MAKING DIALYSIS SAFER" logo.

Sample of the electronic catheter checklist



## Leadership Academy Pilot

In October 2019, NTDS partnered with Northwest Kidney Centers (NKC) in Seattle, Washington, to present the Kidney Leadership Academy. This onsite event connected the dyad of medical directors and nurse managers to advance effective clinical leadership partnerships that drive value and improvement.

With the onset of COVID-19 in early 2020, this leadership initiative pivoted to a virtual engagement, with three podinars conducted through December 2020. These three events addressed self-awareness and leading with your dyad partner. The concluding two podinars will address skills needed to lead others.

## Targeting Zero Webinar series

One of the feature components of the NTDS educational library is the Targeting Zero webinar series. During this reporting period, workgroups produced two additional webinars, available on the [ASN Learning Center](#).

*“Human Factors Engineering and its Application to Dialysis”: Tuesday, September 17, 2019*

Participants learn to define the science of human factors, explain an application of human factors engineering in healthcare, identify some of the human factors relative to infection prevention practices common in outpatient dialysis facilities, and evaluate these considerations locally.

*“The Importance of Blood Culture Collection in the Outpatient Dialysis Facility: Thursday, July 9, 2020*

Designed in response to requests from outpatient hemodialysis professionals, this webinar summarizes published guidelines, reports, and studies. It also provides sample protocols for obtaining blood cultures and communication tools. The information advances the ability of dialysis facilities to develop facility-specific procedures, policies, and protocols.

## Online Learning Module

### Managing Infections in an Outpatient Dialysis Facility

This tool presents core infection prevention and patient safety concepts in a case-based format. The self-paced 90-minute module presents core concepts via video, audio files, and text. The module was created in Articulate: Rise 360, a platform which allows the user access via multiple devices, and includes knowledge checks to ensure learner retention of key concepts.



The Importance of Blood Culture Collection  
in the Outpatient Dialysis Facility  
*Thursday, July 9, 2020*



## Focus Area

### Dialysis Outpatient Facility Human Factors Assessments

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, to identify barriers and facilitators to infection prevention and propose solutions that make infection prevention easier and more intuitive. Focus areas of the assessments included observations of catheter care, medication injection, environmental disinfection, and hand hygiene.

After completing six human factors assessments in year one, the engineers described their findings related to infection prevention activities in outpatient dialysis in a final report:

*“The current process is complex, surpassing human capabilities and augmenting human limitations.”*

Complexities included frequent interruptions and alarms during infection prevention tasks, and task-stacking (stacking multiple different tasks on top of one another).

The human factors engineers found the concept of “clean vs. dirty” to be a barrier to maintaining aseptic technique, since interpretations of “clean” vs “dirty” varied among staff. This is further complicated by the fact that the classification of an area or item may change during the course of a procedure.

Informed by their year one assessments, the human factors experts adjusted their methods. In year two, instead of capturing data throughout the unit at random, they followed individual patients and describe their data in the context of a complete patient interaction. Link analyses illustrated how people move about the station as they work. A link analysis is a visual map that illustrates tasks, motions and times to perform procedures. In a link analysis, the user draws a visual map of the physical space and then draw lines that follow the human from one step to another. Experts interviewed staff at all facility levels, asking them to describe what is “clean” and what is “dirty” to better understand differences in interpretation that impact infection prevention.

NTDS presented findings to each of the two facilities that participated in year two. A final report from year two is delayed, pending two additional assessments postponed during this reporting period due to the COVID-19 pandemic.



## Focus Area

### Kidney Week

Kidney Week is the world’s premier nephrology meeting, with in-person attendance averaging 13,000 participants from more than 100 countries. As part of ASN, NTDS is uniquely situated to interact with a vast audience of kidney professionals, including nephrologists, fellows, researchers, scientists, other members of the care team, and patients.

Each year since its inception, NTDS has presented an annual session during which experts discuss a topical infection-related issue. In 2019, NTDS secured two additional opportunities to convene kidney community members on infection prevention topics. These sessions are outlined below.

## 2019 Kidney Week

Date	Session	Attendees
11/07/2019	NTDS Focus Group	50
11/07/2019	NTDS Annual Session: Is Dialysis Safe? A Critical Look at Hemodialysis and Peritoneal Dialysis in the United States	279
11/08/2019	Infection Prevention Session: Keeping the Bugs Away: Preventing, Diagnosis, and Treating Common Infections in the Dialysis Unit	260

## 2020 Kidney Week

Due to travel restrictions necessitated by the COVID-19 pandemic, the 2020 Kidney Week pivoted to an all-virtual learning event, “Kidney Week Reimagined”. Since its inception, NTDS has produced an annual session addressing focal topics in infection prevention, and supplemental sessions that provide additional opportunities to engage the kidney community on infection-related issues.

The data below represent unique users who logged in to the virtual Kidney Week Reimagined platform to access infection- and pandemic-related sessions.

