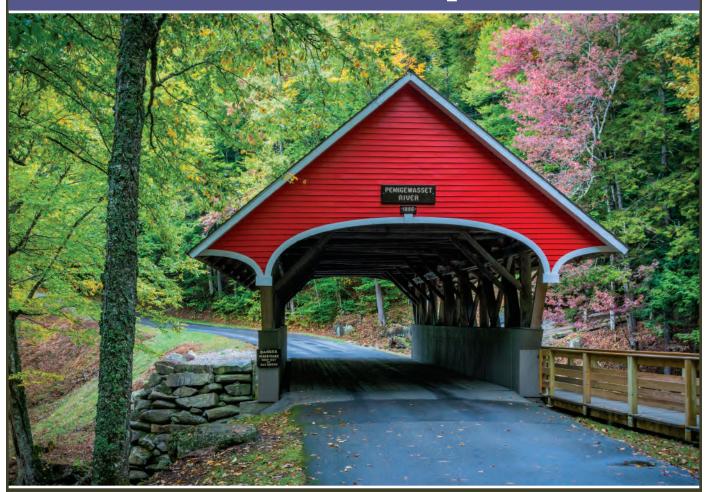


# **End-Stage Renal Disease Network of New England**

# 2016 Annual Report



Pemigewasset River Bridge in Franconia Notch State Park Lincoln, New Hampshire

June 2017 Prepared by: IPRO ESRD Network of New England esrd.ipro.org

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# REPORT HIGHLIGHTS

The IPRO End-Stage Renal Disease (ESRD) Network of New England (Network 1) is funded by the federal government to promote the provision of healthcare that is safe, effective, efficient, patient-centered, timely, and equitable for all ESRD patients in the six New England states. To achieve this goal, Network staff members work with providers, patients, and other stakeholders toward improving care, engaging and empowering patients as consumers, and conducting activities consistent with the National Quality Strategy's three broad aims and the Centers for Medicare & Medicaid Services' (CMS) priorities for the ESRD Network Program:

- Better care for the individual through beneficiary and family centered care;
- Better health for the ESRD population; and
- Reducing costs of ESRD care by improving care.

Throughout 2016, the Network continued to demonstrate efficacy and leadership in promoting the integration of these priorities in the care of patients living with ESRD. To that end, the Network strived to achieve direct engagement with the community by fostering opportunities to promote patient- and family-centered care at the facility level. Patient Subject Matter Experts (SMEs) actively participated in the design of educational campaigns and quality improvement activities (QIAs). The Network conducted several successful initiatives designed to educate and empower patients to take an active role in their care. Among these initiatives were:

- The Improving Patient Experience of Care QIA, *ACT Now*, was conducted with a goal to decrease the number of patient grievances filed at facilities in the Network's service area, which can be easily mitigated as per CMS guidelines. These types of grievances included environmental, interpersonal, and operational concerns. To help ensure that patients felt capable and comfortable in addressing these types of issues at the facility, Network staff educated dialysis staff in 12 target facilities on ways to proactively work with patients to resolve concerns before they become grievances. Through this effort the Network anticipated that facility staff would be better prepared to handle quality of care and access to care issues, and support a more effective and efficient grievance process at the facility-level. Network staff also engaged patient SMEs at the target facilities to help improve communication among the patients and the facility staff. The Network's interventions resulted in a 3.17 percentage point improvement in the types of grievance that were easily mitigated, from 7.08% at baseline to 3.91% at re-measurement. For detailed information, please see page 9.
- The Healthcare-Associated Infections (HAI) Learning and Action Network (LAN) focused on patient safety in dialysis facilities, with specific attention to reducing rates of healthcare-

associated infections (HAIs). LAN membership, which included patient SMEs, concentrated their efforts on identifying best practices, barriers, and opportunities for improving quality. The Network targeted 42 facilities in the service area to conduct the Centers for Disease Control and Prevention (CDC) prevention audits. CDC protocols required that facilities conduct a minimum of 30 hand hygiene observations, 10 catheter connection/disconnection observations, and 10 fistula/graft cannulation observations. Target facilities reported the number of successful completed audits to the Network. Patients participated in facility observation audits when possible. As a result of HAI LAN initiatives, the rate of bloodstream infections reduced by 0.42 percentage points in target facilities, exceeding the 5% improvement goal, from 1.15% at baseline to 0.73% at re-measurement. For detailed information, please see page 12.

• For the Population Health Innovation Pilot Project, the Network launched a program to promote transplantation as a viable treatment modality for qualified patients, with the goal of improving the overall transplant referral rate for the eligible ESRD in-center hemodialysis patient population by five percentage points and decreasing the identified racial disparity for African American vs. white patients by at least one percentage point. In addition to educating patients about the quality of life benefits of transplant so that they may serve as ambassadors/peer mentors, Network staff worked with dialysis facility staff to improve the facility's referral process. These efforts focused on eliminating confusion about eligibility and reducing referral delays. This project resulted in an overall 11.7 percentage point increase in the number of patients referred for transplantation at the target facilities (from 11.1% at baseline to 22.8% at re-measurement). In addition, the rate of African American patients at the target facilities referred for transplantation improved by 19.7 percentage points, from 7.3% at baseline to 27.0% at re-measurement; thereby eliminating the identified disparity in the 12 target facilities. The Network exceeded the improvement goals outlined in the project plan for both measures. For detailed information, please see page 14.

# INTRODUCTION

#### CMS' End Stage Renal Disease Network Organization Program

The End Stage Renal Disease Network Organization Program (ESRD Network Program) is a national quality improvement program funded by the Centers for Medicare & Medicaid Services (CMS). CMS is a federal agency, part of the U.S. Department of Health and Human Services.

CMS defines end stage renal disease (ESRD) as permanent kidney failure in an individual who requires dialysis or kidney transplantation to sustain life.

Under contract with CMS, 18 ESRD Network Organizations, or ESRD Networks, carry out a range of activities to improve the quality of care for individuals with ESRD. The 18 ESRD Networks serve the 50 states, the District of Columbia, Puerto Rico, the Virgin Islands, American Samoa, Guam, and the Northern Mariana Islands.

## Medicare Coverage for Individuals with ESRD

Medicare coverage was extended to most ESRD patients in the U.S. under the Social Security Act Amendments of 1972 (Public Law 92-603). Individuals with irreversible kidney failure are eligible for Medicare if they need regular dialysis or have had a kidney transplant <u>and</u> they meet (or their spouse or parent meets) certain work history requirements under the Social Security program, the railroad retirement system, or federal employment.

# History of CMS' ESRD Network Organization Program

Following passage of the 1972 Amendments to the Social Security Act, in response to the need for effective coordination of ESRD care, hospitals, and other health care facilities were organized into networks to enhance the delivery of services to people with ESRD.

In 1978, Public Law 95-292 modified the Social Security Act to allow for the coordination of dialysis and transplant services by linking dialysis facilities, transplant centers, hospitals, patients, physicians, nurses, social workers, and dietitians into Network Coordinating Councils, one for each of 32 administrative areas.

In 1988, CMS consolidated the 32 jurisdictions into 18 geographic areas and awarded contracts to 18 ESRD Network Organizations, now commonly known as ESRD Networks. The ESRD Networks, under the terms of their contracts with CMS, are responsible for: supporting use of the most appropriate treatment modalities to maximize quality of care and quality of life; encouraging treatment providers to support patients' vocational rehabilitation and employment; collecting, validating, and analyzing patient registry data; identifying providers that do not contribute to the achievement of Network goals; and conducting onsite reviews of ESRD providers as necessary.

## IPRO ESRD Network of New England (Network 1)

IPRO ESRD Network of New England (Network 1) is one of four ESRD Networks managed by IPRO, a non-profit organization that works with government agencies, providers, and consumers to implement innovative programs that improve healthcare. IPRO supports nearly 100 state and federal programs, and is contracted by CMS as the Medicare Quality Innovation Network-Quality Improvement Organization (QIN-QIO) for New York State, South Carolina, and the District of Columbia. IPRO also manages the ESRD Network of New York, ESRD Network of the Ohio River Valley, and ESRD Network of the South Atlantic. IPRO is fully committed to the goals and vision of the ESRD Network Program and supports the renal community in ensuring safe, effective, patient-centered care for the more than 117,000 renal patients in the four Network areas it manages.

Network 1 serves ESRD patients, dialysis providers, and transplant centers in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. The role of the IPRO ESRD Network of New England is to improve the quality of care for people who require dialysis, transplantation, and/or related life-sustaining treatment for ESRD. The Network aligns its mission and activities with the National Quality Strategy's three broad aims and the Centers for Medicare & Medicaid Services (CMS) priorities for the ESRD Network Program. Our goals, our methodology for attaining them, and our achievements are described throughout this report.

New England's 14.4 million residents<sup>1</sup> are distributed over approximately 72,000 square miles. Its six states differ widely in terms of geography, population density, and socio-economic factors, all of which influence the availability of services, treatment choices, and quality of care for ESRD patients. For example, Maine is the largest New England state but it has the lowest population density, which presents a challenge for ESRD patients who may have to travel long distances to reach the nearest dialysis facility.

Of the total population of New England in 2016<sup>2</sup>, 78% resided in the three southernmost states (Connecticut, Massachusetts and Rhode Island), which also had the greatest number of metropolitan areas. The remaining 22% resided in the three northernmost states (Maine, New Hampshire and Vermont), which are primarily urban and rural and had the fewest dialysis facilities.

According to the U.S. Census Bureau estimates for 2016<sup>3</sup>, New England's population was 83.01% white, 6.17% African American, 3.16% Asian, and 0.43% American Indian and Alaska Native. 9.02% of the population was Latino. With the exception of African American and white ESRD prevalent patients in 2016, at 21.70% and 74.22% respectively, data for the remaining U.S. Census Bureau

<sup>&</sup>lt;sup>1</sup> United States Department of Labor, Bureau of Labor Statistics, New England Information Office: https://www.bls.gov/regions/new-england/home.htm

<sup>&</sup>lt;sup>2</sup> United States Department of Labor, Bureau of Labor Statistics, New England Information Office, Northeast Census Region: https://www.bls.gov/regions/new-england/northeast.htm

<sup>&</sup>lt;sup>3</sup> United States Census Bureau, Quick Facts: https://www.census.gov/quickfacts/table/PST045216/00

populations closely aligned with the distribution of ESRD patients in New England (see Table 2 in Appendix).

The ESRD population in Network 1's service area was the second smallest in the country as of December 31, 2016, according to ESRD National Coordinating Center (NCC) end-of-year data. As of December 2016, more than 14,400 ESRD patients were reported as receiving dialysis treatment from facilities in the Network service area. These patients were served by 194 Medicare-certified dialysis facilities, which included four Veterans Affairs (VA) hospitals, and 15 transplant centers. The number of operating Medicare-certified dialysis facilities in the New England region increased by 4.12%, from 186 in December 2015, to accommodate the growing patient population.

For a complete overview of the population of ESRD patients served by dialysis facilities, and transplant centers in New England, refer to the Data Tables starting on page 23.

Table A. Dialysis Facilities and Transplant Centers in the Network's Service Area, as of December 31, 2016

Category	Number*
Number of Dialysis Facilities in the Network's Service Area	194
Number of Transplant Centers in the Network's Service Area	15

Source of data: CROWNWeb<sup>4</sup>.

\*Counts of dialysis facilities and transplant centers may include a small number of facilities that closed during the calendar year but did not have a closing date recorded in CROWNWeb as of December 31, 2016.

Table B indicates that 59 (30.4%) dialysis facilities in the Network's service area provided evening services in 2016. Access to care after normal business hours can greatly improve quality of life for ESRD patients who are able to work full-time while receiving treatment.

Table B. Number of Medicare-Certified Dialysis Facilities in the Network's Service Area and Number and Percent of Dialysis Facilities Offering Dialysis Shifts Starting after 5 PM, as of December 31, 2016

Category	Number*	Percent
Number of Dialysis Facilities in the Network's Service Area	194	
Dialysis Facilities in the Network's Service Area Offering Dialysis Shifts	59	30.4%
Starting after 5 PM		

Source of data: CROWNWeb.

