Question from Dr. Susan Meyerle,
I have one question that I would love answered by the applicant group in detail...How does creating a PCT registry protect the public? (Inherent in this question are some of the elements Denise and Allie posed.) This is the heart of the process and needs to be expanded upon by the applicant group.
Nebraska Kidney Coalition (NKC) Response: The process of creating the registry, which includes passing legislation, would set in statute the range of functions of PCTs in the outpatient dialysis setting and protect the public by having a range of functions for dialysis PCTs and RN delegation that has been formally approved. This seems to be what is at issue with the Advisory Opinion being retired. Protection of the public for anyone credentialed is, in part, the responsibility of the professional who is credentialed. Creating a registry will provide for a mechanism for establishing a standard by which the person holding the credential can be measured against.

Questions from Denise Logan
1) I have a meeting on my calendar for May 10th as well.
2) Regarding administering medications, I don't remember seeing in the CMS information provided that was in the scope of practice for a PCT. I have not looked up what a Medication Aide can or cannot administer. My question is: How do medication aides function in medical facilities, specifically outpatient dialysis centers? If CMS doesn't allow PCT to administer medications, which rule is followed? That of CMS or that of medication aides? If the medication aide can do all that the PCT is required to do, why are they not just medication aides? Administration of medications with 2 weeks to 18 months of training doesn't seem safe to the public to me.
NKC Response: The CMS dialysis federal regulations (see attached CMS federal regulations for ESRD Facilities Vtags 692 – 696) address PCT training and the requirement to adhere to state regulations for registration, certification and practice standards. They do not address heparin and saline specifically; this would fall into the realm of state nurse practice acts and state-specific requirements. The chart below shows the medications administered routinely during outpatient hemodialysis treatments. Heparin and routine injection of normal saline are not included in the Medication Aide scope. They were included in the Advisory Opinion as appropriate for dialysis PCTs.

Medication	Administration Approved by	Reference
Oxygen inhalation	State of Nebraska	Medication Aide Regulation 95-005.01 #2 Advisory Opinion
Lidocaine topical or Intradermal	State of Nebraska	Medication Aide Regulation 95-006.01 #2
Heparin Injection	Board of Nursing	Advisory Opinion
Oral Meds as defined by facility	State of Nebraska	Medication Aide Regulation 95-005.01 #1
Routine Injection of Normal Saline	Board of Nursing	Advisory Opinion

3) There was comparison to a pharmacy tech. I am not versed in their job duties, but my experience is that the pharmacist is always there and they are the ones that prepare the drugs, package them and the tech really acts like a cashier. When I have had medication questions, they get the pharmacist. I'm not seeing a collalation between the duties of a pharmacy tech and a PCT.
4) Allison Dering-Anderson did such a great job, I have nothing further to add.

QUESTIONS FROM COMMITTEE MEMBER DR. ALLISON DERING-ANDERSON

1. The Board of Nursing retired an unenforceable opinion and then they recommended a 407. From my perspective, nothing changed. Retiring an opinion that had no force of law or regulation is a paperwork issue, right? I'm still confused as to how this opinion retirement lead to the recommendation to go through the 407 process. Were there additional instructions? Go through the 407 to have this profession registered because _____. Or something? I don't actually know that answering this question is the duty of the applicant group. I do understand that they need to clearly define the problem and "the board of nursing said so" really isn't a definition, but it would be very helpful to get a history and logic from the Board of Nursing in addition to "why did you retire an opinion?"
2. I am confused as to the administration of medication. Do PCT also register as med aides? Does the Medication Aide process allow for injectable medications?
NKC Response: Please see the response and chart on page 1 which address this same question.

3. Near the end of the meeting there were some comments about adjusting the dialysis solution. That's compounding. I'm interested to know if PCT actually do the compounding, if the compounding is sterile or non-sterile according to the USP definitions and how these dialysis centers meet the new mandates to be in full compliance with the enforceable chapters of USP. <797> and <795>.
NKC Response: Staff who mix dry bicarb with dialysis water do so per manufacturing guidelines. Acid and bicarbonate concentrates (liquid and powder), including acid concentrate additives (spikes) are considered by the FDA to be medical devices not drugs. Each provider has their company approved policy in this area.

4. Page 4 of the actual proposal: "There are over 90 PCT" how was this number arrived at? Was there a facility survey?
NKC Response: The source of that data is Jeff Arnall, Director of Projects, at the Heartland Kidney Network. He provided a list of each outpatient facility in Nebraska and how many PCTs are employed at each facility.

5. Do we have any information from any PCT? Are the people doing this job involved in this process? Everyone who appeared at the meeting on behalf of the applicant group is already a licensed health care provider. Is there any information on the opinions or desires of practicing PCTs?
NKC Response: We are striving to have at least one PCT at the May 2 meeting to provide comments during the open comment time.

6. Page 5 of the proposal: Since 15-April-2008 CMS has required certification of PCT as a condition of participation. Technicians must have 6 – 12 months of experience before taking the examination, but the discussion drew a line at 18 months. Can someone explain this to me more simply? Perhaps a timeline would be helpful. Day 1 – orientation begins then by the 18th month certification must be attained, but I'm hazy on what happens between those 2 points in time.

NKC Response:

Day 1: Employment and training begin

Day 1 – 2 weeks: Orientation/classroom training. State registration would occur during these 2 weeks.

2 weeks to approximately 11 weeks: PCTs move out into the dialysis setting and begin learning patient care duties with a preceptor. Classroom training also continues during this time for a total of 70-90 hours depending upon facility policy and procedure.

Weeks 12-18 months: PCTs have completed initial orientation and work under the supervision of an RN in the hemodialysis clinic. During this time, they perform patient care duties, gain experience, and prepare to take one of the national CMS certification exams.

PCTs have up to 18 months, per federal regulations, to pass their CMS certification exam. From the CMS regulations, V693 Interpretive Guidance, "All patient care (dialysis) technicians (PCT) who are not yet certified must have successfully completed the approved training program before independently providing patient care. 'Successfully completed' means the PCT will have completed all didactic portions of the course and demonstrated competency in the knowledge and skills provided by the training..... Facility policies and procedures should define the curriculum; length of training course; and the method for determining successful completion of the course."