*Attendees accessed the sessions between their live air dates and December 4, 2020.*

Date	Session	Attendees
10/22/20	COVID-19 Kidney Week Session: Critical Illness and AKI in COVID-19: What Have We Learned?	1,459
10/23/20	NTDS Kidney Week Annual Session: Transforming Dialysis, Work Systems, and Culture	251
10/23/20	COVID-19 Kidney Week Session: Adapting Practice to a Pandemic: Focus on Home Dialysis and Kidney Transplantation	382
10/25/20	COVID-19 Kidney Week Session: COVID-19: The Pandemic and the Outpatient Dialysis Setting	297

# NTDS July 2019 - December 2020

## By the Numbers



**31**

NTDS volunteers engaged



**52**

COVID-19 Response Team and subcommittee members



**2**

Human factors facility assessments



**589**

ASN Kidney Week presentation attendees in 2019



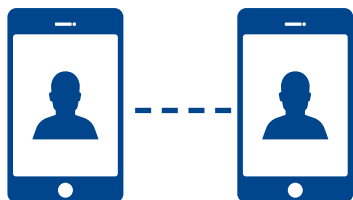
**2,389**

ASN Kidney Week presentation attendees in 2020



**11,752**

Attendees of COVID-19 webinars



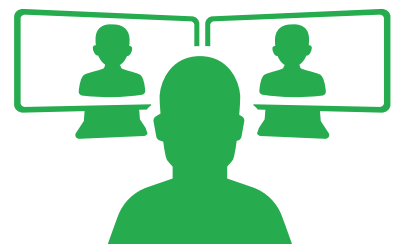
**266**

Human factors webinar attendees



**389**

Blood culture webinar attendees



**2,500**

Online learning module views

## SPOTLIGHT COVID-19

On February 28, 2020, Northwest Kidney Centers in Seattle was notified that one of their dialysis patients died in a local hospital. This individual was the first reported patient in the country to die from COVID-19.

This initiated a rapid pursuit for any and all information related to COVID-19. Soon health care providers in the hardest hit areas, particularly in New York City, were inundated with patients with this virus, about which so little was known.

In the early days of the pandemic's impact in the United States, on March 13, 2020, ASN launched a COVID-19 Response Team to identify and develop information, consult with experts to provide recommendations, and offer avenues of communication so experiences and effective practices could be shared. This Response Team, co-chaired by Drs. Alan Kliger and Jeffrey Silberzweig, collaborated with liaisons at CDC on COVID-19 preparation and guidance for dialysis facilities and the greater kidney community. During this reporting period, the Response Team included nephrologists, infectious disease physicians, nurses, and a patient representative. Members included:

Alan Kliger, MD, *Co-Chair*

Jeff Silberzweig, MD, FASN, *Co-Chair*

Kristina Bryant, MD

Debbie Cote, MSN, RN, CNN

Alp Ikizler, MD, FASN

Michelle Josephson, MD, FASN

Vineeta Kumar, MD

Nicole Lurie, MD

Elizabeth McNamara, MN, RN

Jeff Perl, MD

Glenda Roberts

Matthew Sinclair, MD

Anitha Vijayan, MD, FASN

As the pandemic evolved and more information was accrued, the Response Team developed four subcommittees to address the impact of the virus on kidney patients in four distinct areas of kidney care. These subcommittees, and their Chairs, are:

**Outpatient Dialysis:** Jeffrey Silberzweig, MD, *Chair*

**In-Hospital Dialysis:** Anitha Vijayan, MD, *Chair*

**Home Dialysis:** Jeffrey Perl, MD, *Chair*

**Transplant:** Michelle Josephson, MD and Vineeta Kumar, MD, *Chairs*

In the early days of the pandemic, education and communication were primary objectives of the Response Team. To meet these needs, the Response Team implemented a multi-pronged strategy for information-sharing.

## COVID-19 Webpage

[www.ASN-online.org/covid-19/](http://www.ASN-online.org/covid-19/)

The home page of the ASN/NTDS COVID-19 website provided a spotlight for information of notes and upcoming educational events. And links to care recommendations, resources and policy-related information.

These links addressed:

- [CMS Guidance and Resources](#)
- [CDC Resources and Recommendations](#)
- [ASN Resources and Recommendations](#)
- [Publications](#)
- [Other Health Care Organizations including Professional Organizations](#)
- [Vaccination](#)
- [ASN/HHS COVID-19 Scarce Resources Roundtable and Summary Report](#)

## Recommendations

Compiled and published recommendations for [Information for Screening and Management of COVID-19 in the Outpatient Dialysis Facility](#) (posted on February 28, with updates on March 4, and March 13) with input and approval from CDC colleagues.

Compiled and published [Recommendations on the Care of Hospitalized Patients with COVID-19 and Kidney Failure Requiring Renal Replacement Therapy](#) with input and approval from the CDC. (posted March 21)

## Awareness Posters

ASN staff created an Awareness Poster in [English](#) and [Spanish](#) for dialysis facilities to post on the entrance to their facilities asking people with a fever or signs of respiratory infection to put on a mask and notify staff.