\*Counts of dialysis facilities and transplant centers may include a small number of facilities that closed during the calendar year but did not have a closing date recorded in CROWNWeb as of December 31, 2016.

<sup>&</sup>lt;sup>4</sup> CROWNWeb is a Web-based data-collection system that is mandated by CMS to enable dialysis facilities to meet Section 494.180(h) of the 2008 updated Conditions for Coverage for ESRD Dialysis Facilities, which calls for the electronic submission of administrative and clinical data by all Medicare-certified dialysis facilities in the United States.

#### **Network Goals**

CMS establishes priorities for the ESRD Network contractors annually in the Statement of Work section of each Network's contract with the agency. These priorities support CMS and Department of Health and Human Services (HHS) national quality improvement goals and priorities.

In 2016, the ESRD Network contractors were tasked with meeting the following goals:

- Improving care for ESRD patients in the Network's service area by:
  - o Promoting patient- and family-centered care;
  - Responding to grievances about ESRD-related services filed by, or on behalf of, ESRD patients;
  - o Supporting improvement in patients' experience of care;
  - o Working with dialysis facilities to ensure that all dialysis patients have access to appropriate care;
  - o Promoting best practices in vascular access management; and
  - o Helping dialysis facilities reduce the incidence of healthcare-associated infections.
- Improving the health of the ESRD patient population in the Network's service area through activities designed to reduce disparities in ESRD care; and
- Reducing the costs of ESRD care in the Network's service area by supporting performance improvement at the dialysis facility level and supporting facilities' submission of data to CMS-designated data collection systems.

To achieve these goals, Network 1 works with its Network Council, Board of Directors, Medical Review Board, Patient Advisory Committee, Grievance Committee, and activity specific-committees to develop quality improvement projects with goals based on the ESRD Network's contract with CMS. In 2016, the Network deployed interventions that targeted patients, dialysis and transplant providers, and other stakeholders. These interventions focused on engaging patients, reducing disparities, and improving quality of care for ESRD patients. They are detailed throughout this report.

# PROFILE OF PATIENTS IN THE NETWORK'S SERVICE AREA

The ESRD Network Program collects data on incident (new) ESRD patients, prevalent (currently treated) dialysis patients, and renal transplant recipients. The Network uses data on patients' clinical characteristics—including primary cause of ESRD, treatment modality, and vascular access type—to focus its outreach and quality improvement activities.

- Incident Patient Population In the Network's service area, the number of individuals new to ESRD treatment (incident population) in 2016 increased by 1.1% from 3,995 in 2015 to 4,089 in 2016. Overall, 60.5% of the incident patients were male. The percent of incident patients age 64 and younger increased by one percentage point to 45.74%. Diabetes continues to be the primary cause of ESRD in incident patients, followed by hypertension/large vessel disease.
- Prevalent Patient Population The number of individuals receiving dialysis in New England at year-end (prevalent population) increased by 3.5% from 13,923 in 2015 to 14,417 in 2016, with males representing 58.5% of prevalent dialysis patients in New England. The percentage of patients age 64 and younger decreased marginally by 0.2 percentage point to 48.2%.
- Renal Replacement Therapy In 2016, 862 renal transplants were performed at 15 transplant centers throughout New England. This represents a 14.0% increase in renal transplants from 756 performed in 2015.

For a complete analysis of ESRD patients in New England, treatment modalities, and location of treatment, refer to the Data Tables starting on page 23.

Table C. Clinical Characteristics of the ESRD Population in the Network's Service Area, Calendar Year 2016

Category	Number	Percent
Incident (New) ESRD Patients		
Number of Incident ESRD Patients, Calendar Year 2016	4,084	
Prevalent Dialysis Patients		
Number of Prevalent Dialysis Patients as of December 31, 2016	14,417	
Treatment Modality of Prevalent Dialysis Patients as of December 31, 2016		
In-Center Hemodialysis or Peritoneal Dialysis	12,761	88.56%
In-Home Hemodialysis or Peritoneal Dialysis	1,649	11.44%
Total	14,410	100.00%
Vascular Access Type at Latest Treatment among Prevalent In-Center and		
In-Home Hemodialysis Patients as of December 31, 2016		
Arteriovenous Fistula in Use	8,495	66.61%
Arteriovenous Graft in Use	1,904	14.93%
Catheter in Use for 90 Days or Longer	1,318	10.33%

Other	1,037	8.13%
Total	12,754	100.00%
Renal Transplants		
Number of Renal Transplant Recipients,* Calendar Year 2016	862	
Total	862	100.00%

Source of data: CROWNWeb.

<sup>\*</sup>Count of unduplicated individuals receiving renal transplantation during the calendar year.

# **IMPROVING CARE FOR ESRD PATIENTS**

The Network works closely with ESRD patients, patients' family members and friends, nephrologists, dialysis facilities and other healthcare organizations, ESRD advocacy organizations, and other ESRD stakeholders to improve care for ESRD patients in Network 1's service area.

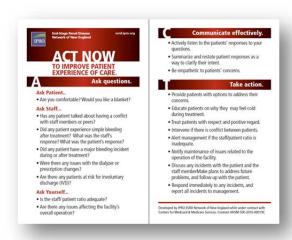
Under its contract with CMS, the Network is responsible for:

- Identifying opportunities for quality improvement and developing interventions to improve care for ESRD patients in the six New England states;
- Identifying opportunities for improvement at the facility level and providing technical assistance to facilities as needed;
- Promoting the use of best practices in clinical care for ESRD patients;
- Encouraging use of all modalities of care, including home modalities and transplantation, as appropriate, to promote patient independence and improve clinical outcomes;
- Promoting the coordination of care across treatment settings; and
- Ensuring accurate data collection, analysis, and reporting by facilities in a timely manner and in accordance with national standards.

# Improving Patient Experience of Care QIA: ACT Now

#### **Target Population**

The Network's Grievance QIA focused on assisting participating facilities with improving their grievance process as well as improving communication among patients and staff at the targeted facilities, and the Network. Participating facilities were chosen based on the number of grievances and/or access to care issues reported to the Network. The primary goal of



ACT Now professional educational tool to promote communication

this project was to decrease the facility's average grievance score by 20% from baseline established in March to re-measure in October. The Network exceeded the recommended goal, achieving a 44.6% reduction in the weighted grievance score from a baseline score of 7.08 to a final score of 3.92.

#### Selection and Recruitment of Project Participants

The Network conducted a focused audit of facilities at which patients filed grievances with the Network from January through March 2015 and from July through September 2015. Based on this analysis, 30 facilities were asked to submit their grievance logs to the Network during a three-month trial period. Grievances were categorized and scored on a five-point scale as shown in Table D. The 12 facilities with the highest scores during this trial period were selected to participate in the project.

Table D. Grievance Categories, Examples, and Weights Assigned to Categories

Grievance Category	Examples	Grievance Weight
Major Quality of Care (QoC)	Major bleeds, wrong dialyzer, prescription changes without physician order, and patients either involuntarily discharged (IVD) or at risk of being involuntarily discharged	1
Minor Quality of Care (QoC)	Simple bleeding after dialysis and/or minor infection control issues	2
Operational	Inadequate staffing and other issues related to the operation of the facility	3
Interpersonal	Conflicts between patients and/or conflicts between staff and patients	4
Environmental	Facility too cold, basic maintenance issues related to dialysis chair and lobby conditions	5

<sup>\*</sup> Numerator = # of grievances reported by Grievance Category multiplied by the assigned Grievance Weight (Monthly Weighted Grievances)

#### **Network and Participant Activities**

Based on our review of previous grievance data, the Network identified that facility staff often consider only the physical aspect of a patient's treatment and often do not ask questions related to the patient's experience of care or perceived needs. In an effort to promote proactive communication between patients and staff, the Network created the ACT Now campaign. The ACT Now campaign encourages staff to ask about all aspects of the patient's care through check-in sessions with patients. The anticipated outcome was that these sessions would empower patients to verbalize their concerns openly so, together with the healthcare team, they could work on resolutions leading to a reduction in grievances.

The Network took a multi-pronged approach in implementing the *ACT Now* campaign. A pocket card was distributed to facility staff as an easy reference for proactive communications strategies that can be used to start discussions to "check in" with their patients. The card followed the *ACT Now* acronym (A= Ask questions; C=Communicate effectively; T=Take action). Network staff educated facility staff on how to conduct these check-in sessions and asked that each staff member integrate communications of this nature into their care process. The Network also provided educational materials to target facility staff on issues that are commonly raised by patients and

<sup>\*\*</sup> Denominator = # of facilities in QIA

<sup>\*\*\*</sup> Monthly Grievance Score = Numerator divided by denominator

methods for effectively resolving these types of concerns. Best practices for working through these issues were also shared with staff. In addition, recognizing that some concerns raised by patients may be beyond a staff member's ability to correct, the Network also focused on providing information to help patients take steps to resolve these issues. One example of this strategy was our *Why Do I Feel So Cold During Dialysis?* poster, which provided tips for patients on how to be more comfortable during their treatment.

#### Quantitative and Qualitative Outcomes and Evaluation

To measure the effectiveness of this project, participants were asked to submit to the Network their facility's grievance logs on a monthly basis. The grievance logs were scored by the Network using the five-point scale shown above. By tracking the 12 participating facilities, the Network was able to evaluate progress toward the stated goal and/or identify barriers needing to be addressed as a whole or with individual clinics.

In addition, facility staff members were asked to complete weekly electronic assessments to report successes achieved, barriers identified, and effectiveness of the Network's intervention materials in supporting implementation of the project. Provider feedback indicated that by incorporating *ACT Now* into their facility's care processes, communication between patients and providers was enhanced. Patients also said they felt more comfortable expressing their concerns to staff.

The Network exceeded the project goal, decreasing the weighted grievance score in participating facilities by 44.6% from a baseline of 7.08% to 3.92% at re-measurement.

#### Steps to Ensure Sustainability of Outcomes

Due to the success of this program, the Network has taken steps to expand the *ACT Now* communication tolls. Network staff continued to refine and formalize the *ACT Now* project into a standard communication education program that can be adopted by all facilities in the Network 1 service area for reducing grievances and improving patients' experience of care.

#### Lessons Learned

Staff at several facilities required additional education on what issues constituted a patient grievance and when these situations should be reported as grievances at the facility-level. Working one-on-one with facility staff as needed, Network staff articulated the CMS definition of a patient grievance and clarified the reporting process. A plan to incorporate this training early on in the next year's grievance improvement work has already been adopted.

Network staff also determined that collecting the electronic surveys on a weekly basis did not always allow facilities adequate time to provide feedback on barriers they may have encountered in implementing the interventions. In order to improve the quality of facility feedback, Network staff

modified the survey approach. After the intervention materials were initially released, the first survey was sent as a way to confirm that staff members understood the materials, the project's goals, and the process for engaging patients. At the end of the project, a concluding survey was sent to capture feedback and experiences and to determine what resources facility staff found to be most and least valuable. This approach yielded a better response rate and will be used to assess the facility's grievance process in the future.

Best practices identified through this QIA:

- Monthly review of grievances helped to identify patterns and allowed the Network to work with facilities to develop prevention strategies;
- Interdisciplinary monitoring of patient concerns, environmental concerns, and operational issues assisted in engaging the entire team in improving care at the facility;
- Ensuring that staff members are communicating with patients, identifying root causes, and implementing mitigation strategies helped to create a proactive environment.

#### Successful Collaborations

The Network collaborated with IPRO ESRD of the Ohio River Valley (Network 9) to develop and implement the *ACT Now* campaign. Through our shared review of data and feedback provided, we have been able to modify and update the program to meet the needs of both communities. Sharing our combined experience in this quality improvement work has allowed us to monitor the benefit of this program over a larger population of patients in geographically diverse circumstances.