7. Page 5 of the proposal: Practitioners of occupations similar to.... And Page 9 – identify other occupations that perform some of the same functions or similar functions: I believe the answer to those who work closely with PCT is very complete, but I need more information on the "similar to" professions. What other professions in the state have the statutory scope to inject heparin or to "numb the area"? MD, DO, APRN, RN, LPN, RP, DDS and who else?
NKC Response: Any of the above; however, only RNs, LPNs, and dialysis PCTs currently work in the outpatient hemodialysis setting in this capacity. We are not experts on other settings.

8. I have a continuing concern about an actual exemption for home dialysis in some fashion. Since even a registry will define a scope, there needs to be a way for those who assist with hemodialysis at home to not need to be registered and certified within 18 months - - - or not. I don't see that the issue is addressed at all. Is it the intent of the applicant group that everyone performing these tasks be registered and certified within 18 months or not?
NKC Response: Home dialysis was not addressed in the proposal because those who assist patients in the home are not considered professional caregivers. Generally, patients do their own treatments independently. Any assistants are personal caregivers (usually family members) who are simply providing assistance to the patient, or are present if it is determined that the patient needs the assistance of a personal caregiver to perform dialysis safely at home. These personal caregivers are not our employees and are not considered professionals; we do not hire them.

9. Page 11 of the proposal: Inspection requirements are noted to be "not applicable". Are hemodialysis clinics inspected by anyone? Does the state inspect them? Does the Heartland Kidney Network that monitors quality do any on-site inspections?
NKC Response: We were instructed by DHHS to put "not applicable" under this area. Hemodialysis clinics are inspected by state DHHS surveyors. All survey reports are sent to the Heartland Kidney Network. The Network itself does not do any on-site inspections.

10. While the Department clearly has the ability to create a functional system from an administrative perspective, I would like to see how the applicant group pictures this system working. For instance:
A. The potential PCT is hired and must achieve registration within 2 weeks of hire or must apply for registration within 2 weeks of hire, or whatever. Who will be responsible if this doesn't happen?
NKC Response: Dialysis educators/trainers can make this a mandatory part of their training programs to ensure its completion. Registration could be done during class to ensure all have completed the requirements. Registration would be similar to what is currently done when PCTs register to be Medication Aides. The federal CMS Conditions for Coverage for dialysis facilities lay out the basic outline of content for the PCT training (V694), but no actual timeline is stated. So if the PCT does not complete training requirements (including registration), it is the responsibility of the organization to not allow them to practice.

B. The newly registered PCT continues with training and must achieve certification from a body recognized by whom? That certification much be achieved within 18 months of the initial registration. Who will be responsible if this doesn't happen?
NKC Response: The federal certification is recognized by CMS. Employers already closely monitor this because if a PCT does not achieve federal certification within 18 months, they are not allowed to be employed as a dialysis PCT.

C. In order to continue to be registered the PCT must prove to the state that the certification in current and in good standing. Again, notification processes and responsibility of the employer are key to this making sense to me.
NKC Response: This should be the responsibility of the PCT to maintain state registration requirements. Employers can assist and make it part of the annual evaluation to ensure PCTs are meeting and completing registration requirements. This is the same process used for LPNs and RNs.

11. Has anyone done a back of the envelop calculation on how much this registration will cost the PCT and if the people currently performing these tasks see this as a barrier? How much do other registrations like this cost? Pharmacy Technicians are $75.00 every 2 years, I believe, but are there other registrations to use as comparators?
NKC Response: Here are examples from the states that require additional fees beyond the PCT national certification exam. California has their own state PCT exam which costs $225, per the California Dialysis Council website (http://www.californiadialysis.org/cht-exam/certification-faqs.aspx). Kentucky's credential fee is $70 for dialysis PCTs. Mississippi's fee to be a Certified Clinical Hemodialysis Technician is $50. New Mexico's fee for PCT state recognition is $45. Ohio's fee for certification of PCTs is $35. Oregon's fee for a certified hemodialysis technician is $150. West Virginia's fee is $200 to become a certified dialysis technician. All fee information was obtained from the following website which provides more information and links to each state's requirements: http://www.dialysistechniciansalary.org/. See attached "State Specific Requirements for PCTs" which outlines states with additional requirements for PCTs beyond the federal CMS requirements for certification.

12. We are only talking about hemodialysis right? At times during the meeting there was discussion of peritoneal dialysis and I became very confused since these are very different procedures. If someone would clarify for me that this is only hemodialysis that would be helpful. It may also be helpful to have a brief description of both processes so that we are all working from the same body of information.

NKC Response: The advisory opinion, and this credentialing process, relates to dialysis PCTs employed in the outpatient hemodialysis clinics. For educational information on hemodialysis and home dialysis, we recommend the following websites and resources: https://www.kidney.org/atoz/content/dialysisinfo and http://www.kidneyschool.org/pdfs/KSModule2.pdf. Per the latest 2014 Annual Report of the Heartland Kidney Network, 254 Nebraskans do home dialysis and 1,523 people receive dialysis in an outpatient clinic.
(http://heartlandkidney.org/article_resources/NW12_FINAL_2014_Annual_Report_CMS.pdf)

Questions from Michael Millea

1— What possible suggestions for caring for hospital patients were discussed by the nursing group as they contemplated action which led to the 'retirement' of PCT's?
2 — In their discussions were any workable, but heretofore unmentioned, solutions contemplated?
3 — Under current Nebraska law could any other professionally licensed group be considered to 'unretire' the PCT's currently employed in Nebraska hospitals and other dialysis points?

Questions from Dr. Travis Teetor

1. Can a LPN perform all of the same tasks as a PCT? What about a medication aide's scope compared to a PCT? What about a Nurse Aide? Are the PCTs going to have to acquire their local anesthetic certification from the state?
NKF Response: An LPN can perform all of the same tasks as a PCT. See medication chart on page 1. Lidocaine (anesthetic) is included in the Medication Aide registration.
2. Are there going to be any requirements for the PCTs to be BLS trained in case of an emergency?
NKC Response: CMS federal regulations require dialysis staff to be trained in emergency preparedness, administer drills, annual reviews, etc. (§405.2140 Condition: Physical Environment (d) Standard. Emergency Preparedness).
3. Does a registry adequately address the concerns the Board of Nursing has or is licensure necessary?
NKC Response: CMS does not anticipate that PCTs would be licensed. "The CMS requirement for PCT certification applies to unlicensed *(emphasis added)* individuals providing direct patient care" (CMS Memorandum, Centers for Medicare & Medicaid Services (CMS) Approval of State and National Certification Programs for Patient Care Dialysis Technicians (PCTs) under the new End Stage Renal Disease (ESRD) Conditions of Coverage, October 30, 2009, p. 2). Ron and Matt also stated at the first review committee meeting that the lowest level credentialing of a professional should be the goal of this process.
4. A question for the Board of Nursing - Why is this all of a sudden an issue when there was no specific sentinel event and according to the applicant group's data, dialysis in Nebraska has had one of the lowest incidences of complications.
5. Do PCTS work in a home health setting at all, or solely in dialysis clinics?
NKC Response: Dialysis PCTs are located solely in dialysis clinics. They are not in home health settings.
6. If PCTS no longer existed in Nebraska, could dialysis centers continue to function, and what would that model look like?
NKC Response: Without PCTs, the current business model would not be able to continue. Likely there would be some facilities which would have to close resulting in access to care issues for dialysis patients. The current Medicare reimbursement model is built on a mixture of licensed and unlicensed personnel.
7. What is the average cost to register and sit for the PCT exam?