## Mental Health Resources

A Mental Health Resources table was developed using information submitted by members of the COVID-19 Response Team and researched by staff. The table identifies name/ title, source, date, description including length, comments and links if applicable. This resource is available on the [ASN COVID-19 website](#) and was highlighted in a webinar produced in collaboration with the American Nephrology Nurses Association (Surviving COVID-19: Mental Health Support for Kidney Disease Professionals).



Awareness Posters that was created by ASN staff to post at the entrance of facilities.

Click icon to access the video “Surviving COVID-19: Mental Health Support for Kidney Disease Professionals.”



## Dialysis Company Chief Medical Officer (CMO) Calls

Response Team leaders organized and conduct regular calls with dialysis company CMOs (with CDC representation) to share experiences and collaborate on responses.

Calls are held Wednesdays at 10:00 a.m. ET.

The CMOs determined that it was critically important to share information between company leaders and provide information to professionals treating patients.

## COVID-19 Toolkit for Nephrology Clinicians

### Preparing for a Surge

In response to the increasing COVID-19 spread across the United States, the ASN COVID-19 Response Team curated recommendations from nephrology professionals who were on the front lines early in the COVID-19 pandemic. The information and resources contained in the toolkit address general considerations across nephrology care settings, outpatient dialysis, dialysis in the acute setting, urgent start peritoneal dialysis, home dialysis, and the care of the transplant patient. The toolkit can be found at [www.asn-online.org/covid-19/toolkit](http://www.asn-online.org/covid-19/toolkit).

## Webinar Series and Other Presentations

The Response Team organized a series of one-hour educational webinars for kidney professionals. The webinars are described below in the appendix. Recorded versions can be found at [www.asn-online.org/covid-19/ASN#Webinars](http://www.asn-online.org/covid-19/ASN#Webinars) (Appendix B)

## Twitter Chat

ASN hosted a live “COVID-19 and Kidney Disease Twitter Chat” with NephJC (an informal Twitter group) on March 17, 2020. The Twitter chat included 255 participants and over 4 million impressions.

## Communication

Using its multiple communications channels (email, social media, member communities, and other resources) ASN provides information to the kidney community, policy makers, and others interested in kidney health. NTDS efforts include:

- Daily monitoring of the CDC, CMS, ASPR, NRAA, and the FMC Kidney Care Community websites
- Daily monitoring of social media sites
- Participating in ongoing calls with KCER

## Publications

As the pandemic evolved, ASN COVID-19 Response Team members contributed to the developing body of knowledge through 14 publications. Articles were accepted by numerous peer-reviewed and community journals, including the *New England Journal of Medicine*, *CJASN*, *Kidney360*, *Kidney News*, *Kidney International*, *ASAIO*, *AJKD*, *JASN*, and *Kidney News Online*. (Appendix B)

# COVID-19 Dashboard

## By the Numbers

The NTDS staff collected data and assembled it into a functional dashboard. The information below charts our findings between March 1, 2020, and December 31, 2020.



**>56,000**

ASN COVID-19  
website visits



**47,300**

ASN COVID-19  
-related podcasts  
downloaded



**5,600**

NTDS COVID-19  
dialysis facility  
posters downloaded



**32,800**

ASN FAQs and  
Acute Kidney  
Injury documents  
downloaded



**11,700**

Webinar attendees  
**35,100**  
Webinar recording  
views

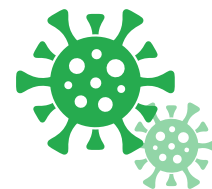


**>600**

Preparing for a Surge  
Toolkit visits within  
48 hours of posting

**4,800**

Total visits



**17**

COVID-19-related-  
webinars produced  
in 2020

## Internal and external ASN partners coordinate and broaden COVID-19 messaging capability:

### Policy and Advocacy

*Coordinate with CMS to:*

- Develop waivers
- Address telehealth
- Provide guidance and relief for quality reporting
- Clarify the need for dialysis access placement and maintenance as an essential service
- Survey the in-hospital subcommittee and AKI!Now steering committee to determine RRT supply needs and ICU occupancy rates (4/11/20)

*Worked with New York City (NYC) hospital systems to address critical shortages of renal replacement therapy (RRT) supplies and nursing staff*

- Convened calls with representatives of NYC hospital systems to determine what supplies are in short supply
- Developed a data collection system to quantify shortages
- Contacted Baxter and NxStage to advise the critical nature of supply shortages and determine how to fulfill needs

### US Health and Human Services (HHS)

*ASN/HHS COVID-19 Scarce Resources Roundtable and Summary Report*

- ASN teamed with ASPR, CMS, FDA, DOD and CDC to address scarce resources of dialysis nurses, equipment and supplies throughout the United States in preparation for predicted COVID-19 waves. An invitation-only series of two roundtable discussions with acute kidney injury (AKI) experts and government representatives was held on July 28 and 30, 2020. The sessions identified promising practices and helped educate the AKI community for the anticipated next waves of COVID-19 and influenza in the fall.

## Other partnerships include:

### Workforce and Training

Education for Fellows and trainees, including research into mental health resources.

### American College of Emergency Physicians

Developed a Joint Statement on the appropriate use of emergency departments during the COVID-19 pandemic.