#### Healthcare-Associated Infections Learning and Action Network (HAI-LAN)

The dialysis patient is vulnerable to blood-borne pathogens and other sources of infection that may be present in the dialysis facility. The Network 1 HAI LAN was formed as an ongoing collaboration among community partners who represent a broad range of organizations and professions in support of the Patient Safety Healthcare Associated Bloodstream Infection (BSI) QIA. Regularly scheduled LAN meetings provide an opportunity for members to share knowledge, skills, and resources to address an identified quality of care issue through collaborative problem solving.

The Network 1 HAI LAN focused on patient safety in dialysis facilities in the Network's service area. The HAI LAN's primary goal for 2016 was to support the 42 facilities participating in the HAI QIA to meet the BSI reduction target through sharing knowledge, best practices, and experiences.

#### **HAI LAN Participants**

In 2016, the Network engaged 112 ESRD stakeholders to participate in the HAI LAN. Members included individuals with diverse expertise and perspectives who shared the desire and commitment to improve safety for ESRD patients. The Network's HAI LAN included staff from dialysis facilities

involved in the HAI QIA, representatives from the New England states' survey agencies, state and hospital epidemiologists, QIN/QIO partners, and representatives of the Centers for Disease Control and Prevention (CDC), as well as patient SMEs and physicians.

#### **HAI LAN Activities**

The Network convened quarterly webinars throughout 2016, which were attended by 75 to 100 LAN members. Facility managers, nephrologists, and patient SMEs serving as guest speakers presented their experiences to generate dialogue and discussion among LAN members of their challenges, solutions, and best practices in controlling infection, including what was working in their dialysis facilities and what improvements were needed.

Patient SMEs who had acquired an HAI presented personal stories about the impact this event had on their lives. Physicians and dialysis facility staff presented on best practices and lessons learned throughout the project. This stimulated in-depth discussions on identifying barriers to reducing BSI rates and finding solutions to overcome the identified barriers. This resulted in best practices being shared with HAI LAN participants to continue reducing BSI rates in the New England region. These presentations and the open and active discussions that followed served to enlighten and educate participants and contributed to their ongoing discussion of workable strategies and solutions that facilities could implement to improve their infection control efforts.

Throughout the year, the Network followed up on webinar discussions by researching and distributing educational materials to LAN members as suggested by meeting attendees.

The Network also distributed tools and resources to help facilities meet QIA targets. For example, the Network distributed the CDC's HAI prevention observational audit tools aimed at embedding best preventive practices more deeply into each facility's care processes. The audit tools and checklists are designed to promote CDC-recommended practices for infection prevention and can be used by facility stakeholders (State Survey Agency staff; patients; SMEs; nephrologists; and facility staff members including clinic managers, technicians, nurses, and others) to document their observations on the use of infection control procedures related to, for example, hand hygiene, catheter care, cannulation and decannulation (insertion and removal of dialysis needles), and injection safety. The selected facilities conducted a minimum of 30 hand hygiene observations, 10 catheter connection/disconnection observations, and 10 fistula/graft cannulation observations, and reported the number of successfully completed audits to the Network. During webinars and via informal email exchanges and phone calls, LAN members discussed their challenges and successes in using the audit tools.

The LAN provided a central forum for sharing best practices on topics that included motivating staff to stay involved in the QIA and to routinely adopt infection control processes. To encourage use of the observational audit tools by facility staff, one facility manager conducted a staff

orientation to introduce the audit tools, and then held a periodic drawing for a motivational reward to keep staff interested.

Another facility made a presentation about how staff members highlighted patients' responsibilities in preventing BSIs by installing a bulletin board in its waiting room that prominently displayed the facility BSI rate. Staff updated the rate monthly.

#### Quantitative and Qualitative Outcomes

One of the goals for the HAI LAN was to develop a robust collaborative of interested and active participants who were committed to improving care for ESRD patients. Network 1 staff involved LAN members in establishing the webinar schedule, goals, and activities, then worked to generate excitement and encourage participation by engaging dialysis facility staff and patients to share their perspectives and stories. In 2016, HAI LAN attendance grew with each quarterly meeting and, by the end of 2016, attendance from HAI LAN members reached an all-time high of 82%.

The HAI LAN was instrumental in establishing best infection prevention practices for adoption by the target dialysis facilities, which ultimately led to BSI reductions. With the HAI LAN's support, Network 1 reduced the BSI rate in target facilities from 1.15% at baseline to 0.73% at remeasurement. The 0.42 percentage point reduction far exceeded the Network goal of 1.09%

#### **Ensuring Sustainability**

The HAI LAN's activities were designed to embed best infection control practices within the participating facilities' daily activities. The Network spread this information throughout the Network service area by ongoing sharing of solutions and results to all facilities. Throughout the project, Network staff provided facilities with BSI rates and directed these to be posted in a prominent staff area for review. This provided staff with important feedback about progress and the need to continue or sustain improvements. Collaboration with regional leadership throughout the Network 1 coverage area allowed this project to expand to non-QIA facilities. As a result, 30% of the dialysis facilities in the New England region conducted CDC audits during 2016.

#### Lessons Learned

The HAI LAN was particularly effective in 2016 due to the commitment and ongoing efforts of all members. A lesson we learned was that the effectiveness of the LAN depends largely on the Network's ability to host meetings that offer beneficial information and resources for all attendees. The patient perspective segment of the meetings generated strong discussions and contributed to renewing the members' commitment to reducing BSIs at the dialysis facilities. Through feedback from the members, the Network 1 staff was able to design each meeting with a purpose and end goal to bring our ESRD community together to reduce BSIs.

## Improve Transplant Coordination

The primary focus of the Network-selected Population Health Innovation Pilot Project (PHIPP), *Improve Transplant Coordination*, was to reduce an identified disparity while improving the overall transplant referral rate for eligible ESRD patients.

Individuals with ESRD are faced with choosing between several options for therapy including renal replacement therapies (in-center or home hemodialysis, and peritoneal dialysis) and transplantation. While all renal replacement options offer life-sustaining treatment, transplantation offers the opportunity for better clinical outcomes with



Transplant Resource Toolkit; New England Transplant Center Referral Guide

lower mortality and morbidity, better patient quality of life, and lower cost when compared to the other treatment modalities. Eligibility for transplantation varies depending transplant center criteria, patient health status, and physician perception of a patient's health. Although these factors influence all patients, there were a noticeably lower number of African American patients, as compared with white patients, on the transplant waiting list in the New England area, indicating a disparity in this area, according to 2015 United Network for Organ Sharing (UNOS) transplant waiting list data. Disparity reduction in healthcare requires a multi-faceted approach in which all patients have improved outcomes.

Selection and Recruitment of Project Participants

Initial Disparity Assessment. Network 1 identified transplant coordination as the focus of the PHFPP by conducting a disparity assessment for race, ethnicity, gender, and age utilizing the ESRD Dialysis Prevalence Report from CROWNWeb for the period from April through September 2015 and the UNOS transplant waiting list data for all of 2015. The data showed that those newly added to the waiting list in 2015 accounted for approximately 37% of the waiting list patients. Within this group, 988 patients (65.74%) were classified as white, while only 246 patients (16.37%) were classified as African American, a 49.37 percentage point difference between these two groups. Baseline for this activity was established by analyzing CROWNWeb data for the period of April to September 2015. During the review of data race was identified as the Network's disparity. The project's goal was to reduce the identified disparity within the target population by at least one percentage point by September 30, 2016.

CMS currently has no standardized method for tracking transplant referral data. Therefore, the Network staff utilized an available ESRD Dialysis Prevalent Patient Report from CROWNWeb as of

December 31, 2015, and UNOS kidney transplant waiting list data as of December 31, 2015. According to the CROWNWeb Prevalent Patient Report, the number of patients in the Network's service area was 13,938. UNOS data indicated that 4,099 patients were on the waiting list as of December 31, 2015, and 1,503 of these patients were newly added to the transplant waiting list during 2015. This translates to 10.78% of the total patient population in the Network's service area being added to the waiting list in 2015. Network staff used this number as a proxy for referrals with an understanding that the UNOS waiting list numbers include both those individuals diagnosed with ESRD and on dialysis and those who have placed their names on the waiting list as a preemptive measure, prior to being diagnosed.

Table E. Kidney Transplant Waiting List Data

Total ESRD Patient Population*	Patients Newly added to Transplant Waiting List in 2015**	% of Patients on Transplant Waiting List added in 2015
13,938	1,503	10.78%

<sup>\*</sup> CROWNWeb ESRD Prevalence Report as of December 31, 2015

#### **Network and Participant Activities**

Working with dialysis providers and practitioners throughout the New England area, the Network conducted site visits and conference calls and developed the Transplant Resource Toolkit. This toolkit included reference materials and decision tools developed by UNOS, as well as handouts with discussion points for patients about transplantation. The Network provided technical assistance and helped facilities to identify best practices in overcoming barriers to referrals, establish new procedures, and improve upon processes already in place for patient referrals. The Network's Advisory Committee members worked to develop, review, and adapt resources for both facility staff and patients throughout the course of the project. Their input contributed to the effectiveness of information shared with the community, and helped to ensure that the needs of patients and providers were represented throughout this initiative.

#### Quantitative and Qualitative Outcomes and Evaluation

The Network was able to increase the number of eligible patients at target facilities referred for transplantation from baseline (April –September 2015) to 22.8% at re-measurement (September 2016). The overall improvement of 11.7 percentage points in the rate of transplant referrals of patients at target facilities far exceeded the goal to increase referrals by 5 percentage points. In addition, the Network was able to decrease the identified disparity in referrals by 3.0 percentage points, exceeding the one percentage point goal for reducing the disparity.

<sup>\*\*</sup> UNOS – March 4, 2016, includes all waiting list in region, not just ESRD patients

Table F. Increase in Total Patient Population Referrals in Target Facilities

Population	Percentage Point Increase Goal	Baseline Referrals	Re-measure Referrals	Percentage Point Change
All Patients	5.0	11.1%	22.8%	11.7

Table G. Decrease in Referral Disparity

Population	Percentage Point Decrease Goal	Baseline Referrals	Re-measure Referrals	Percentage Point Change
White Patients	N/A	14.80%	19.55%	4.75
African American Patients	N/A	7.26%	27.15%	19.89
Disparity Between White and African American Patient Referrals	1.0	7.54%	-7.60%	15.10

Source of data: Network 1 transplant referral tracking tool.

#### Steps to Ensure Sustainability of Outcomes

To accomplish these outcomes and ensure sustainability, the Network leveraged partnerships with large dialysis organizations (LDOs), patient SMEs, and Steven Pastan, MD from Emory University. LDO partners mirrored our initiatives in their corporate programs, focusing on increasing transplant referrals as an option through patient and staff education. Dr. Pastan provided educational presentations to staff at target facilities. Presentations focused on understanding and addressing the causes of barriers to renal transplantation, particularly for socioeconomically disadvantaged and minority patients.

#### Lessons Learned

Barriers to referral to transplantation and documentation include:

- Varying definitions of "referral,"
- Pre-conceived ideas about patients' appropriateness for transplant, and
- Lack of standardized documentation and centralized medical record reporting for referrals.

Understanding these barriers and why they occur was a critical component of the Network's development of strategies to mitigate the barriers.

#### Freshdesk

In addition to its responsibilities under contract with CMS, the Network strove to improve data support to dialysis facilities and other stakeholders with an overall goal of improving data quality. To help meet this objective, the Network adopted an innovative software program known as FreshDesk, which assisted end users with technical support. Historically our Network received a high volume of inbound calls and emails from dialysis facility personnel and stakeholders related to CROWNWeb and other ESRD-related applications, as well as the ESRD Quality Incentive Program (ESRD QIP) and the National Healthcare Safety Network (NHSN). Adopting a Web-based ticket management and knowledge base portal allowed us to increase our responsiveness and support to dialysis facilities, State Survey Agency surveyors, and other stakeholders in the Network's service area requesting Network data support. The program was available to users at all times of the day, provided educational resources, and allowed for the creation of a ticket to assure response and resolution of all user queries in a timely manner.