NKC Response: The national dialysis PCT certification exams range from $225 - $245 (see attached information on the three exams. Table 1 is for initial certification and Table 2 is for recertification).

SUMMARY OF COMMITTEE INFORMATION REQUESTS

Questions from members of the committee for the dialysis tech applicant group:

Where do dialysis services fit in the overall context of the health care delivery system of a hospital?

NKC Response: Generally, dialysis providers contract with a hospital to provide dialysis for people when they are hospitalized. The dialysis provider manages the facility, although it is located in a hospital. Some hospitals may also manage their own inpatient dialysis areas.

How would the proposal be administered and what body would do this?

NKC Response: We proposed Nebraska dialysis PCT registration be administered through DHHS. The attached list of states with additional requirements of PCTs in the outpatient hemodialysis setting has a variety of oversight entities from state BONs to Departments of Health.

A committee member requested that the minutes of Board of Nursing meetings in which dialysis techs have been discussed be provided.

The committee members requested that staff ask the Board of Nursing to make one of their members available at the next committee meeting on this proposal to answer questions about this Board's 'retirement' of the advisory opinion on dialysis techs.

A committee member asked the applicants to revise their appended tables so as to include more states than just those whose laws match Nebraska's laws.

NKC Response: See attached document of the Peer Study which now includes all regions of the U.S. for comparison.

This committee member would like to be provided with a set of states whose laws resemble the type of law the applicant group is seeking to establish in Nebraska.

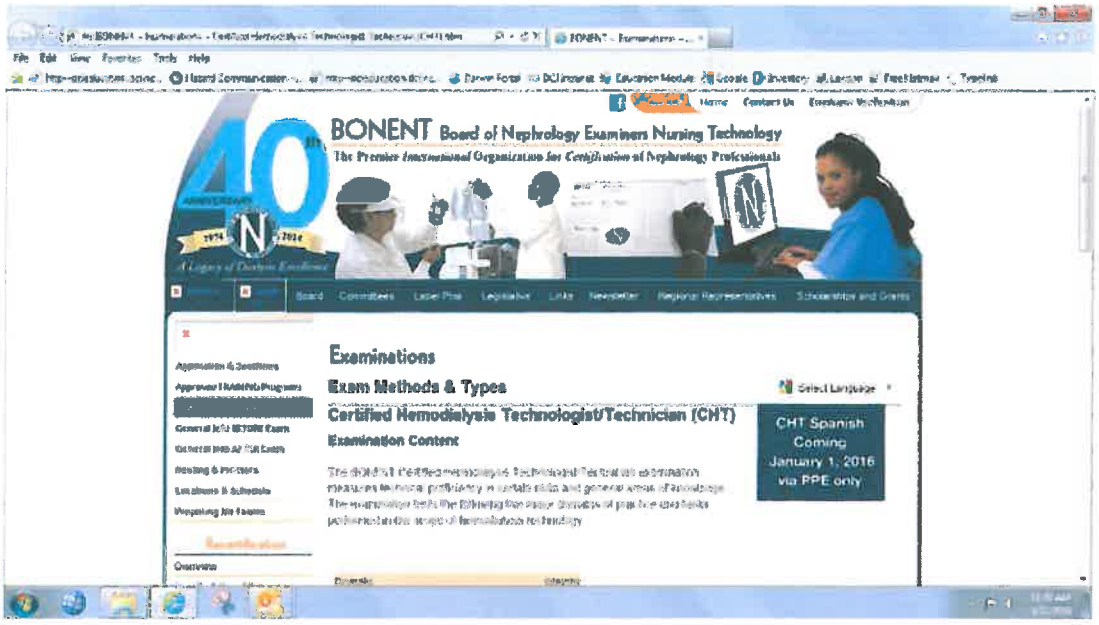
NKC Response: See attached list of states with additional state requirements for dialysis PCTs (certification, registration, etc). However, please notice that the range of function of dialysis PCTs is not uniform in these states.

A committee member asked the applicants to provide a table comparing the range of functions of a 'med aide' and the proposed range of functions of a dialysis tech

NKC Response: See table on page 1 of this document.

Additional information from the Nebraska Kidney Coalition:

Someone at the meeting asked whether the certification exams are in languages other than English. We only found one exam (BONENT) that is now offering Spanish as of January 1, 2016 (screenshot below).



Attachments:

1. Interpretive Guidelines for CMS Regulations for ESRD Facilities V692 – V710, V259 – V260
2. PCT National Certification Exam Overview
3. State Specific Requirements for PCTs
4. PEER Study Maps –
    a. First-year hospital admission rates among incident dialysis patients (pp. 43-45)
    b. Hospital admission rates among prevalent dialysis patients (pp. 47-49)
    c. First-year mortality in incident dialysis patients (pp. 99-101)
    d. Mortality in prevalent dialysis patients (pp. 109-111)

Map key:

* = States with PCT credentialing/state specific requirements (13)

Δ = PCTs are allowed to administer heparin and access central venous catheter via state regulations or RN delegation (22 states)

<u>States with both PCT credentialing and states that allow PCTs to administer heparin and access central venous catheter are as follows</u>: Arizona, Colorado, Connecticut, Ohio, Maryland, New Mexico, Virginia, West Virginia, Oregon