### Society of Critical Care Medicine

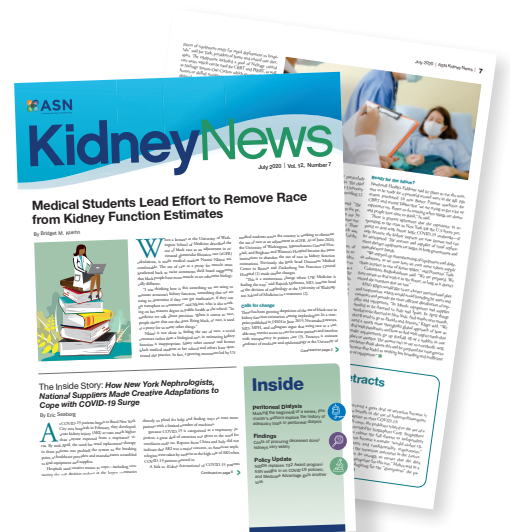
Harmonized care paths for patients hospitalized with COVID-19 in need of renal replacement therapy.

### Food and Drug Administration (FDA)

Helped address the need for additional dialysis-related equipment for the COVID-19 response.

### National Kidney Foundation

Co-authored a statement from the ASN and NKF Presidents regarding access to critical care for patients with CKD, including those on dialysis. This was sent to the National Governor's Association.



Kidney News  
July 2020

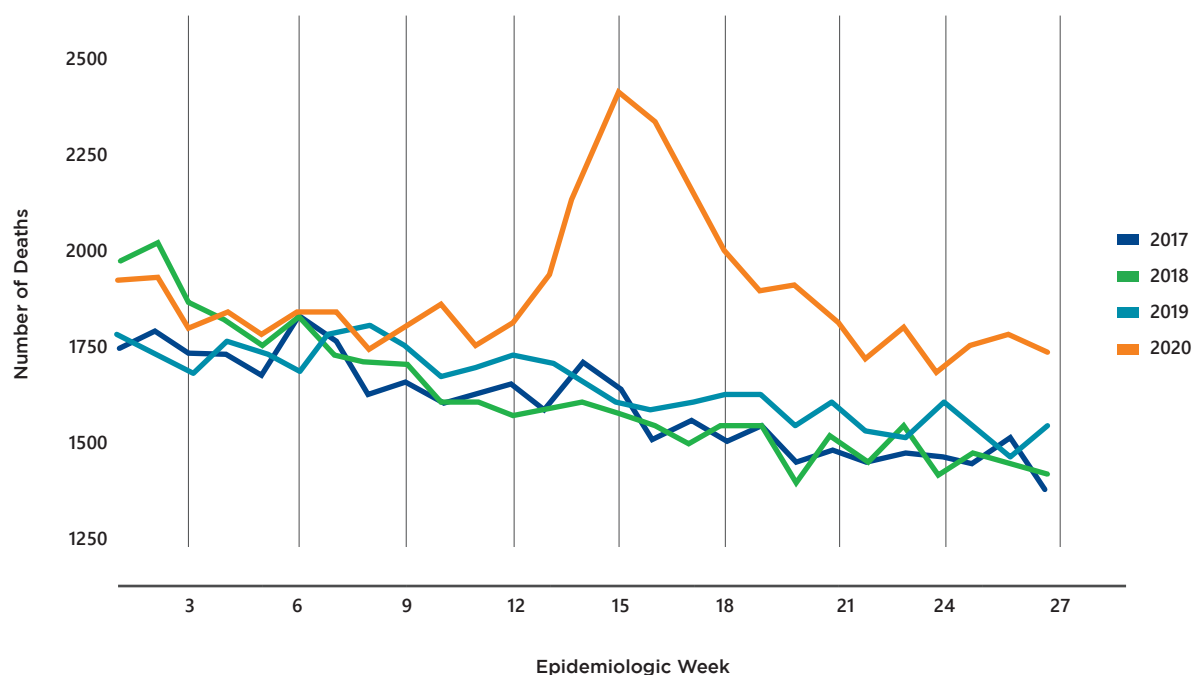
## THE IMPACT OF COVID-19 ON Dialysis Patients

All-cause mortality is displayed in Figure 4. Compared with 2017-2019, mortality among patients undergoing dialysis and patients with a functioning kidney transplant was unremarkable during the first 12 weeks of 2020. Beginning in week 13, rates of death were highly elevated in both patient populations. Among patients undergoing dialysis, mortality peaked during week 15 at a rate of 4.2 deaths per 1000 patients per week. Among patients with a functioning kidney transplant, mortality peaked between weeks 14 and 16 at a rate of nearly 1.0 deaths per 1000 patients per week.

From week 14 to week 17, all-cause mortality among all patients receiving dialysis in 2020 was 37% higher than during the same period in 2017-2019; from week 18 to week 27, all-cause mortality was 16% higher in 2020 versus 2017-2019.