FreshDesk also provided metrics on effectiveness in meeting acceptable response times for resolution and customer satisfaction, giving the Network the ability to monitor and improve customer support. The knowledge base portal is an educational resource for facility staff in addressing deadlines and standard practice questions related to CMS forms: ESRD Medical Evidence, Death Notification, and Annual Survey. Implementation of FreshDesk created efficiencies that resulted in reduced call volume, enabling the Network to track and respond to community needs through standardized reporting, and to provide documentation for responses to all queries in the order in which they were received.

#### Quantitative and Qualitative Outcomes and Evaluation

From June 1 to December 31, 2016, IPRO ESRD Network of New England received and subsequently resolved 923 unique Freshdesk tickets requesting data support. Per the IPRO ESRD Network Program's service level agreement (SLA) policy—the standard of performance for the Data Support team, encompassing the time within which agents should respond to and resolve tickets—90% of data support tickets were responded to and 96% were resolved in a timely manner; the mean first response time was five hours and 51 minutes, with a mean resolution time of 10 hours and 42 minutes. 100% of customers reported positive or neutral interactions with the Network 1 Data Support Team.

#### Facilities that Consistently Failed to Cooperate with Network Goals

The Network did not identify any facilities in its service area that failed to cooperate with Network goals in 2016.

#### Recommendations to CMS for Additional Services or Facilities

In 2016, the Network made no recommendations to CMS for additional facilities.

# **GRIEVANCES AND ACCESS TO CARE**

IPRO ESRD Network of New England responds to grievances filed by or on behalf of ESRD patients in Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island and Vermont.

The Network works with individual facilities to identify and address difficulties in placing or maintaining patients in treatment. These "access to care" cases may come to the Network's attention in the form of a grievance filed by or on behalf of the patient.

There are three types of access to care cases: involuntary transfers, involuntary discharges, and failures to place. Involuntary transfer occurs when a facility closes, either temporarily or permanently, requiring the patient to be transferred to another facility. Involuntary transfers may also occur when a patient is transferred to another facility due to safety concerns such as threatening or abuse behavior. An involuntary discharge is initiated by the treating dialysis facility without the patient's agreement. Failure to place is when all local outpatient dialysis facilities have denied the patient acceptance for routine dialysis treatment.

As shown in Table H, the Network responded to six grievances filed by or on behalf of patients in 2016. None of these cases involved access to care issues. Four "Immediate Advocacy" cases involving environmental, operational, or interpersonal issues were resolved to the patient's satisfaction within 7 days. Two quality of care grievances were filed, alleging that the services received from the facility did not meet professionally recognized standards of care. The Network carefully examined patient concerns and conducted a thorough review of the relevant medical records and facility policies and procedures pertaining to the grievances raised to determine appropriate interventions.

Facilities reported five non-grievance access to care cases to the Network in 2016. Four of those five cases resulted in those patients being involuntarily discharged based on ongoing disruptive behavior. One patient was involuntary transferred as a result of disruptive behavior exhibited toward a staff member. The facility felt that separating the patient from that particular staff member would help resolve the disruptive behavior that the patient was displaying. By the close of 2016, this patient was successful at his new facility with no behavior issues reported to the Network.

Table H. Grievance Data for Calendar Year 2016

Category	Number
Number of Grievance Cases Opened by the Network in Calendar Year 2016	6
Number of Grievance Cases Involving Access to Care	0
Number of Grievance Cases Involving Involuntary Transfer	0
Number of Grievance Cases Involving Involuntary Discharge	0
Number of Grievance Cases Involving Failure to Place	0
Number of Non-Grievance Cases Involving Access to Care	5
Number of Non-Grievance Cases Involving Involuntary Transfer	1
Number of Non-Grievance Cases Involving Involuntary Discharge	4
Number of Non-Grievance Cases Involving Failure to Place	3*
Total Number of Grievance and Non-Grievance Cases Involving Access to Care	5
Number of Grievance Cases Closed by the Network in Calendar Year 2016	6

Source: Patient Contact Utility

# Cases Referred to State Survey Agencies

During 2016 no cases were referred to state agencies In the Network's six-state service area.

<sup>\*</sup>Also included in Non-Grievance Cases Involving Involuntary Discharge number

# **EMERGENCY PREPAREDNESS AND RESPONSE**

For individuals who have been diagnosed with ESRD, missed dialysis treatments can have serious adverse health effects. This makes the ESRD patient population especially vulnerable during emergencies and disasters. The Network relies on longstanding partnerships with state health departments, offices of emergency management, and large dialysis organization emergency management teams to ensure safety and continuity of care for ESRD patients in New England.

For all emergencies reported in 2016, Network staff offered comprehensive support to ESRD patients and linked dialysis providers with appropriate emergency response resources, including the Kidney Community Emergency Response (KCER) program, state Offices of Emergency Management, and other stakeholders. The Network worked with facility staff to ensure that all information about "closed" or "altered" status was available to the Network for assisting with access to care coordination, as needed.

The Network successfully assessed, responded to, and tracked 11 emergency events in 2016. In emergency events, the Network staff members were trained to:

- Evaluate the affected area to assess impact;
- Release email or fax blasts notifying dialysis facilities and response agencies in the affected area of the occurrence;
- Provide dialysis facilities, patients, and family members, and/or care partners with information on appropriate local resources;
- Connect facilities and individual patients, families, and/or care partners with appropriate local resources;
- Participate in emergency meetings with local offices of emergency management and state health departments; and
- Measure and quantify the impact of the occurrence.

# Winter Weather Advisory

A customized Network Emergency Alert for winter weather advisories for the New England region was sent to facilities in February, March, April, and December of 2016. Emergency Diet Guidelines, Emergency Preparedness Guidelines, and a list of alternate facilities and phone numbers were emailed to each clinic for distribution to patients.

On February 10, 2016, the Network informed the New England region of Winter Storm Nacio. The weather advisory was sent with resources for dialysis patients who potentially would be unable

to receive treatments at their facilities. Resources included the three-day emergency diet and the ESRD National Coordinating Center (NCC) booklet *Preparing for Emergencies: A Guide for People on Dialysis.* In addition, the Network provided information to facility staff that included the *Dialysis Provider "To Do" List*, for emergency crises. To keep the patient community informed, facility personnel were instructed to report facility closings or delays by completing the Network Emergency Impact Report online via Survey Monkey.

On February 15, 2016, the Network informed the ESRD community about Winter Storm Olympia. Emergency Diet Guidelines, Emergency Preparedness Guidelines, and a listing of alternate facilities and phone numbers were sent to each clinic for distribution to patients. No facilities reported any closings or delays, and all patients were dialyzed as scheduled.

#### Water and Sewer Alerts

On May 27, 2016, the Network sent water and sewer alerts to facilities in Winchester, MA, and other facilities within a 10-mile radius. Facilities were notified that the Town of Winchester had ended the temporary supply of water from Massachusetts Water Resource Authority (MWRA) and returned to the Town of Winchester's water supply. Facilities were notified of changes in appearance of the water during the transition back to Winchester water and informed that the water was safe for use. Patient dialysis treatments were not affected.

On October 26, 2016, the Network was notified of a water main break in Middletown, CT. No facilities were impacted during this event, and patients were treated as scheduled.

On December 13, 2016, the Network was notified of water main break in Springfield, MA, which delayed patient treatments for about an hour.

# Nursing Strike

On June 20, 2016, the Network was contacted by the Nurse Director at Brigham and Woman's Hospital in Massachusetts to notify us of a pending nursing strike that could potentially impact four outpatient dialysis patients. The Network monitored the situation and, after six days of negotiation, the strike was averted. No patients were affected.

On December 14, 2016, the Network was notified of a potential nurses' strike at Regal Care Nursing Homes in Connecticut. After six days of negotiation, the strike was averted. Dialysis patients were not impacted.

#### Severe Weather

In August, September, and October 2016, the Network informed facilities of severe weather and educated facilities on hurricane and tropical storm preparedness by providing resources on hurricane safety, flood zone information, and preparedness guidelines for patients.

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# **DATA TABLES**

Table 1. Incident (New) ESRD Patients in Network 1's Service Area, by Patient Characteristics (January 1, 2016 - December 31, 2016)

Network 1's Service Area	СТ	MA	ME	NH	RI	VT	Other	Total
Age Group								
<= 4 Years	1	1	0	0	2	0	2	6
5-9 Years	3	1	0	0	0	0	0	4
10-14 Years	4	8	1	2	1	0	1	17
15-19 Years	8	10	1	0	3	0	1	23
20-24 Years	8	11	6	0	1	1	1	28
25-29 Years	12	22	3	3	8	2	2	52
30-34 Years	16	44	4	8	4	2	1	79
35-39 Years	33	44	7	6	10	2	5	107
40-44 Years	33	75	10	4	6	2	2	132
45-49 Years	62	90	16	16	10	5	5	204
50-54 Years	69	147	18	15	28	3	3	283
55-59 Years	117	200	48	35	40	8	8	456
60-64 Years	137	250	50	36	36	13	8	530
65-69 Years	145	277	53	42	45	24	7	593
70-74 Years	145	238	49	34	48	10	8	532
75-79 Years	116	215	30	30	32	12	7	442
80-84 Years	87	164	18	23	34	11	4	341
>= 85 Years	69	122	15	18	19	9	4	256
Total	1,065	1,919	329	272	327	104	69	4,085
Median Age	66	66	65	66	67	66	61	66
Gender								
Female	430	748	119	115	127	46	29	1,614
Male	635	1,171	210	157	200	58	40	2,471
Total	1,065	1,919	329	272	327	104	69	4,085
	43	748	119	115	127	46	29	161
	0	7 40	113	113	121	40	23	4
Ethnicity*								
Hispanic or Latino	127	195	2	10	33	1	6	374
Not Hispanic or Latino	937	1,700	326	262	290	103	63	3,681
Not Specified	1	24	1		4			30
Total	1,065	1,919	329	272	327	104	69	4,085

Network 1's Service Area	СТ	МА	ME	NH	RI	VT	Other	Total
Race*								
American Indian/Alaska Native	0	1	1	0	1	0	0	3
Asian	16	67	5	4	6	2	1	101
Black or African American	255	261	6	8	33	2	9	574
Native Hawaiian or Other Pacific Islander	2	5	0	0	1	1	1	10
White	790	1,556	316	260	281	99	57	3,359
More Than One Race Reported	1	5	0	0	1	0	1	8
Not Specified	1	24	1		4			30
Total	1,065	1,919	329	272	327	104	69	4,085
Primary Cause of ESRD*								
Diabetes	471	828	163	123	138	47	26	1,796
Glomerulonephritis	95	154	23	34	30	15	10	361
Secondary Glomerulonephritis/Vasculitis	24	48	8	6	8	0	3	97
Interstitial Nephritis/Pyelonephritis	35	65	7	10	16	2	3	138
Transplant Complications	8	13	3	2	0	0	0	26
Hypertension/Large Vessel Disease	260	412	69	33	69	20	12	875
Cystic/Hereditary/Congenital/Ot her Diseases	52	94	21	20	17	4	6	214
Neoplasms/Tumors	21	55	4	4	7	3	1	95
Disorders of Mineral Metabolism	0	4	0	0	0	1	0	5
Genitourinary System	4	8	3	0	0	1	0	16
Acute Kidney Failure	22	52	6	5	11	1	1	98
Miscellaneous Conditions	66	132	20	30	26	10	5	289
Not Specified	7	54	2	5	5		2	75
Total	1,065	1,919	329	272	327	104	69	4,085

Source of data: CROWNWeb

#### NOTES:

- 1. This table includes data on dialysis and transplant patients whose initial "Admit Date" in CROWNWeb was within the calendar year. Excludes patients with a "Discharge Reason" of acute kidney failure.
- 2. This table may include data on some patients receiving dialysis services from U.S. Department of Veterans Affairs (VA) facilities.
- 3. Data on "ethnicity" and "race" should be interpreted with caution because of the inherent instability of race/ethnicity data.