TAG NUMBER	REGULATION	INTERPRETIVE GUIDANCE
		must meet the licensure requirements in the state of practice. Refer to V681. Staff without master's degrees in social work, including bachelor's prepared social workers, may function as assistants under the supervision of the qualified social worker and provide services such as assisting with transportation arrangements; providing information and helping patients apply for Medicare, Medicaid and other insurance benefits to assure payment for care; and locating resources to assist in payment for adequate nutrition, housing, and medications. Only masters-prepared social workers may do assessments, develop psychosocial plans of care, provide counseling to patients and families, and participate as the social worker in the facility's QAPI program. The grandfather clause at (2) applies to very few social workers, as it only applies to those social workers who have worked in dialysis or transplant facilities since September 1, 1975 and who had at least two years of social work experience on September 1, 1976 when the original ESRD Conditions for Coverage became effective. The social worker who "qualifies" as a social worker through this grandfather clause must have a "consultative relationship" with a qualified social worker. A "consultative relationship" requires a written agreement outlining the supervision that will be provided by the masters-prepared social worker. Since the professional responsibility for services lies with the masters-prepared social worker, this agreement needs to be consented to and signed by both parties. Having the masters-prepared social worker co-sign social service medical record entries made by the other social worker is not sufficient to meet the consultative relationship requirement.
V692	*(e) Standard: Patient care dialysis technicians.* Patient care dialysis technicians must— (1) Meet all applicable State requirements for education,	A "patient care (dialysis) technician" (PCT) means any person who provides direct care to patients and who is not classified as another professional, e.g., nurse, dietitian, or social worker. A biomedical

TAG NUMBER	REGULATION	INTERPRETIVE GUIDANCE
	training, credentialing, competency, standards of practice, certification, and licensure in the State in which he or she is employed as a dialysis technician; and (2) Have a high school diploma or equivalency;	technician or dialysis assistant would be classified as a PCT if he/she has responsibility for direct patient care or to set up machines for patient use. A technician who maintains or "takes down" machines after use without direct patient contact is not considered a PCT under these regulations. Patient care (dialysis) technicians must meet requirements of the applicable State for education and training to provide patient care in dialysis facilities, including any State requirements related to practice standards, certification or registration. CMS recognizes there are some experienced PCTs working in dialysis facilities as of the effective date of these rules who may not have evidence of a high school diploma or equivalency. PCTs with greater than 4 years work experience in dialysis as of 10/14/08 who lack evidence of a high school diploma may use that work experience in lieu of the requirement for high school diploma.
V693	(3) Have completed a training program that is approved by the medical director and governing body, under the direction of a registered nurse, focused on the operation of kidney dialysis equipment and machines, providing direct patient care, and communication and interpersonal skills, including patient sensitivity training and care of difficult patients.	There must be a training program for patient care dialysis technicians, approved by the medical director and governing body and directed by a registered nurse. The training program may be conducted at the facility or at another location. Community or corporate-based programs are acceptable if the required components are included; the program is under the direction of a registered nurse; and the program has been approved by the medical director and governing body. All patient care (dialysis) technicians (PCT) who are not yet certified must have successfully completed the approved training program before independently providing patient care. "Successfully completed" means the PCT will have completed all didactic portions of the course and demonstrated competency in the knowledge and skills provided by the training.

TAG NUMBER	REGULATION	INTERPRETIVE GUIDANCE
		For "experienced" PCTs, meaning those PCTS who have been employed as a PCT for more than 2 years as of the effective date of these regulations, who do not have documentation of having completed a training program covering the listed content, competency may be demonstrated by successful completion of a facility's written exam(s) over the required content and a skills checklist completed by observation of the PCT's skills by a registered nurse. Successful completion of these exam(s) and competency testing would not negate the need for these experienced PCTs to achieve certification within the specified time period. Facility policies and procedures should define the curriculum; length of training course; and the method for determining successful completion of the course.
V694	The training program must include the following subjects: (i) Principles of dialysis. (ii) Care of patients with kidney failure, including interpersonal skills. (iii) Dialysis procedures and documentation, including initiation, proper cannulation techniques, monitoring, and termination of dialysis. (iv) Possible complications of dialysis. (v) Water treatment and dialysate preparation. (vi) Infection control. (vii) Safety. (viii) Dialyzer reprocessing, if applicable.	The training program must include the content referenced in the regulation, at a minimum.
V695	(4) Be certified under a State certification program or a national commercially available certification program, as follows— (i) For newly employed patient care technicians, within 18 months of being hired as a dialysis patient care	Certification can occur under the aegis of either a national commercially-available program or a State program. At the time of publication of these regulations, there were three national commercially-available certification programs: the Certified

TAG NUMBER	REGULATION	INTERPRETIVE GUIDANCE
	technician; or (ii) For patient care technicians employed on October 14, 2008, within 18 months after such date.	Clinical Hemodialysis Technician (CCHT) examination offered by the Nephrology Nursing Certification Commission (NNCC), the Board of Nephrology Examiners for Nursing and Technology (BONENT) exam, and the National Nephrology Certification Organization (NNCO) exam. CMS has approved these three national certification programs for ESRD patient care technician certification. Additional national programs that are interested in offering a certification program may apply to CMS for approval. These national commercially-available certification programs require a patient care dialysis technician to successfully pass a standardized certification examination in a proctored environment, and maintain certification through current work experience and continuing education. State certification programs which have a formal certification and competency program (including standardized tests, which reflect the content listed in the regulation, administered in a proctored environment by an independent examiner) that is specific to patient care dialysis technicians, can satisfy this requirement. A "standardized test" is one developed and tested to validly and reliably measure the knowledge required to demonstrate competency in the area. If the state requires certification by a national commercially-available certification program, this regulation expects continued certification under the requirements of the national commercially-available program. Patient care dialysis technicians working on October 14, 2008, who are not yet certified under an approved program, must be certified before April 15, 2010. Patient care technicians hired after October 14, 2008 must be certified within 18 months of their hire date as a patient care technician. If a patient care technician who is not certified changes jobs from one dialysis facility to another, the time he/she was

TAG NUMBER	REGULATION	INTERPRETIVE GUIDANCE
		employed in the first facility will count toward the 18-month deadline for certification unless he/she had a gap in employment as a patient care technician of more than 18 months. A reuse technician or a water treatment technician who does not provide direct patient care does not require certification as a patient care dialysis technician. The training curriculum for persons performing hemodialyzer reprocessing is delineated under the Condition for Reuse of hemodialyzers and bloodlines at V308. The training for persons responsible for operating and testing the water treatment and dialysate preparation systems is addressed under the Condition for Water and dialysate quality at V260. If a reprocessing technician or water treatment technician changes positions to become a patient care technician, he/she must be certified in 18 months from the date he/she begins the new PCT position.
V696	*(f) Standard: Water treatment system technicians.* Technicians who perform monitoring and testing of the water treatment system must complete a training program that has been approved by the medical director and the governing body.	Any staff member who operates the water treatment system must complete a training program approved by the medical director and the governing body prior to independently performing water treatment system tasks. Refer to V260 in the Condition for Water and dialysate quality for additional requirements related to training for the persons operating the water/dialysate systems.
V710	**§ 494.150 Condition: Responsibilities of the medical director.**	This Condition defines the role the facility medical director is expected to assume to ensure the delivery of quality patient care and clinical outcomes. Most deficient practices identified in the delivery of quality patient care and patient clinical outcomes are most appropriately cited under the Conditions pertinent to the practice (e.g., infection control practices, lack of patient assessment or plan of care implementation). Citation of these standards or this Condition should be considered when deficient practices are pervasive, the results of the deficient practices are egregious, or the deficient practice identified is not covered under other Conditions.