From week 14 to week 17, all-cause mortality among patients with a functioning transplant in 2020 was 61% higher than during the same period in 2017-2019; from week 18 to week 27, all-cause mortality was 26% higher in 2020 versus 2017-2019.<sup>2</sup>

**Figure 4** All-cause mortality during epidemiologic (Week 1 to Week 27, 2017 – 20), among all prevalent patients undergoing dialysis or with a functioning transplant



Data Source: CMS 2020 Q2 Renal Management Information System (REMIS) extract. The cohort included prevalent ESRD patients at the beginning of each epidemiologic week. Deaths were ascertained from both REMIS and the Medicare Enrollment Database.

2.] United States Renal Data System. 2020 *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, 2020. Chapter 13. COVID-19 Supplement.

## COVID-19: Vaccination begins

On December 12, 2020, the US Food and Drug Administration awarded emergency approval to a coronavirus vaccine developed by Pfizer and BioNTech, the first drug to prevent COVID-19 approved in the US. Pfizer's vaccine was approved on December 11, 2020. Following the subsequent approval of a similar vaccine from Moderna (December 18, 2020), the Response Team proposed a slate of actions to ensure that patients receiving dialysis and their care providers be awarded access to the vaccine as quickly as possible. Priority vaccination is critically important for patients undergoing dialysis. Given the realities of dialysis treatment, which takes place in an enclosed space, typically three times per week for four hours per treatment, both patients and staff remain at high risk for exposure. In addition, mortality for dialysis patients with COVID-19 averages between 17% and 20% (Presentation and Outcomes of Patients with ESKD and COVID-19. Anthony M. Valeri, Shelief Y. Robbins-Juarez, Jacob S. Stevens, Woojin Ahn, Maya K. Rao, Jai Radhakrishnan, Ali G. Gharavi, Sumit Mohan and S. Ali Husain *JASN* July 2020, 31 (7) 1409-1415; DOI) [doi.org/10.1681/ASN.2020040470](https://doi.org/10.1681/ASN.2020040470).

Dialysis facilities, which have established protocols for administering influenza vaccine to a high percentage (75.2% according to 2018 USRDS) of patients annually, are well-positioned to safely and efficiently administer approved vaccines for COVID-19.

In pursuit of rapid vaccination for patients receiving dialysis, and for their care providers, the COVID-19 Response Team contributed to a letter written by the ASN Policy Team, submitted to Jose R Romero, MD, the Chair of CDC's Advisory Committee on Immunization Practices (ACIP). This letter called for higher prioritization for patients with kidney diseases, who are among those most vulnerable to COVID-19 (letter date: December 18, 2020).

The Response Team has also coordinated a collaboration between nine patient and provider organizations in the kidney community to present a webinar entitled, "Safety and Efficacy of the COVID-19 Vaccines in the Dialysis Population". This webinar will take place on January 7, 2021.

Though the recent and expected vaccine approvals offer great hope for the future, the response to COVID-19's impact on provision of dialysis care will continue well into 2021. The ASN COVID-19 Response Team and Subcommittees will continue to coordinate and exchange resources for the kidney community including resource development and management, additional COVID-19 themed webinars (and other educational offerings), publications, and collaboration with internal ASN teams and with external medical organizations and associations.



Patient receiving his vaccination.

## THE FUTURE OF NTDS

# What Lies Ahead

The next CDC contract cycle became effective on September 21, 2020. Significant alignment exists between the requirements of the next contract and the current reporting period. NTDS will continue to study applications for human factors engineering in dialysis settings, including home dialysis, produce two case-based learning modules using the self-paced online learning platform, and develop a patient safety tool for patients on dialysis. Highlights of these enterprises are outlined below.

To ensure that these contract requirements are fulfilled in accordance with needs identified by the full spectrum of kidney community members, NTDS seats a Project Committee comprised of nephrologists, infectious disease experts, experts in hepatology and vascular surgery, nephrology nurses and technicians, and an individual with kidney disease. This Project Committee is diverse in geography, unit size, demographics of their patient populations, and in expertise. Many Project Committee members have contributed to NTDS since its creation in 2016; this continuity is balanced by the continued infusion of new members who bring fresh contributions and perspectives.

Through all its initiatives, NTDS Workgroups and staff will pursue engagement of the kidney community, advancing excellence in infection prevention strategies across the care spectrum for patients with kidney diseases and their care partners.

### Human Factors

- Two additional outpatient dialysis onsite assessments were postponed in the spring of 2020 due to the pandemic and will be rescheduled when travel is possible.
- NTDS will continue to work with CDC and human factors engineers from Virginia Tech Carilion Clinic to complete four assessments of home dialysis programs, focused on peritoneal dialysis.
- Each of the home dialysis assessments will include observation in at least three patient homes.
- Telehealth options will be considered for virtual assessments.



At home digital video call with doctor.



## Educational Highlights and Infection-Prevention Resources

### Case-based learning modules

The CET Workgroup will create an online learning module focused on the core issues related to Antibiotic Prescribing in the Outpatient Dialysis Facility.

The Vascular Access Workgroup will devise a module that outlines the role of vascular access as a strategy to reduce infection in dialysis patients. This module will include perspectives from a patient with kidney disease and a vascular access surgeon.