<sup>\*</sup>Categories are from the CMS-2728 form.

Table 2. Prevalent Dialysis Patients in Network 1's Service Area, by Patient Characteristics (January 1, 2016 - December 31, 2016)

Network 1's Service Area	СТ	MA	ME	NH	RI	VT	Other	Total
Age Group								
<= 4 Years	0	8	0	0	0	0	0	8
5-9 Years	0	2	0	0	0	0	0	2
10-14 Years	1	7	1	0	0	0	0	9
15-19 Years	5	11	0	0	2	1	2	21
20-24 Years	20	40	9	8	6	2	2	87
25-29 Years	49	81	8	10	17	7	3	175
30-34 Years	64	125	21	21	21	4	4	260
35-39 Years	121	165	23	25	31	4	6	375
40-44 Years	156	251	33	32	47	11	7	537
45-49 Years	282	356	59	58	66	17	11	849
50-54 Years	376	505	82	82	104	17	7	1,173
55-59 Years	463	742	112	120	118	26	13	1,594
60-64 Years	563	831	158	130	124	35	23	1,864
65-69 Years	549	889	160	137	154	41	16	1,946
70-74 Years	498	849	164	114	139	42	26	1,832
75-79 Years	436	677	106	93	114	42	20	1,488
80-84 Years	304	584	64	95	105	28	10	1,190
>= 85 Years	269	467	65	65	96	37	6	1,005
Total	4,156	6,590	1,065	990	1,144	314	156	14,415
Median Age	64	66	65	65	66	68	64	65
Gender								
Female	1,759	2,728	439	399	476	123	56	5,980
Male	2,397	3,862	626	591	668	191	100	8,435
Total	4,156	6,590	1,065	990	1,144	314	156	14,415
Ethnicity*								
Hispanic or Latino	604	864	1	36	137	1	38	1,681
Not Hispanic or Latino	3,552	5,718	1,063	954	1,007	313	118	12,725
Not Specified	0	8	1	0	0	0	0	9
Total	4,156	6,590	1,065	990	1,144	314	156	14,415

Network 1's Service Area	СТ	MA	ME	NH	RI	VT	Other	Total
Race*								
American Indian/Alaska Native	5	12	4	0	4	0	0	25
Asian	81	313	13	18	35	6	3	469
Black or African American	1,428	1,353	35	32	171	8	26	3,053
Native Hawaiian or Other Pacific Islander	24	26	0	1	10	1	0	62
White	2,613	4,859	1,010	938	920	299	127	10,766
More Than One Race Reported	5	19	2	1	4	0	0	31
Not Specified		8	1					9
Total	4,156	6,590	1,065	990	1,144	314	156	14,415
Primary Cause of ESRD*								
Diabetes	1,779	2,797	477	423	463	139	66	6,144
Glomerulonephritis	468	737	100	116	152	32	20	1,625
Secondary Glomerulonephritis/ Vasculitis	107	192	33	23	28	7	8	398
Interstitial Nephritis/Pyelonephritis	150	262	49	49	52	23	7	592
Transplant Complications	5	13	2	2	0	0	0	22
Hypertension/Large Vessel Disease	984	1,454	193	172	237	56	33	3,129
Cystic/Hereditary/Congenital/ Other Diseases	205	343	76	78	48	16	6	772
Neoplasms/Tumors	140	278	36	45	63	14	7	583
Disorders of Mineral Metabolism	0	4	0	0	0	0	0	4
Genitourinary System	4	6	3	0	0	2	0	15
Acute Kidney Failure	16	42	5	5	9	1	1	79
Miscellaneous Conditions	280	428	88	75	88	23	7	989
Not Specified	18	34	3	2	4	1	1	63
Total	4,156	6,590	1,065	990	1,144	314	156	14,415

Source of data: CROWNWeb

#### NOTES:

- 1. This table includes data on all patients identified in CROWNWeb as alive and receiving dialysis services as of December 31 of the calendar year.
- 2. This table may include data on some patients receiving dialysis services from U.S. Department of Veterans Affairs (VA) facilities.
- 3. Data on "ethnicity" and "race" should be interpreted with caution because of the inherent instability of race/ethnicity data.

<sup>\*</sup>Categories are from the CMS-2728 form.

Table 3A. In-Home Dialysis Patients in Network 1's Service Area, by Dialysis Facility and Modality (as of December 31, 2016)

State	HD	CAPD	CCPD	Other Modalities	Total In- Home Patients	Total In-Center and In-Home Patients
CT	91	128	472	0	691	4,219
MA	79	99	455	0	633	6,632
ME	25	16	73	0	114	1,076
NH	21	6	85	0	112	997
RI	4	11	48	0	63	1,151
VT	14	6	16	0	36	335
Network Total	234	266	1,149	0	1,649	14,410

Source of data: ESRD Facility Survey (CMS-2744A) as recorded in CROWNWeb

HD = Hemodialysis

CAPD = Continuous Ambulatory Peritoneal Dialysis

CCPD = Continuous Cycling Peritoneal Dialysis

NOTE: This table may include data for some U.S. Department of Veterans Affairs (VA) facilities.

Table 3B. In-Home Dialysis Patients in Network 1's Service Area by State, Dialysis Facility and Modality (as of December 31, 2016)

Facility CCN	HD	CAPD	CCPD	Other Modalities	Total In- Home Patients	Total In-Center and In-Home Patients
Connecticut						
070022	0	0	0	0	0	0
070025	0	9	0	0	9	158
070025	0	0	0	0	0	0
070035	0	0	11	0	11	102
07003F	0	2	0	0	2	37
072501	7	7	57	0	71	312
072503	0	12	40	0	52	52
072504	6	3	38	0	47	210
072505	0	0	3	0	3	49
072506	0	0	5	0	5	41
072507	12	13	41	0	66	166
072508	0	2	1	0	3	46
072509	1	1	19	0	21	127
072510	0	0	0	0	0	106
072511	0	15	34	0	49	180
072512	11	0	0	0	11	159
072514	0	0	0	0	0	104
072515	7	1	17	0	25	127
072516	0	3	14	0	17	150
072517	0	0	0	0	0	47
072518	12	4	6	0	22	71
072519	1	8	14	0	23	85
072520	0	4	12	0	16	104
072521	0	12	16	0	28	148
072522	0	0	0	0	0	61
072523	0	1	16	0	17	81
072524	0	4	8	0	12	93
072527	0	1	3	0	4	59
072528	5	0	15	0	20	73
072529	0	0	23	0	23	98
072530	0	0	0	0	0	44
072531	0	1	3	0	4	4
072532	0	0	0	0	0	56
072533	12	0	0	0	12	84
072534	1	1	2	0	4	40

Facility CCN	HD	CAPD	CCPD	Other Modalities	Total In- Home Patients	Total In-Center and In-Home Patients
072535	0	0	0	0	0	89
072536	0	1	4	0	5	50
072537	0	0	0	0	0	79
072538	1	3	10	0	14	72
072539	1	2	22	0	25	127
072540	0	2	6	0	8	68
072541	0	0	4	0	4	36
072542	0	3	9	0	12	64
072543	0	1	4	0	5	57
072544	0	9	8	0	17	121
072545	0	1	1	0	2	21
072546	0	0	0	0	0	20
072547	0	0	3	0	3	22
072548	14	1	2	0	17	41
072549	0	0	1	0	1	25
072550	0	0	0	0	0	36
072551	0	1	0	0	1	17
CT Total	91	128	472	0	691	4,219
Massachusetts						
220028	0	0	19	0	19	72
220031	0	0	0	0	0	0
220036	0	1	5	0	6	92
220046	6	3	9	0	18	132
220071	0	11	8	0	19	20
220071	0	0	0	0	0	0
220077	0	0	0	0	0	0
220081	0	0	0	0	0	5
220086	0	0	0	0	0	0
22010F	0	0	0	0	0	17
220110	0	0	0	0	0	1
220110	0	0	0	0	0	0
220116	0	0	0	0	0	0
220123	0	0	0	0	0	11
220163	0	0	0	0	0	1
220163	0	0	0	0	0	0
220171	0	0	0	0	0	0
221302	0	0	0	0	0	14
222500	1	0	4	0	5	99
222501	4	2	6	0	12	85

Facility CCN	HD	CAPD	CCPD	Other Modalities	Total In- Home Patients	Total In-Center and In-Home Patients
222502	0	0	0	0	0	120
222503	0	7	3	0	10	134
222504	3	3	7	0	13	119
222505	0	0	0	0	0	78
222506	0	0	0	0	0	99
222507	2	0	0	0	2	112
222508	0	0	0	0	0	102
222511	0	0	0	0	0	80
222512	0	1	5	0	6	117
222513	0	0	18	0	18	80
222515	0	0	3	0	3	85
222516	0	2	6	0	8	132
222517	7	1	3	0	11	131
222519	0	0	0	0	0	73
222520	0	4	5	0	9	78
222521	1	0	7	0	8	111
222523	0	2	9	0	11	128
222524	0	0	0	0	0	85
222525	0	0	0	0	0	134
222526	0	1	54	0	55	271
222529	10	6	20	0	36	160
222530	1	6	4	0	11	97
222533	0	2	10	0	12	80
222534	0	1	10	0	11	77
222535	0	0	0	0	0	57
222536	0	2	15	0	17	121
222537	0	0	0	0	0	57
222538	9	0	0	0	9	136
222539	0	1	5	0	6	55
222542	3	2	5	0	10	97
222543	0	1	8	0	9	102
222545	5	6	9	0	20	129
222546	0	0	5	0	5	88
222548	0	0	0	0	0	17
222549	3	5	34	0	42	120
222550	4	0	6	0	10	117
222551	0	0	0	0	0	99
222552	0	7	26	0	33	161
222553	0	1	6	0	7	58

Facility CCN	HD	CAPD	CCPD	Other Modalities	Total In- Home Patients	Total In-Center and In-Home Patients
222556	0	1	13	0	14	98
222557	0	0	0	0	0	35
222559	0	0	0	0	0	43
222560	0	0	0	0	0	72
222561	0	0	0	0	0	96
222562	0	0	0	0	0	55
222564	9	1	20	0	30	171
222565	0	2	5	0	7	110
222567	0	0	7	0	7	79
222568	0	0	0	0	0	55
222570	2	1	6	0	9	72
222571	0	1	18	0	19	87
222572	0	0	0	0	0	68
222573	1	2	1	0	4	96
222574	0	3	4	0	7	98
222576	0	0	0	0	0	51
222577	0	0	3	0	3	34
222578	0	0	0	0	0	11
222579	1	1	3	0	5	37
222580	0	0	0	0	0	52
222581	0	0	2	0	2	24
222582	0	0	0	0	0	88
222583	0	1	5	0	6	203
222584	0	0	0	0	0	48
222585	3	3	6	0	12	19
222586	3	1	0	0	4	12
222587	0	0	0	0	0	36
222588	0	0	0	0	0	26
222589	0	3	2	0	5	31
222590	1	1	18	0	20	20
222591	0	0	0	0	0	22
223302	0	0	0	0	0	0
223302	0	0	8	0	8	33
223504	0	0	0	0	0	4
223505	0	0	0	0	0	0
MA Total	79	99	455	0	633	6,632

Facility CCN	HD	CAPD	CCPD	Other Modalities	Total In- Home Patients	Total In-Center and In-Home Patients
Maine						
200009	0	0	0	0	0	0
200018	0	0	0	0	0	42
20003F	0	0	0	0	0	21
202500	5	0	22	0	27	112
202501	0	0	0	0	0	67
202502	3	0	2	0	5	53
202503	3	2	15	0	20	98
202504	0	0	2	0	2	73
202505	0	0	0	0	0	85
202506	0	2	9	0	11	81
202507	0	0	0	0	0	15
202508	0	0	5	0	5	39
202509	0	0	0	0	0	41
202510	1	0	1	0	2	22
202511	0	1	2	0	3	40
202512	9	10	8	0	27	140
202513	0	0	0	0	0	35
202514	1	0	0	0	1	55
202515	3	1	7	0	11	57
ME Total	25	16	73	0	114	1,076