TAG NUMBER	REGULATION	INTERPRETIVE GUIDANCE
		such methodology is approved by FDA.
V259	**ANSI/AAMI RD52:2004 Requirements as Adopted by Reference 42 CFR 494.40 (a)** **9 Personnel:** ***P & P*** Policies and procedures that are understandable and accessible are mandatory.	
V260	**ANSI/AAMI RD52:2004 Requirements as Adopted by Reference 42 CFR 494.40 (a)** **9 Personnel:** ***training program/periodic audits*** A training program that includes quality testing, the risks and hazards of improperly prepared concentrate, and bacterial issues is mandatory. Operators should be trained in the use of the equipment by the manufacturer or should be trained using materials provided by the manufacturer. The training should be specific to the functions performed (i.e., mixing, disinfection, maintenance, and repairs). Periodic audits of the operators' compliance with procedures should be performed. The user should establish an ongoing training program designed to maintain the operator's knowledge and skills. *End of ANSI/AAMI RD52 requirements*	The operators of the water/dialysate system equipment must be trained by the manufacturer of the equipment, or the training must be done from materials provided by the manufacturer. Water treatment service vendors may do the training using materials from the manufacturer. The facility must define the frequency of audits to evaluate the operators' compliance: these should include actual observation of the work: e.g., collecting samples, performing water testing. Audits should be done at least annually and more frequently if problems are identified. This tag addresses the content of the training for personnel responsible for the water and dialysate systems, and audits for compliance with procedures. Whether the personnel responsible for the water treatment system have been trained is addressed in the Condition for Personnel qualifications, at V696.
No Tag	*(b) Standard: chlorine/chloramines.* (1) The water treatment system must include a component or carbon tank which removes chlorine/chloramine along with a backup component or	These requirements are duplicative of requirements in AAMI RD52:2004, adopted by reference. For (b)(1): Refer to V192 for the failure to have primary and

Patient Care Technician National Certification Exams

	Nephrology Nursing Certification Commission (NNCC)	Board of Nephrology Examiners for Nurses and Technicians (BONENT)		National Nephrology Certification Organization (NNCO) Professional Testing Corporation
Credentials	Certified Clinical Hemodialysis Technician (CCHT)	Certified Hemodialysis Technician (CHT)		Certified Clinical Nephrology Technician (CCNT)
Contact Info.	East Holly Avenue Box 56 Pitman, NJ 08071 888-884-6622 **www.nncc-exam.org**	1901 Pennsylvania Ave NW, Suite 607 Washington, DC 20006 202-462-1252 **www.BONENT.org**		1350 Broadway, 17th Floor New York, NY 10018 212-356-0660 **www.ptcny.com**
Experience Required	6 months (Suggested)	1 Year		1 Year
Pre-requisites	• High School Diploma or Equivalent • Successfully completed a training program for PCTs that includes both classroom and supervised clinical practice experience • In compliance with state regulations • Signed letter from supervisor or preceptor	• High School Diploma or Equivalent • Currently actively working in a dialysis facility • Two signed letters (Supervisor and one other professional in the field of nephrology)		• Have a minimum of a high school diploma or the equivalent OR four years of full time experience in the field of nephrology technology • Completion of a one year nephrology technology training program* with clinical experience and/or completion of a combination nephrology technology training program of less than 1 year and work experience equivalent to 1 year • Completion and filing of an Application for the Certification Examinations in Nephrology Technology
Test Taking Methods	Computer Based Test (CBT) Paper and Pencil Exam (PPE)	Paper and Pencil Exam (PPE)	Computer Based Test (CBT)	Paper and Pencil Exam (PPE)
Exam Fee	$225	$200	$225	$245
Fee to Re-take Exam	$225	$160 if retaken within 1 year $200 if retaken after 1 year	$185 if retaken within 1 year $225 if retaken after 1 year	$245

Patient Care Technician National Certification Exams

	Nephrology Nursing Certification Commission (NNCC)	Board of Nephrology Examiners for Nurses and Technicians (BONENT)	National Nephrology Certification Organization (NNCO) Professional Testing Corporation
Recertification Fee	$75 ($100 for expiration Dates on or after 11/1/2011)	**Annual** Certification/Membership Fee $55 (or $200.00 in advance for 4 years)	$75
On-Line Practice Exams	$30	$50	N/A
OTHER FEES	***See Website for Other Fees***	***See Website for Other Fees***	***See Website for Other Fees***
Length of Certification	3 Years	4 Years	4 Years
Qualifications for Recertification	• Applicant must be a Certified Clinical Hemodialysis Technician (CCHT). • Applicant must have a minimum of 2000 hours of work experience as a hemodialysis patient care technician within the two-year period of certification. Effective with certifications earned on or after 11/1/08, applicant must have a minimum of 3000 hours of work experience as a hemodialysis patient care technician within the three-year period of certification	• All recertification materials must be submitted 30 days prior to expiration. If submitted late, the certification lapses and you must either: 1) Retake exam 2) Submit letter of explanation and pay $100.00 penalty	• Must re-take and pass the certification exam OR • Meet the alternative requirements in effect at that time
Continuing Education Requirements for Recertification	• Twenty (20) contact hours of hemodialysis patient-related continuing education. Effective with certifications earned on or after 11/1/08, thirty (30) contact hours of hemodialysis patient-related continuing education.	• Forty (40) Contact Hours of hemodialysis related continuing education	• Thirty (30) Contact Hours related to the practice of nephrology technology • A maximum of 15 CH may be from employment in the nephrology business network. (3.75 per year)
Application Submission Timeline	• Application must be postmarked ten (10) weeks prior to exam date	• Application must be received 45 days before exam date	• Application must be postmarked 1 month prior to exam date

State Specific Requirements for PCTs

Federal (CMS) requirements for PCT certification apply to dialysis technicians practicing in all states.