### Infection prevention and patient safety training tool

The QAIE Workgroup will lead the development of this case-based tool. Partners within the community of kidney patient organizations will be identified to assist with determining the focus and topic of greatest need for patients with kidney diseases.

### Targeting Zero webinar series

Two 60-minute educational webinars will be produced for the kidney community, with CE made available for physicians and nurses. The first will address the management of *Clostridioides difficile* in the outpatient dialysis facility. The QAIE Workgroup will conduct an environmental scan to determine the topic of greatest interest to present in the second webinar.

### Electronic responsive form

The Vascular Access Workgroup will continue to improve the electronic checklists by adding CDC's hand hygiene and environmental disinfection checklists to the tool. The checklists will also be modified to include the patient as an observer.

### Engaging with the Kidney Community

Since NTDS was created, volunteers have engaged with the kidney community through numerous platforms, including national and regional meetings, webinars, focus groups, publications, and social media. COVID-19 has forced a change in how people interact with one another – most notably, a sharp decrease in the number of in-person interactions, and an atmospheric rise in online, or virtual, environments.

The current production of FDA-approved COVID-19 vaccines will hopefully hasten the end of the pandemic. Even so, it is expected that the virtual interactions to which we've all become accustomed are here to stay. NTDS will continue to produce publications, virtual presentations and national webinars, and advance the use of online learning modules, which facilitate learner utility at the learner's speed and convenience. As appropriate, NTDS will resume its in-person interactions, and return to the work of human factors assessments which require onsite facility access. NTDS will also continue to promote key infection-related content at Kidney Week 2021.

**NTDS will continue to produce infection prevention-related publications, virtual presentations and national webinars, and advance the use of online learning modules, which facilitate learner utility at the learner's speed and convenience.**

# Appendices

## Appendix A

### NTDS Webinars, Community Presentations, and Publications

#### Targeting Zero Infections Webinars Series

September 17, 2019 - *NTDS Targeting Zero Infections Webinar Series: Human Factors Engineering and its Application to Dialysis.*

July 9, 2020 - *NTDS Targeting Zero Infections: Standardizing the Blood Culture Collection Process in Outpatient Dialysis*

#### NTDS-Northwest Kidney Centers Leadership Series

October 12, 2019 - *ASN/NKC Pop-up Leadership Academy*

June 18, 2020 - *ASN/NKC Leadership Series Podinar 1: Your Leadership Wheel in Action*

August 20, 2020 - *ASN/NKC Leadership Series Podinar 2: Recognizing & Responding to Triggers*

October 1, 2020 - *Upgrading Your Leadership Operating System Podinar 3: Collaborative Leadership*

#### Community Presentations

- NKF 2020 Virtual Spring Clinical Meetings  
Sarah Henrickson Parker, PhD  
March 27, 2020
- “What the COVID-19 Means for Kidney Patients”  
Alan Kliger, MD and Shannon Novosad, MD  
March 13, 2020, Dialysis Patient Citizens webinar
- “The COVID-19 Explosion: Lessons from New York – What Kidney Patients Should Know”  
Alan Kliger, MD; Michele Mokrzycki, MD; and Deep Sharma, MD  
April 7, 2020; Dialysis Patient Citizens webinar
- “Nephrologists Transforming Dialysis Safety”  
Alan Kliger, MD  
August 2020; University of Washington
- “Bugs and Beans: Infection Prevention in the Dialysis Center”  
Kristina Bryant, MD  
October 22, 2020; IDWeek 2020 (joint annual meeting of the Infectious Diseases Society of America (IDSA), Society for Healthcare Epidemiology of America (SHEA), the HIV Medical Association (HIVMA), the Pediatric Infectious Diseases Society (PIDS), and the Society of Infectious Diseases Pharmacists (SIDP))
- “Hot Topics in Pediatric Infection Prevention”  
Kristina Bryant, MD  
ID week, October 22, 2020
- “How Are Nephrologists Transforming Dialysis Safety?”  
Leslie P. Wong, MD, MBA  
ID week, October 22, 2020

#### Infection Prevention Publications

- Buttonhole Cannulation of Arteriovenous Fistulas in the United States  
Tushar J. Vachharajani, Leslie Wong, Vandana D. Niyyar, Kenneth D. Abreo, Michele H. Mokrzycki. *Kidney360* Apr 2020, 1 (4) 306-313; DOI: 10.34067/KID.0000052020
- Buttonhole Cannulation of Arteriovenous Fistulas: A Prickly Problem  
Michele H. Mokrzycki *Kidney News* July 2020, 12 (7) 14-15.

## Appendix B

### COVID-19 Webinars, Publications, and Media

Click icon to access the webinar series recordings, descriptions, slides and speaker bios.