Facility CCN	HD	CAPD	CCPD	Other Modalities	Total In- Home Patients	Total In-Center and In-Home Patients
New Hampshire						
300003	0	0	0	0	0	0
302500	5	0	5	0	10	87
302501	1	0	22	0	23	82
302502	2	0	15	0	17	124
302503	0	0	0	0	0	39
302504	0	0	0	0	0	56
302505	0	0	0	0	0	73
302506	0	0	0	0	0	38
302507	6	3	17	0	26	116
302508	0	0	0	0	0	30
302509	3	0	13	0	16	93
302510	0	0	0	0	0	36
302511	0	0	2	0	2	21
302512	0	0	1	0	1	29
302513	0	1	4	0	5	32
302514	0	0	0	0	0	49
302515	1	0	1	0	2	30
302516	2	2	5	0	9	45
302517	1	0	0	0	1	17
NH Total	21	6	85	0	112	997

Facility CCN	HD	CAPD	CCPD	Other Modalities	Total In- Home Patients	Total In-Center and In-Home Patients
Rhode Island						
410007	0	0	0	0	0	0
41002F	0	0	3	0	3	39
412501	3	0	4	0	7	117
412502	0	0	0	0	0	41
412503	0	0	0	0	0	69
412504	0	0	0	0	0	95
412505	1	3	4	0	8	136
412506	0	0	7	0	7	60
412507	0	0	0	0	0	42
412508	0	0	0	0	0	74
412509	0	0	0	0	0	53
412510	0	0	0	0	0	61
412511	0	0	0	0	0	71
412512	0	0	13	0	13	81
412514	0	0	0	0	0	73
413500	0	8	17	0	25	104
413501	0	0	0	0	0	35
RI Total	4	11	48	0	63	1,151
Vermont						
470003	0	0	0	0	0	7
472500	0	0	0	0	0	48
472501	0	0	0	0	0	31
473500	0	0	0	0	0	39
473501	0	0	0	0	0	45
473502	0	0	0	0	0	35
473503	14	6	16	0	36	113
473504	0	0	0	0	0	17
VT Total	14	6	16	0	36	335

Source of data: ESRD Facility Survey (CMS-2744A) as recorded in CROWNWeb

HD = Hemodialysis

CAPD = Continuous Ambulatory Peritoneal Dialysis

CCPD = Continuous Cycling Peritoneal Dialysis

NOTE: This table may include data for some U.S. Department of Veterans Affairs (VA) facilities.

Table 4A. In-Center Dialysis Patients in Network 1's Service Area, by Dialysis Facility and Modality (as of December 31, 2016)

State	HD	PD	Total In-Center Patients	Total In-Center and In-Home Patients
СТ	3,525	3	3,528	4,219
MA	5,995	4	5,999	6,632
ME	962	0	962	1,076
NH	885	0	885	997
RI	1,088	0	1,088	1,151
VT	299	0	299	335
Network Total	12,754	7	12,761	14,410

Source of data: ESRD Facility Survey (CMS-2744A) as recorded in CROWNWeb

HD = Hemodialysis PD = Peritoneal Dialysis

Note: This table may include data for some IU.S. Department of Veterans Affairs (VA) facilities.

Table 4B. In-Center Dialysis Patients in Network 1's Service Area, by Dialysis Facility and Modality (as of December 31, 2016)

FIII+-CCN			Total In-Center	Total In-Center and In-
Facility CCN	HD	PD	Patients	Home Patients
Connecticut				
070022	0	0	0	0
070025	149	0	149	158
070025	0	0	0	0
070035	91	0	91	102
07003F	35	0	35	37
072501	241	0	241	312
072503	0	0	0	52
072504	162	1	163	210
072505	46	0	46	49
072506	36	0	36	41
072507	100	0	100	166
072508	43	0	43	46
072509	106	0	106	127
072510	106	0	106	106
072511	131	0	131	180
072512	148	0	148	159
072514	104	0	104	104
072515	102	0	102	127
072516	133	0	133	150
072517	47	0	47	47
072518	49	0	49	71
072519	62	0	62	85
072520	87	1	88	104
072521	120	0	120	148
072522	61	0	61	61
072523	64	0	64	81
072524	80	1	81	93
072527	55	0	55	59
072528	53	0	53	73
072529	75	0	75	98
072530	44	0	44	44
072531	0	0	0	4
072532	56	0	56	56
072533	72	0	72	84
072534	36	0	36	40
072535	89	0	89	89
072536	45	0	45	50

Facility CCN	HD	PD	Total In-Center Patients	Total In-Center and In- Home Patients
072537	79	0	79	79
072538	58	0	58	72
072539	102	0	102	127
072540	60	0	60	68
072541	32	0	32	36
072542	52	0	52	64
072543	52	0	52	57
072544	104	0	104	121
072545	19	0	19	21
072546	20	0	20	20
072547	19	0	19	22
072548	24	0	24	41
072549	24	0	24	25
072550	36	0	36	36
072551	16	0	16	17
CT Total	3,525	3	3,528	4,219
Massachusetts				
220028	53	0	53	72
220031	0	0	0	0
220036	85	1	86	92
220046	112	2	114	132
220071	1	0	1	20
220071	0	0	0	0
220077	0	0	0	0
220081	5	0	5	5
220086	0	0	0	0
22010F	17	0	17	17
220110	1	0	1	1
220110	0	0	0	0
220116	0	0	0	0
220123	11	0	11	11
220163	1	0	1	1
220163	0	0	0	0
220171	0	0	0	0
221302	14	0	14	14
222500	94	0	94	99
222501	73	0	73	85
222502	120	0	120	120
222503	124	0	124	134
222504	106	0	106	119

Facility CCN	HD	PD	Total In-Center Patients	Total In-Center and In- Home Patients
222505	78	0	78	78
222506	99	0	99	99
222507	110	0	110	112
222508	102	0	102	102
222511	80	0	80	80
222512	111	0	111	117
222513	62	0	62	80
222515	82	0	82	85
222516	124	0	124	132
222517	120	0	120	131
222519	73	0	73	73
222520	69	0	69	78
222521	103	0	103	111
222523	117	0	117	128
222524	85	0	85	85
222525	134	0	134	134
222526	216	0	216	271
222529	124	0	124	160
222530	86	0	86	97
222533	68	0	68	80
222534	66	0	66	77
222535	57	0	57	57
222536	104	0	104	121
222537	57	0	57	57
222538	127	0	127	136
222539	49	0	49	55
222542	87	0	87	97
222543	92	1	93	102
222545	109	0	109	129
222546	83	0	83	88
222548	17	0	17	17
222549	78	0	78	120
222550	107	0	107	117
222551	99	0	99	99
222552	128	0	128	161
222553	51	0	51	58
222556	84	0	84	98
222557	35	0	35	35
222559	43	0	43	43
222560	72	0	72	72

Facility CCN	HD	PD	Total In-Center Patients	Total In-Center and In- Home Patients
222561	96	0	96	96
222562	55	0	55	55
222564	141	0	141	171
222565	103	0	103	110
222567	72	0	72	79
222568	55	0	55	55
222570	63	0	63	72
222571	68	0	68	87
222572	68	0	68	68
222573	92	0	92	96
222574	91	0	91	98
222576	51	0	51	51
222577	31	0	31	34
222578	11	0	11	11
222579	32	0	32	37
222580	52	0	52	52
222581	22	0	22	24
222582	88	0	88	88
222583	197	0	197	203
222584	48	0	48	48
222585	7	0	7	19
222586	8	0	8	12
222587	36	0	36	36
222588	26	0	26	26
222589	26	0	26	31
222590	0	0	0	20
222591	22	0	22	22
223302	0	0	0	0
223302	25	0	25	33
223504	4	0	4	4
223505	0	0	0	0
MA Total	5,995	4	5,999	6,632
Maine				
200009	0	0	0	0
200018	42	0	42	42
20003F	21	0	21	21
202500	85	0	85	112
202501	67	0	67	67
202502	48	0	48	53
202503	78	0	78	98

			Total In-Center	Total In-Center and In-
Facility CCN	HD	PD	Patients	Home Patients
202504	71	0	71	73
202505	85	0	85	85
202506	70	0	70	81
202507	15	0	15	15
202508	34	0	34	39
202509	41	0	41	41
202510	20	0	20	22
202511	37	0	37	40
202512	113	0	113	140
202513	35	0	35	35
202514	54	0	54	55
202515	46	0	46	57
ME Total	962	0	962	1,076
New Hampshire				
300003	0	0	0	0
302500	77	0	77	87
302501	59	0	59	82
302502	107	0	107	124
302503	39	0	39	39
302504	56	0	56	56
302505	73	0	73	73
302506	38	0	38	38
302507	90	0	90	116
302508	30	0	30	30
302509	77	0	77	93
302510	36	0	36	36
302511	19	0	19	21
302512	28	0	28	29
302513	27	0	27	32
302514	49	0	49	49
302515	28	0	28	30
302516	36	0	36	45
302517	16	0	16	17
NH Total	885	0	885	997
Rhode Island				
410007	0	0	0	0
41002F	36	0	36	39
412501	110	0	110	117
412502	41	0	41	41
412503	69	0	69	69

Facility CCN	HD	PD		Total In-Center and In- Home Patients
412504	95	0	95	95
412505	128	0	128	136
412506	53	0	53	60
412507	42	0	42	42
412508	74	0	74	74
412509	53	0	53	53
412510	61	0	61	61
412511	71	0	71	71
412512	68	0	68	81
412514	73	0	73	73
413500	79	0	79	104
413501	35	0	35	35
RI Total	1,088	0	1,088	1,151
Vermont				
470003	7	0	7	7
472500	48	0	48	48
472501	31	0	31	31
473500	39	0	39	39
473501	45	0	45	45
473502	35	0	35	35
473503	77	0	77	113
473504	17	0	17	17
VT Total	299	0	299	335

Source of data: ESRD Facility Survey (CMS-2744A) as recorded in CROWNWeb

HD = Hemodialysis

CAPD = Continuous Ambulatory Peritoneal Dialysis

CCPD = Continuous Cycling Peritoneal Dialysis

NOTE: This table may include data for some U.S. Department of Veterans Affairs (VA) facilities.

Table 5. Number of Transplants Performed in Network 1's Service Area, by Transplant Center and Donor Type and Number of Patients on Transplant Waiting List\* in Network 1's Service Area, by Transplant Center (January 1, 2016 - December 31, 2016)

Transplant Center CCN	Deceased Donor	Living Related Donor	Living Unrelated Donor	Unknown Donor Type	Total Transplants Performed	Patients on Transplant Waiting List
070022	93	27	24	0	144	163
070025	44	8	11	0	63	339
CT Total	137	35	35	0	207	502
220031	42	7	4	0	53	192
220071	87	26	23	0	136	317
220077	16	2	6	0	24	137
220086	42	12	9	0	63	363
220110	52	12	10	0	74	276
220116	16	9	11	0	36	251
220163	42	3	5	0	50	296
220171	26	3	6	0	35	157
223302	13	7	3	0	23	32
MA Total	336	81	77	0	494	2,021
200009	14	7	15	0	36	68
ME Total	14	7	15	0	36	68
300003	15	12	14	0	41	77
NH Total	15	12	14	0	41	77
410007	39	14	8	0	61	165
RI Total	39	14	8	0	61	165
470003	20	1	3	0	24	66
VT Total	20	1	3	0	24	66
Network Total	561	150	152	0	863	2,899

Source of data: CROWNWeb; Information on patients awaiting transplant comes from the ESRD Facility Survey completed by transplant centers (Form CMS-2744B).