To be a nationally recognized certification provider by CMS, a PCT certification program must contain all of the following:

(1) Provide a qualifying standardized test, as defined by:
   a. Expert development and review – test is developed by a group of subject matter experts representing more than one provider entity.
   b. Content adequacy, validity, equivalency and scoring – the test measures a student's performance against specific standards.
   c. Reliability – test produces consistent scores among different testing conditions or versions of the test; free from bias.
   d. Integrity – questions kept from distribution outside of the test environment
   e. Protected from casual distribution

(2) Have an independently proctored and protected test environment

(3) Require ongoing certification

The three CMS approved national certifying organizations are:

- Nephrology Nursing Certification Commission – Certified Clinical Hemodialysis Technician
- Board of Nephrology Examiners Nursing and Technology – Certified Hemodialysis Technician
- Nephrology Certification Organization – Certified Nephrology Technologist

State	PCT Credentialing Requirements	Comments
AZ	Arizona Revised Statutes 36-423 Facilities that provide hemodialysis treatment shall use only hemodialysis technicians certified by a national organization that certifies dialysis technicians. The department of health services has established specific clinical practice restrictions for hemodialysis technician trainees. This is	Arizona has detailed Clinical Practice Restrictions for Hemodialysis Technician Trainees. The state does not have a separate process for registering or credentialing dialysis technicians, but requires the CMS process for dialysis technician certification by a national organization.

	defined in the Department of Health Services Health Care Institutions: Licensing rules (R9-10-113). A hemodialysis technician trainee may provide hemodialysis treatment in the facility unless the trainee fails to pass the national certification exam within two years after employment (NOTE: CMS requires dialysis technicians to be certified within 18 months of beginning work as a dialysis technician). The hemodialysis facility must maintain the verification of each dialysis technician's certification in the technician's personnel file.	
CA	Article 3.5 Hemodialysis Training [1247 – 1247.9] Hemodialysis technicians are considered unlicensed health care providers. In order to work in a dialysis facility, hemodialysis technicians must be certified by the state in order to work. Once certified by CA, the hemodialysis technician is known as a Certified Hemodialysis Technician (CHT). State certification must be renewed every 4 years and requires 30 hours of in-service training/continuing education in dialysis care or general health care. The CHT is only applicable in California and is not recognized by other states. If a CHT wishes to work in another state, the CHT has to obtain national certification. Hemodialysis technicians may also obtain certification via a national certification body, but they must also achieve and maintain certification through the state (as a CHT).	CA has elected to develop its own certification program and testing program through the California Dialysis Council. CMS has approved the CA hemodialysis technician certification program as equivalent to the three CMS-approved national certification programs.

	Dialysis facilities may provide hemodialysis training and testing programs, but they must meet all state requirements and be approved by the state before being implemented. Dialysis technicians in training must be identified as a hemodialysis technician trainee and must be under the immediate supervision of a licensed physician or RN whenever involved in patient treatment.	
CO	CO regulations mimic the CMS regulations for dialysis technician certification. The CO regulations are part of the state's regulation of dialysis facilities. Dialysis facilities may only employ hemodialysis technicians that have been certified by a national credentialing program and meet all the requirements CMS has set for hemodialysis technicians. Dialysis technicians must work under the supervision of a physician or RN. Dialysis technician trainees must work under the direct supervision of a physician or RN with dialysis training or experience. The supervising physician or RN must be on the premises and available for prompt consultation or treatment. Dialysis technician trainees must obtain certification within 18 months of being hired as a dialysis patient care technician. The dialysis training program must cover all of the information required by CMS for dialysis technician training. The dialysis facility must keep a list of all dialysis technicians, their date of hire (or date that they entered the training program) and the name of each certification organization.	Colorado has incorporated the technician training and certification requirements in the state's ESRD facility licensure regulations.

	Dialysis technicians must recertify per the processes of the national certifying body. Individual technicians are not required to apply to CDPHE for certification and CDPHE does not maintain a registry of credentialed technicians. It is the responsibility of the dialysis facility to ensure only properly credentialed technicians are employed. The state verifies dialysis technician credentials before granting initial licensure to a dialysis facility; once a year after granting the license, during the renewal period, and during routine on-site inspections, which occur every 3 years.	
CT	Connecticut General Statutes Section 19a – 269A requires dialysis technicians to be certified via one of the three CMS approved national certifying organizations: • Nephrology Nursing Certification Commission – Certified Clinical Hemodialysis Technician • Board of Nephrology Examiners Nursing and Technology – Certified Hemodialysis Technician • Nephrology Certification Organization – Certified Nephrology Technologist Dialysis technicians must work under the direct supervision of the Registered Nurse, which means the RN is in the same room in which treatments are being performed. Dialysis technicians must complete a training program that is approved by the facility's governing body and contains required content. An RN must coordinate and document the training of the dialysis technician and ensure that all technicians have completed the	Dialysis technician certification is mandated through the state's dialysis facility licensing regulations.

	training and demonstrated competency in all clinical and theoretical areas. The dialysis technician must have an annual evaluation of performance and participate in continuing education annually.	
KY	201 KAR 20:470. Dialysis technician credentialing requirements and training program standards The KY Board of Nursing (BON) oversees and credentials dialysis technicians in the state. Any person who wants to work as a dialysis technician must complete a Kentucky Board of Nursing approved Dialysis Technician Training Program. Dialysis technician applicants cannot work until they are issued either a Dialysis Technician Applicant (DTA) status or Dialysis Technician Credential (DTC) from the Board. While in training, the person may use the title "Dialysis Technician Trainee". Once training is complete, the trainee must immediately submit an "Application for Dialysis Technician (DT) Credential". The DT must also submit a copy of his/her DT Training Program Completion Certificate as proof of completion of the DT Training Program, a criminal record check report from the Kentucky Administrative Office of the Courts, CourtNet Disposition System that is dated within six months of the date of application and a Federal Bureau of Investigation (FBI) Applicant Fingerprint Card must be submitted to the Kentucky State Police, Frankfort, KY.	The KY BON provides detail on how to obtain the criminal record checks, fingerprints, etc. and they want detail on any misdemeanor or felony convictions. Every part of the process, from the technician's application to the development and approval of training programs and definition of scope of practice for the technician is regulated by the KY BON. The KY program does not meet the CMS requirements for PCT certification.