#### Webinars

- March 11, 2020 - COVID-19 Information Webinar for Providers of Dialysis Services
- March 26, 2020 - CDC Recommendations and Policy Updates for Current Challenges in the Dialysis Setting
- April 2, 2020 - Hospital Care and Treatment Options for COVID-19 Positive Patients with ESKD and AKI
- April 9, 2020 - COVID-19: Considerations in the Home Dialysis Setting
- April 16, 2020 - COVID-19 International Roundtable: Recommendations and Lessons Learned
- April 21, 2020 - COVID-19 Associated AKI Recognition and Management (*In collaboration with AKI!Now*)
- April 23, 2020 - Kidney Transplantation: Report from the Front Lines, Immunosuppression Management, and the Status of Living and Deceased Donor Programs.
- April 30, 2020 - Overcoming Challenges to the Provision of Acute Dialysis for COVID-19 Positive Patients
- May 7, 2020 - Dialysis After Discharge: Transitions of Care for COVID-19 Positive Patients
- May 14, 2020 - Surviving COVID-19: Mental Health Support for Kidney Disease Professionals (*In collaboration with ANNA*)
- May 21, 2020 - The provision of Dialysis for Patients Post-COVID Diagnosis
- June 3, 2020 - COVID-19 and the Kidney (*In collaboration with the Indian Society of Nephrology*)
- June 16, 2020 - AKI Roundtable: The Kidney/Lung Connection and Fluid Management in COVID-19
- June 23, 2020 - Roundtable: Telehealth for Kidney Care Beyond COVID-19
- July 16, 2020 - Roundtable: Multisystem Inflammatory Syndrome in Children
- July 28, 2020 - American Society of Nephrology-Health and Human Services COVID-19 Scarce Resources Roundtable Session 1
- July 29, 2020 - American Society of Nephrology-Health and Human Services COVID-19 Scarce Resources Roundtable Session 2

#### Response team presentations in other educational sessions

- Dr. Alan Kliger and Dr. Shannon Novosad from CDC presented on an educational webinar for Dialysis Patient Citizens on March 13, 2020.
- Dr. Alan Kliger and Dr. Michele Mokrzycki presented “*The COVID-19 Explosion, Lessons from New York. What Kidney Patients Should Know*” on an education webinar for Dialysis Patient Citizens on April 7, 2020.
- Dr. Alan Kliger presented with Emily Blumberg on the AAKP 2020 Annual Global Summit on July 17, 2020 “*Coronavirus: Kidney Community Stakeholder Response to Global Pandemic*”.
- Dr. Jeffrey Silberzweig presented on the AAKP Healthline Coronavirus webinar, “*COVID-19: Kidney Patient Planning for a Safe Holiday Season*” on November 17, 2020.

## Publications

- Developing Covid-19 Vaccines at Pandemic Speed (*NEJM*; Nicole Lurie, M.D., M.S.P.H., Melanie Saville, M.D., Richard Hatchett)
- On the Frontline of the COVID-19 Outbreak (*CJASN*; Suzanne Watnick, MD, FASN and Elizabeth McNamara, RN)
- Mitigating Risk of COVID-19 in Dialysis Facilities (*CJASN*; Alan S. Kliger, MD and Jeffrey Silberzweig, MD)
- Management of Hemodialysis with Suspected or Confirmed COVID-19 Infection: Perspective of Two Nephrologists in the United States (*Kidney360*; Michele H. Mokrzycki and Maria Coco)
- At Home: Considerations in the Care of Patients Receiving Home Dialysis During the COVID-19 Pandemic: A Statement from the ASN COVID-19 Response Team (*Kidney News* May 2020 (Vol. 12, Number 5); Jeffrey Perl, Alan S. Kliger, Martin J. Schreiber and the ASN-COVID-19 Response Team, Home Dialysis Subcommittee)
- Managing the COVID-19 Pandemic: International Comparisons in Dialysis Patients (*Kidney International*; Alan S. Kliger, MD, Mario Cozzolino, MD, PhD, FERA, FASN, Vivekanand Jha, MD, Glenda Harbert, RN, CNN, CPHQ, T. Alp Ikizler, MD)
- Peritoneal Dialysis for Acute Kidney Injury Treatment in the United States: Brought to You by the COVID-19 Pandemic (*Kidney360* May 2020; Vesh Srivatana, Vikram Aggarwal, Fredric O. Finkelstein, Mihran Naljayan, John H. Crabtree and Jeffrey Perl)
- “Acute kidney Injury in COVID-19: Pathophysiology and Management”
- Post-COVID Care: Adaptions and Shortcomings – *Kidney News*
- Renal Considerations in COVID-19 Patients – ASAIO
- Telehealth for Home Dialysis in COVID-19 and Beyond: A Perspective From the American Society of Nephrology COVID-19 Home Dialysis Subcommittee (*AJKD*, September 27, 2020)
- Perspective: Increasing Peritoneal Dialysis Utilization In Response to The COVID-19 Pandemic: Will It Go Viral? (*JASN*, September 2020 Edwina A. Brown and Jeffrey Perl)
- “Challenges and opportunities in timely and functioning PD access, a Perspective from the ASN COVID-19 Home Dialysis Subcommittee” (anticipated to appear in *CJASN*; Matt Oliver, MD)
- “Prioritizing COVID-19 Vaccination in Dialysis” (*Kidney News Online*, December 14, 2020; Thomas H. Watson, Daniel E. Weiner, Jerry Yee, and Jeffrey Silberzweig for the Outpatient Dialysis Subcommittee of the ASN COVID-19 Response Team)