\*As of December 31, 2016

# NOTE:

1. Cumulative total for January 1, 2016 – December 31, 2016. A patient who had more than one transplant during the calendar year is represented more than once in the table.

Table 6. Renal Transplant\* Recipients in Network 1's Service Area, by Patient Characteristics (January 1, 2016 - December 31, 2016)

Network 1's Service Area	СТ	MA	ME	NH	RI	VT	Other	Total
Age Group		'						
<= 4 Years	3	0	0	0	0	0	2	5
5-9 Years	4	0	0	0	0	0	3	7
10-14 Years	5	6	0	1	1	0	1	14
15-19 Years	7	4	1	0	3	0	5	20
20-24 Years	6	11	2	0	0	0	1	20
25-29 Years	8	13	1	1	2	0	2	27
30-34 Years	5	27	0	3	5	1	1	42
35-39 Years	15	24	2	3	3	2	4	53
40-44 Years	16	36	6	4	5	1	3	71
45-49 Years	20	49	3	3	4	1	1	81
50-54 Years	30	49	3	6	7	2	3	100
55-59 Years	28	59	10	13	7	3	3	123
60-64 Years	30	65	9	5	7	2	9	127
65-69 Years	22	55	6	6	5	2	6	102
70-74 Years	11	23	1	3	11	1	2	52
75-79 Years	5	6	3	0	1	1	0	16
80-84 Years	1	0	0	0	0	0	1	2
>= 85 Years	0	0	0	0	0	0	0	0
Total	216	427	47	48	61	16	47	862
Median Age	54	54	59	54	54	56	51	54
Gender								
Female	71	160	17	19	24	4	20	315
Male	145	267	30	29	37	12	27	547
Total	216	427	47	48	61	16	47	862
Ethnicity*								
Hispanic or Latino	29	74	0	1	5	0	3	112
Not Hispanic or Latino	185	329	47	47	52	16	44	720
Not Specified	2	24	0	0	4	0	0	30
Total	216	427	47	48	61	16	47	862
Race*								
American Indian/Alaska Native	0	1	0	0	0	0	0	1
Asian	5	21	2	1	1	0	4	34
Black or African American	52	81	1	1	5	0	4	144
Native Hawaiian or Other Pacific Islander	2	2	0	0	1	0	1	6

Network 1's Service Area	СТ	MA	ME	NH	RI	VT	Other	Total
White	155	292	44	46	49	16	38	640
More Than One Race Reported	0	6	0	0	1	0	0	7
Not Specified	2	24	0	0	4	0	0	30
Total	216	427	47	48	61	16	47	862
Primary Cause of ESRD*								
Diabetes	50	100	9	5	13	7	6	190
Glomerulonephritis	42	84	8	11	7	3	14	169
Secondary Glomerulonephritis/Vasculitis	8	18	1	3	4	0	2	36
Interstitial Nephritis/Pyelonephritis	18	25	2	1	4	0	1	51
Transplant Complications	1	1	1	0	1	0	0	4
Hypertension/Large Vessel Disease	37	56	8	3	12	1	4	121
Cystic/Hereditary/Congenital/Oth er Diseases	33	49	13	10	10	4	11	130
Neoplasms/Tumors	8	28	2	2	3	0	5	48
Disorders of Mineral Metabolism	0	0	0	0	0	0	0	0
Genitourinary System	0	0	0	0	0	0	0	0
Acute Kidney Failure	0	2	0	0	0	0	0	2
Miscellaneous Conditions	15	27	3	10	2	1	2	60
Not Specified	4	37	0	3	5	0	2	51
Total	216	427	47	48	61	16	47	862

## NOTE:

1. Data on "ethnicity" and "race" should be interpreted with caution because of the inherent instability of race/ethnicity data.

<sup>\*</sup>Data are shown for unduplicated patients. A patient who had more than one transplant during the calendar year is counted only once in the table.

<sup>\*\*</sup>Categories are from the CMS-2728 form.

Table 7. Deaths Among Dialysis Patients in Network 1's Service Area, by Patient Characteristics

Network 1's Service Area	СТ	MA	ME	NH	RI	VT	Other	Total
Age Group								
<= 4 Years	0	0	0	0	0	0	0	0
5-9 Years	0	0	0	0	0	0	0	0
10-14 Years	0	0	0	0	0	0	0	0
15-19 Years	0	0	1	0	0	0	0	1
20-24 Years	1	0	1	0	0	0	0	2
25-29 Years	0	2	0	2	0	0	1	5
30-34 Years	5	1	1	0	1	0	1	9
35-39 Years	4	8	1	2	2	1	0	18
40-44 Years	10	17	6	2	3	0	1	39
45-49 Years	23	38	5	5	6	2	1	80
50-54 Years	35	64	11	6	12	3	0	131
55-59 Years	64	90	22	13	21	3	4	217
60-64 Years	75	89	28	26	29	4	0	251
65-69 Years	106	174	48	22	34	19	4	407
70-74 Years	107	168	37	35	26	15	3	391
75-79 Years	103	178	34	38	26	26	2	407
80-84 Years	120	206	28	30	34	11	3	432
>= 85 Years	124	195	16	22	38	8	7	410
Network-Level Total	777	1,230	239	203	232	92	27	2,800
Median Age	73	73	69	73	72	72	74	73
Gender								
Female	320	470	89	84	94	36	8	1,101
Male	457	760	150	119	138	56	19	1,699
Network-Level Total	777	1,230	239	203	232	92	27	2,800
Ethnicity*								
Hispanic or Latino	79	75	0	1	20	1	0	176
Not Hispanic or Latino	698	1,152	238	202	212	91	26	2,619
Not Specified		3	1				1	5
Network-Level Total	777	1,230	239	203	232	92	27	2,800

Network 1's Service Area	СТ	MA	ME	NH	RI	VT	Other	Total
Race*	<b>'</b>							
American Indian/Alaska Native	0	1	1	0	1	0	0	3
Asian	6	24	2	4	6	0	0	42
Black or African American	203	173	1	3	27	2	3	412
Native Hawaiian or Other Pacific Islander	2	0	0	1	1	0	0	4
White	566	1,028	234	195	194	90	24	2,331
More Than One Race Reported	0	0	0	0	3	0	0	3
Not Specified		4	1					5
Network-Level Total	777	1,230	239	203	232	92	27	2,800
Primary Cause of ESRD*								
Diabetes	354	540	119	88	106	42	14	1,263
Glomerulonephritis	58	68	12	17	9	7	3	174
Secondary Glomerulonephritis/ Vasculitis	10	23	3	3	2	5	0	46
Interstitial Nephritis/ Pyelonephritis	31	61	12	13	9	3	2	131
Transplant Complications	3	1	0	1	0	0	0	5
Hypertension/Large Vessel Disease	183	325	47	44	60	12	4	675
Cystic/Hereditary/ Congenital/Other Diseases	13	19	8	7	11	2	0	60
Neoplasms/Tumors	33	55	17	10	10	3	0	128
Disorders of Mineral Metabolism	0	0	0	0	0	1	0	1
Genitourinary System	0	2	0	0	0	0	0	2
Acute Kidney Failure	13	6	2	1	2	0	0	24
Miscellaneous Conditions	78	119	17	18	22	16	3	273
Not Specified	1	11	2	1	1	1	1	18
Network-Level Total	777	1,230	239	203	232	92	27	2,800

Network 1's Service Area	СТ	MA	ME	NH	RI	VT	Other	Total
Primary Cause of Death**								
Cardiac	239	417	65	59	92	21	10	903
Endocrine	0	0	0	0	0	0	0	0
Gastrointestinal	10	16	1	3	1	2	0	33
Infection	96	120	17	20	20	10	1	284
Liver Disease	9	12	1	1	0	0	0	23
Metabolic	7	7	0	1	1	0	0	16
Vascular	46	60	5	4	9	1	1	126
Other	213	326	98	74	92	38	9	850
Unknown	95	177	30	24	15	19	4	364
Not Specified	62	95	22	17	2	1	2	201
Network-Level Total	777	1,230	239	203	232	92	27	2,800

#### NOTES:

- 1. This table may include data on some patients who received dialysis services from U.S. Department of Veterans Affairs (VA) facilities.
- 2. Data on "ethnicity" and "race" should be interpreted with caution because of the inherent instability of race/ethnicity data.

<sup>\*</sup>Categories are from the CMS-2728 form.

<sup>\*\*</sup>Categories are from the CMS-2746 form.

Table 8A. Vocational Rehabilitation Status, Employment Status, and School Attendance of Prevalent Dialysis Patients Age 18–54 Years in Network 1's Service Area (as of December 31, 2016)

Facility CCN	Aged 18 through 54	Referred to Voc Rehab Services	Receiving Voc Rehab Services	Employed Full-Time or Part-Time	Attending School Full-Time or Part-Time
-	io tillough 54	Services	Services	r art-rime	rait-fille
Connecticut 070025	57	0	0	10	1
070025	18	0	0	4	0
07003F	2	0	0	0	0
072501	104	2	0	27	1
072503	19	0	0	5	2
072504	31	0	0	12	0
072505	12	0	0	4	0
072506	9	0	0	2	0
072507	69	0	1	14	1
072508	15	0	0	1	0
072509	32	0	0	10	0
072510	17	0	0	7	0
072511	57	1	0	10	0
072512	49	0	0	11	0
072514	29	0	0	6	0
072515	33	0	0	7	0
072516	35	4	2	10	0
072517	17	0	0	1	0
072518	16	0	0	6	0
072519	29	0	1	8	1
072520	28	0	1	10	0
072521	28	0	0	7	0
072522	10	0	0	1	1
072523	24	0	0	8	1
072524	15	0	0	9	0
072527	12	0	0	1	0
072528	20	0	1	6	0
072529	28	0	1	9	1
072530	10	0	0	3	0
072532	6	0	0	0	0
072533	20	0	0	8	0
072534	7	0	0	1	0
072535	19	0	0	5	0
072536	20	1	0	4	0

	Aged	Referred to Voc Rehab	Receiving Voc Rehab	Employed Full-Time or	Attending School Full-Time or
Facility CCN	18 through 54	Services	Services	Part-Time	Part-Time
072537	15	0	0	7	1
072538	24	0	0	4	0
072539	34	0	0	11	2
072540	18	0	0	1	0
072541	11	0	0	5	0
072543	20	1	0	1	0
072544	17	0	0	8	0
072545	6	0	1	1	1
072546	2	0	0	0	0
072547	2	0	0	1	0
072548	11	0	1	4	0
072549	3	0	0	0	0
072550	10	0	0	2	0
072551	6	0	0	1	0
CT Total	1,087	9	9	274	13
	1,001	3	<u> </u>	214	13
Massachusetts	10	0	0	-	0
220028	16	0	0	5	0
220036	13	0	0	4	0
220046	29	1	0	8	1
220071	6	0	0	2	0
220081	3	0	0	2	0
220110	1	0	0	0	0
220123	1	0	0	0	0
222500	34	0	1	6	1
222501	12	0	0	3	0
222502	39	0	0	3	0
222503	29	0	0	5	0
222504	22	1	0	6	0
222505	16	1	0	3	0
222506	22	0	0	6	0
222507	34	0	0	7	0
222508	29	0	1	8	1
222511	14	0	0	4	0
222512	30	0	0	8	0
222513	17	0	0	2	0
222515	18	0	0	3	0
222516	32	0	0	6	2