	If a dialysis technician was trained out of state, the technician must submit the training program curriculum and evidence of completion to the board. The board determines the program's comparability with the KY training standards and regulations. State certification is good for 2 years. Each DT must apply for renewal one month prior to the expiration of the DT credential. The DT must also obtain and submit evidence of obtaining and maintaining certification from one of the nationally recognized certification programs at the first renewal. Out of state applicants must complete the portion of a board-approved dialysis technician training program related to specific portions of the legal and ethical aspects of practice applicable to approved KY programs. There is additional detailed information required for out of state applicants. The KY BON has detailed processes for renewal, reinstatement, scope of practice and discipline. There is also very detailed information on the required training program standards and process required for BON approval of the program.	
MD	COMAR 10.39.02.00 Title 10 Department of Health and Mental Hygiene Subtitle 39 – Board of Nursing – Certified Nursing Assistants Dialysis centers licensed by the state of Maryland are eligible to be approved to teach the Certified Nursing Assistant – Dialysis Technician (CNA-DT) Program. The dialysis center must meet the requirements for the Nursing Assistant Training Program Regulations and tech the Board approved uniform CNA-DT Training Program.	The MD BON oversees the dialysis technician program as a subset of its certified nursing assistant program. The MD program does not meet the CMS requirements for PCT certification.

	Training Programs will be surveyed periodically by the Board of Nursing (BON) and must submit their program for Board approval every two years. The training program, curriculum requirements and application must be obtained directly from the board and are not available online or electronically. The training program requirements are detailed. CNA-DT must obtain at least 3 hours of continuing education each year.	
MS	<u>Title 30: Professions and Occupations</u> <u>Part 2860 Certified Clinical Hemodialysis Technicians</u> In-state training programs must be approved by the BON. If the trainee's first language is not English, evidence of competence in English is required. Certification by one of the three national certifying bodies is required and must be maintained. CCHTs shall complete the renewal process by submitting a renewal application by July 31 of every odd numbered year. The CCHT regulations define the authorized and prohibited functions of the CCHT. They also address: • disciplinary action • education (including refresher course requirements) • minimum standards for the hemodialysis technician training program • approval of hemodialysis technician training programs	The MS Board of Nursing (BON) oversees certification of hemodialysis technicians.

	• hemodialysis technician certification examination. Note that the BON has its own certification examination that is administered 6 times each year and as needed. The CCHT Training Transcript/Verification form for a CCHT applicant with five or more years of experience requires that the applicant successfully perform at least 45 RN supervised cannulations.	
MT	Montana Board of Nursing Rule: 24.159.1640 The Montana Board of Nursing doesn't register or track dialysis technicians. PCT practice is addressed through the BON's Advanced Delegation to UAPs Working in the Dialysis Unit. For the UAP to receive delegation of advanced nursing tasks identified in this rule, several criteria must be met. One criteria is that the UAP must be certified by NNCC or BONENT. Beyond the delegated tasks, the PCT would be required to meet all federal CMS regulations for dialysis technicians.	Montana has very limited state ESRD facility regulations. Montana does not recognize the NNCO certification program.
NM	Title 16 Occupational and Professional Licensing Chapter 12 Nursing and Health Care Related Providers Part 4 Hemodialysis Technicians Dialysis technicians must be certified by the state's certification processes.	The New Mexico BON regulates dialysis technician practice. The regulations give detailed processes for provision of board-approved training programs and oversight of dialysis technician certification.

	Technicians must complete a board-approved hemodialysis technician program and complete the state's application and submit required fees. Written verification of the state-approved training program must be provided by the program at least 30 days prior to the examination date. The Board develops and maintains the board-approved certification exam, which is offered 6 times/year. Recertification is required every 2 years. • 16 contact hours of continuing education must be accrued within the 24 months immediately preceding recertification. Acceptable courses are those with topics related to care and safety of the patient undergoing dialysis treatment. • Applicants must provide evidence of a minimum of 1000 hours work as a CHT during the 24 months prior to recertification. The BON sets standard of function for the Certified Hemodialysis Technician (CHT). The BON provides processes for entry level technician certification (CHT) and advanced level certification (CHT II) with an expanded scope of practice.	
OH	All dialysis training programs must be approved by the Ohio Board of Nursing (BON). The BON has a detailed application and criteria for this on its website. The BON currently does not recognize the NNCC certification examination and only recognized BONENT and NNCO.	The OH Board of Nursing regulates dialysis technician certification and practice.

	Dialysis technicians who have not yet passed a national certification exam approved by the BON (see above) may be eligible for a Dialysis Technician Intern Certificate (DTI) that expires 18 months after the training program is completed. The application is detailed and includes information required to apply. Dialysis technicians who have passed a national certification exam approved by the BON may be eligible for an Ohio Certified Dialysis Technician Certificate (OCDT). Additional forms and an application must be submitted for the DTI who wishes to become an OCDT. Criminal records checks are required for certification. Certification applications require attestation of the training program completion and technician competency and employment. Ohio requires that the dialysis technician work for 12 months before taking a certification examination.	
OR	Oregon Administrative Rules OAR 333-275-0001 – 333-275-0180 These rules establish standards for the training, testing and certification of hemodialysis technicians in Oregon. Hemodialysis technicians must have a current, valid Oregon CHDT certificate and be listed on the CHDT Registry before assuming hemodialysis technician duties. Dialysis technicians must complete a division-approved hemodialysis technician training program.	Oregon's dialysis technicians are regulated by the Oregon Health Authority, Department of Public Health, Division 275.

	Applicants must complete the approved application and provide all required background checks and other required information and fees. Initial certification expires after one year; all subsequent certifications expire after two years, unless suspended or revoked. Applicants for renewal must provide evidence of the following within the previous 24 month period: • working at least 1000 hours • at least 20 contact hours of Division-approved continuing education These regulations also define: • the duties and scope of practice of the CHDT • the guidelines and minimum curriculum for training programs to qualify for CE credit and division approval Trainee technicians must work under the direct clinical supervision of a nurse educator, clinical preceptor or technician educator.	
VA	VIRGINIA DEPARTMENT OF HEALTH PROFESSIONS REGULATIONS GOVERNING THE CERTIFICATION OF DIALYSIS TECHNICIANS Title of Regulations: 18 VAC 75-40-10 et seq. Statutory Authority: Chapter 27.01 of Title 54.1 of the Code of Virginia Dialysis technicians must be certified by one of the three national certifying bodies.	Oversight of the dialysis technicians is done by the individual dialysis facilities. There is no state registry or application process. The state regulations are promulgated through the Board of Health Professions.