### Media: COVID-19 Response Team members and volunteers (a representative sample)

- Washington Post: Hospital Workers Battling Coronavirus Turn to Bandannas, Sports Goggles and Homemade Face Shields Amid Shortages (March 19, 2020)
- Washington Post - Dialysis patients are at high risk during Covid-19 outbreak (March 24, 2020)
- NY Times: Dialysis Patients Face Close-Up Risk From Coronavirus (April 11, 2020)
- Rheumatology Network - Specialty Physicians Weigh in on the State of Practice After COVID-19 (April 14, 2020)
- Washington Post - Coronavirus destroys lungs. But doctors are finding its damage in kidneys, hearts and elsewhere. (April 15, 2020)
- Politico - U.S. races to stock up on dialysis supplies as kidney failure ravages virus patients (April 15, 2020)
- JAMA: Finding Ways to Reduce Coronavirus Exposure During Dialysis (April 16, 2020)
- The City NYC - A Scramble for Dialysis Supplies in NYC as COVID-19 Attacks Kidneys (April 17, 2020)
- NY Times - An Overlooked, Possibly Fatal Coronavirus Crisis: A Dire Need for Kidney Dialysis (April 18, 2020)
- NY Times: Coronavirus Crisis: A Dire Need for Kidney Dialysis (April 18, 2020)
- PBS News Hour - Why doctors are worried about severe kidney damage in some COVID-19 patients (April 21, 2020)
- ABC News - As doctors see coronavirus-kidney link, worry grows over dialysis machines (April 22, 2020)
- Medscape Medical News: Advice for Managing Acute Kidney Injury in COVID-19 Patients (April 23, 2020)
- 3WTKR: Some of the Sickest COVID-19 Patients Having Kidney Problems (April 24, 2020)
- The Commonwealth Fund: Protecting Patients with Compromised Kidney Function During the Pandemic and Beyond (April 29, 2020)
- NY Times: A Life and Death Battle: 4 Days of Kidney Failure but No Dialysis (May 1, 2020)
- Nephrology News and Issues: COVID-19 plans are admirable, but be prepared to change course (May 12, 2020)
- Chicago PBS station (public radio: WBEZ) (May 26, 2020)
- CNBC: High odds severe Covid-19 can lead to kidney injury or failure, medical studies reveal (August 3, 2020)
- The Philadelphia Inquirer: The coronavirus is damaging kidneys. Doctors worry that some survivors will need dialysis forever. (August 23, 2020)

## Appendix C

### NTDS Volunteers and Staff

#### NTDS

Kenneth Abreo, MD	6/01/17 to present
Sharon G. Adler, MD, FASN	7/15/16 to present
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
Raghu V. Durvasula, MD	7/15/19 to present
Renee Garrick, MD, FACP, FASN	11/22/17 to present
T. Alp Ikizler, MD, FASN	7/15/16 to present
Tracey Y. Jonelis, MD	10/07/20 to November 2020
Michele A. Josephson, MD, FASN	04/07/20 to 12/31/20
Orly F. Kohn, MD	11/19/20 to present
Alan Kliger, MD	7/15/16 to present
Eduardo (Jay-r) Lacson, Jr., MD, MPH, FACP, FASN	1/01/17 to present
Paul Martin, MD	7/15/16 to present
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
Vandana Dua Niyar, MD, FASN	7/15/19 to present
Paul Palevsky, MD, FASN	4/19/17 to present
Marie Philipneri, MD, PhD	8/12/17 to present
Matthew R. Sinclair, MD	10/07/20 to present
Nicole S. Stankus, MD, MS, FASN	10/07/20 to present
Quinetta Taylor	1/01/18 to present
Tushar J. Vachharajani, MD, FASN	7/15/19 to present
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
Priti Patel, MD, MPH	7/15/16 to 10/08/20
Shannon Novosad, MD, MPH	8/01/19 to present
Lauren Moccia	10/07/20 to present
Ashley Wadley	12/20 to present

#### Contractor

Stephanie Booth, BSHCA, CHHT, CIC	7/15/17 to present
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#### NTDS Staff

Bonnie Freshly, MEd, CMP	7/15/16 to present
Matthew Howard	7/01/19 to present
Kerry Leigh, BSN, RN	6/5/18 to present
Darlene Rodgers, BSN, RN, CNN, CPHQ	7/15/16 to present
Javier Rivera	2/1/20 to present
Susan A. Stark	7/15/16 to present



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**In 2020, as the pandemic shaped nearly every aspect of public health, the efforts of NTDS and the reach of ASN have proven even more vital. Together, NTDS and ASN rose to the many challenges this crisis presented, conveyed essential information, presented recommendations, exchanged best practices, and offered resources to the community. With so much at stake, NTDS and its leaders contributed their expertise, ingenuity, and collaborative spirit to the provision of safe care in the most unprecedented of times.**

**Tod Ibrahim**  
*Executive Vice President*  
American Society of Nephrology



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