	Aged	Referred to Voc Rehab	Receiving Voc Rehab	Employed Full-Time or	Attending School Full-Time or
Facility CCN	18 through 54	Services	Services	Part-Time	Part-Time
222517	24	0	0	4	0
222519	14	1	0	4	0
222520	11	0	0	5	0
222521	46	0	1	11	0
222523	27	1	1	7	1
222524	11	0	0	1	0
222525	30	0	0	1	0
222526	105	0	0	10	0
222529	44	2	0	15	0
222530	23	0	0	4	0
222533	12	0	0	6	0
222534	9	0	0	3	0
222535	16	0	1	1	1
222536	37	1	0	11	0
222537	11	0	0	3	0
222538	47	0	0	11	4
222539	15	0	0	5	0
222542	28	0	0	8	0
222543	26	0	0	6	0
222545	28	0	0	12	1
222546	18	0	0	4	0
222548	2	0	0	0	0
222549	22	2	1	4	0
222550	17	0	0	3	0
222551	20	0	0	4	0
222552	38	0	0	12	0
222553	7	0	0	1	0
222556	17	0	0	7	0
222557	6	0	0	1	0
222559	2	0	0	0	0
222560	17	2	0	0	0
222561	15	0	0	1	0
222562	12	0	0	2	0
222564	49	4	0	13	6
222565	33	1	0	5	0
222567	9	0	0	5	0
222568	5	0	0	1	0
222570	22	1	0	6	0

	Aged	Referred to Voc Rehab	Receiving Voc Rehab	Employed Full-Time or	Attending School Full-Time or
Facility CCN	18 through 54	Services	Services	Part-Time	Part-Time
222571	29	2	1	3	0
222572	10	0	0	1	0
222573	23	3	0	5	0
222574	22	0	1	7	1
222576	13	0	0	3	0
222577	5	0	0	3	0
222578	1	0	0	0	0
222579	12	0	0	5	0
222580	8	0	0	2	0
222581	7	0	0	1	0
222582	19	1	0	4	0
222583	37	0	0	11	0
222584	9	0	0	1	0
222585	8	0	0	5	0
222586	3	0	0	2	0
222587	5	0	0	1	0
222588	6	0	0	0	0
222589	7	0	0	2	0
222590	7	0	0	2	0
222591	5	0	0	1	0
223302	13	1	1	1	1
223505	4	0	0	1	0
MA Total	1,545	25	9	349	20
Maine					
200018	6	1	0	0	0
20003F	1	0	0	0	0
202500	27	0	1	7	0
202501	25	0	0	4	0
202502	9	0	0	4	0
202503	19	0	0	3	0
202504	19	0	0	4	0
202505	17	0	0	9	1
202506	17	0	0	4	0
202507	1	0	0	0	0
202508	5	0	0	0	0
202509	10	0	0	1	0
202510	8	0	0	1	0
202511	7	0	0	4	0

5 ''' CCN	Aged	Referred to Voc Rehab	Receiving Voc Rehab	Employed Full-Time or	Attending School Full-Time or
Facility CCN 202512	18 through 54	Services 0	Services 0	Part-Time	Part-Time
202512	9	0	0	4	0
202513	11	0	1	3	0
202514	12	0	0	2	0
ME Total	237	1	2	50	1
ME TOTAL	251	<u> </u>	2	50	
New Hampshire					
302500	20	0	0	3	0
302501	17	0	0	5	0
302502	29	0	0	7	0
302503	14	1	0	4	0
302504	12	0	0	5	0
302505	18	0	2	4	1
302506	4	0	0	0	0
302507	31	0	0	7	0
302508	8	0	0	1	0
302509	24	0	0	6	0
302510	5	0	0	0	0
302511	5	0	0	3	0
302512	5	0	0	1	0
302513	16	0	0	4	0
302514	12	0	0	0	0
302515	5	0	0	2	0
302516	10	0	0	2	0
302517	3	0	0	2	0
NH Total	238	1	2	56	1
Rhode Island					
41002F	4	0	0	0	0
412501	34	0	1	14	0
412502	8	0	1	2	0
412503	15	0	1	2	1
412504	16	0	0	3	0
412505	32	1	0	3	0
412506	25	0	0	3	0
412507	5	0	0	1	0
412508	14	0	0	2	0
412509	18	0	0	1	0
412510	19	2	0	2	0

	Aged	Referred to Voc Rehab	Receiving Voc Rehab	Employed Full-Time or	Attending School Full-Time or
Facility CCN	18 through 54	Services	Services	Part-Time	Part-Time
412511	19	0	0	6	0
412512	17	0	0	5	0
412514	12	1	0	5	0
413500	48	2	0	12	1
413501	9	0	0	0	0
RI Total	295	6	3	61	2
Vermont					
470003	2	0	0	0	0
472500	9	0	0	2	0
472501	5	0	0	1	0
473500	4	0	0	3	0
473501	8	0	0	1	0
473502	10	0	0	1	0
473503	23	0	0	9	0
473504	5	0	0	0	0
VT Total	66	0	0	17	0
Network Total	3,468	42	25	807	37

Voc Rehab = Vocational Rehabilitation

Table 8B. Vocational Rehabilitation Status, Employment Status, and School Attendance of Prevalent Dialysis Patients Age 18-54 Years in Network 1's Service Area (as of December 31, 2016)

Category	Referred to Voc Rehab Services	Receiving Voc Rehab Services	Completed Voc Rehab Services	Not Eligible for Voc Rehab Services	Declined Voc Rehab Services	No Voc Rehab Status
Employed Full-Time						
Attending School Full-Time	0	0	0	0	0	2
Attending School Part-Time	0	1	0	0	0	1
Not Attending School	1	0	0	16	48	26
School Status Not Specified	1	0	0	4	5	454
Employed Part-Time						
Attending School Full-Time	0	0	0	0	1	0
Attending School Part-Time	2	1	0	0	1	1
Not Attending School	5	1	2	10	21	14
School Status Not Specified	0	1	1	5	3	179
Employment Status Not Specified						
Attending School Full-Time	0	1	0	0	0	2
Attending School Part-Time	0	0	1	0	0	0
Not Attending School	0	0	0	0	1	3
School Status Not Specified	1	1	0	0	3	613
Homemaker						
Attending School Full-Time	0	0	0	0	0	0
Attending School Part-Time	0	0	0	0	0	0
Not Attending School	1	0	0	0	8	0
School Status Not Specified	0	0	0	0	0	23
Retired*						
Attending School Full-Time	0	2	0	0	0	0
Attending School Part-Time	1	0	1	0	1	0
Not Attending School	7	6	1	19	153	27
School Status Not Specified	1	5	0	4	15	575
Medical Leave of Absence						
Attending School Full-Time	0	0	0	0	0	0
Attending School Part-Time	0	1	0	0	0	0
Not Attending School	1	0	0	3	8	6
School Status Not Specified	0	0	0	0	2	102

Category Other**	Referred to Voc Rehab Services	Receiving Voc Rehab Services	Complete d Voc Rehab Services	Not Eligible for Voc Rehab Services	Declined Voc Rehab Services	No Voc Rehab Status
	2	2	1	0	1	6
Attending School Full-Time			'	0	I	6
Attending School Part-Time	0	2	1	0	1	1
Not Attending School	15	1	2	23	104	56
School Status Not Specified	4	0	0	3	17	820
Network Total	42	25	10	87	393	2,911

Voc Rehab = Vocational Rehabilitation

<sup>\*</sup>Retired due to preference or disability

<sup>\*\*</sup>Other = Employment Status of Student or Unemployed

Table 9A. Incident ESRD Patients in Network 1's Service Area, by Ethnicity and Race (January 1, 2016 - December 31, 2016)

Ethnicity* Category	Race* Category	Number	Percent
Hispanic or Latino			
	American Indian/Alaska Native	0	0.0%
	Asian	2	0.5%
	Black or African American	12	3.2%
	Native Hawaiian or Other Pacific Islander	1	0.3%
	White	353	94.4%
	More Than One Race Reported	6	1.6%
	Total	374	100.0%
Not Hispanic or Latino			
	American Indian/Alaska Native	3	0.1%
	Asian	99	2.7%
	Black or African American	562	15.3%
	Native Hawaiian or Other Pacific Islander	9	0.2%
	White	3,006	81.7%
	More Than One Race Reported	2	0.1%
	Total	3,681	100.0%
Ethnicity Not Specified			
	American Indian/Alaska Native	0	0.0%
	Asian	0	0.0%
	Black or African American	0	0.0%
	Native Hawaiian or Other Pacific Islander	0	0.0%
	White	0	0.0%
	More Than One Race Reported	0	0.0%
	Not Specified	30	100.0%
	Total	30	100.0%
	Total Incident ESRD Patients	4,085	100.0%

#### NOTES:

- 1. This table includes data on dialysis and transplant patients whose initial "Admit Date" in CROWNWeb was within the calendar year. Excludes patients with a "Discharge Reason" of acute kidney failure.
- 2. This table may include data on some patients receiving dialysis services from U.S. Department of Veterans Affairs (VA) facilities.
- 3. Data on "ethnicity" and "race" should be interpreted with caution because of the inherent instability of race/ethnicity data.

<sup>\*</sup>Categories are from the CMS-2728 form.

Table 9B. Prevalent ESRD Patients in Network 1's Service Area, by Ethnicity and Race (January 1, 2016 - December 31, 2016)

Ethnicity* Category	Race* Category	Number	Percent
Hispanic or Latino			
	American Indian/Alaska Native	2	0.1%
	Asian	4	0.2%
	Black or African American	80	4.8%
	Native Hawaiian or Other Pacific Islander	9	0.5%
	White	1,575	93.7%
	More Than One Race Reported	11	0.7%
	Total	1,681	100.0%
Not Hispanic or Latino			
	American Indian/Alaska Native	23	0.2%
	Asian	465	3.7%
	Black or African American	2,973	23.4%
	Native Hawaiian or Other Pacific Islander	53	0.4%
	White	9,191	72.2%
	More Than One Race Reported	20	0.2%
	Total	12,725	100.0%
Ethnicity Not Specified			
	American Indian/Alaska Native	0	0.0%
	Asian	0	0.0%
	Black or African American	0	0.0%
	Native Hawaiian or Other Pacific Islander	0	0.0%
	White	0	0.0%
	More Than One Race Reported	0	0.0%
	Not Specified	9	100.0%
	Total	9	100.0%
	Total Prevalent ESRD Patients	14,415	

# NOTES:

- 1. This table includes data on all patients identified in CROWNWeb as alive and receiving dialysis services as of December 31.
- 2. This table may include data on some patients receiving dialysis services from U.S. Department of Veterans Affairs (VA) facilities.
- 3. Data on "ethnicity" and "race" should be interpreted with caution because of the inherent instability of race/ethnicity data.

<sup>\*</sup>Categories are from the CMS-2728 form.

Table 9C. Renal Transplant Recipients\* in Network 1's Service Area, by Ethnicity and Race (January 1, 2016 - December 31, 2016)

Ethnicity** Category	Race** Category	Number	Percent
Hispanic or Latino			
	American Indian/Alaska Native	1	0.9%
	Asian	0	0.0%
	Black or African American	4	3.6%
	Native Hawaiian or Other Pacific Islander	1	0.9%
	White	102	91.1%
	More Than One Race Reported	4	3.6%
	Total	112	100.0%
Not Hispanic or Latino			
	American Indian/Alaska Native	0	0.0%
	Asian	34	4.7%
	Black or African American	140	19.4%
	Native Hawaiian or Other Pacific Islander	5	0.7%
	White	538	74.7%
	More Than One Race Reported	3	0.4%
	Total	720	100.0%
Ethnicity Not Specified			
	American Indian/Alaska Native	0	0.0%
	Asian	0	0.0%
	Black or African American	0	0.0%
	Native Hawaiian or Other Pacific Islander	0	0.0%
	White	0	0.0%
	More Than One Race Reported	0	0.0%
	Not Specified	30	100.0%
	Total	30	100.0%
	Total Transplant ESRD Patients	862	

## NOTE:

1. Data on "ethnicity" and "race" should be interpreted with caution because of the inherent instability of race/ethnicity data.

<sup>\*</sup>Data are shown for unduplicated patients. A patient who had more than one transplant during the calendar year is counted only once in the table.

<sup>\*\*</sup>Categories are from the CMS-2728 form.