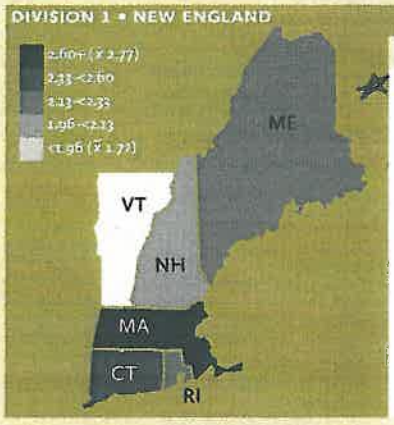
	Dialysis technicians must practice under the supervision of a licensed practitioner of medicine or a registered nurse. Initial certification and recertification is done per the processes specified by the specific national certifying body.	
WV	19 CSR 13, Title 19, Legislative Rule West Virginia Board of Examiners for Registered Professional Nurses Series 13, Dialysis Technicians The legislative rule establishes the general requirements for certification, renewal and reinstatement of certification for dialysis technicians, delegation of acts by the RN to dialysis technicians, discipline of dialysis technicians and approval of dialysis technician training programs. All dialysis technician training programs must be approved by the BON. Approvals are good for 2 years. The Board has defined a detailed list of requirements for training programs that cover content and process. The Board currently recognizes all three of the national CMS-approved certifying bodies. Technician applicants must submit an application with all required documentation and fees to the Board.	The Board of Nursing oversees the training and practice of dialysis technicians.

★ = States with PCT credentialing /state specific requirements (13)
Δ = PCTs are allowed to administer heparin and access central venous catheter via state regulation or RN delegation (22)

First-year hospital admission rates among incident dialysis patients

After first Medicare-covered dialysis session in freestanding facility.
Admissions per patient year; APC, Annual Percent Change. Maps show 2010 rates.

DIVISION 1 • NEW ENGLAND



	2003	2004	2005	2006	2007	2008	2009	2010	APC
All	2.53	2.53	2.61	2.53	2.47	2.65	2.47	2.46	-0.4
Connecticut Δ	2.43	2.32	2.39	2.53	2.39	2.44	2.34	2.36	-0.2
Maine Δ	1.98	2.32	2.08	1.85	1.73	2.14	1.98	2.14	-0.3
Mass. Δ	2.72	2.65	2.88	2.70	2.69	3.00	2.76	2.68	0.2
New Hamp. Δ	2.22	2.49	2.36	2.52	2.24	2.73	2.09	2.06	-1.3
Rhode Island Δ	2.73	2.81	2.63	2.20	2.40	2.04	2.22	2.25	-3.7
Vermont	.	.	.	.	.	.	.	.	.

- First-year hospital admission rates have declined modestly in New England, at a rate of 0.4 percent per year between 2003 and 2010.
- Rates have declined sharply in Rhode Island, from a peak of 2.81 admissions per patient year in 2004 to a nadir of 2.04 in 2008, with some rebound thereafter.
- The highest rate in the division has consistently been observed in Massachusetts, with 2.68 admissions per patient year in 2010. In that state, rates have changed very little since 2003.

DIVISION 2 • MIDDLE ATLANTIC

	2003	2004	2005	2006	2007	2008	2009	2010	APC
All	2.86	2.84	2.96	2.88	2.76	2.72	2.65	2.65	-1.4
New Jersey Δ	2.93	2.97	3.09	3.03	2.85	2.88	2.62	2.60	-2.1
New York	2.73	2.71	2.90	2.77	2.75	2.70	2.68	2.65	-0.6
Pennsylvania	2.93	2.89	2.95	2.87	2.69	2.62	2.63	2.68	-1.8

- First-year hospital admission rates have decreased 1.4 percent per year in the Middle Atlantic, where rates have tended to be very similar among the constituent states.
- The largest decrease has occurred in New Jersey, where rates have fallen 2.1 percent per patient year, resulting in roughly 1 fewer admission per 9 patient years in 2010 versus 2003.
- Rates in New York have fallen relatively less than in the rest of the division.

DIVISION 3 • EAST NORTH CENTRAL

	2003	2004	2005	2006	2007	2008	2009	2010	APC
All	2.73	2.64	2.71	2.62	2.70	2.71	2.65	2.61	-0.3
Illinois	2.83	2.86	2.84	2.74	2.79	2.79	2.75	2.73	-0.6
Indiana Δ	2.36	2.20	2.49	2.23	2.43	2.54	2.32	2.46	0.8
Michigan Δ	2.70	2.63	2.73	2.60	2.73	2.81	2.77	2.70	0.4
Ohio Δ	2.94	2.81	2.78	2.88	2.87	2.76	2.85	2.69	-0.7
Wisconsin Δ	2.51	2.25	2.42	2.32	2.23	2.35	1.98	1.92	-3.1

- First-year hospital admission rates have fallen 0.3 percent per year in the East North Central states, the smallest rate of decline among all U.S. Census Divisions.
- Rates in Indiana and Michigan actually tended to increase between 2003 and 2010.
- Rates in Wisconsin, however, have decreased 3.1 percent per year, one of the ten largest rates of decline in the country.

HOSPITALIZATION

First-year hospital admission rates among incident dialysis patients (continued)

DIVISION 4 • WEST NORTH CENTRAL

	2003	2004	2005	2006	2007	2008	2009	2010	APC
All	2.49	2.55	2.60	2.47	2.44	2.45	2.31	2.36	-1.3
Iowa	2.40	2.38	2.29	2.52	2.17	2.27	2.03	2.11	-2.2
Kansas	2.21	2.40	2.50	2.14	2.17	2.24	2.28	2.06	-1.3
Minnesota ▲	2.57	2.72	2.99	2.90	2.58	2.50	2.35	2.43	-2.1
Missouri	2.66	2.66	2.76	2.57	2.63	2.59	2.45	2.59	-0.9
Nebraska	2.29	2.37	2.10	1.96	2.30	2.39	2.05	2.12	-0.8
North Dakota	2.25	1.90	1.52	.	.	1.77	2.41	2.30	.
South Dakota	1.97	2.12	1.91	2.18	1.33	2.17	1.90	2.27	0.4

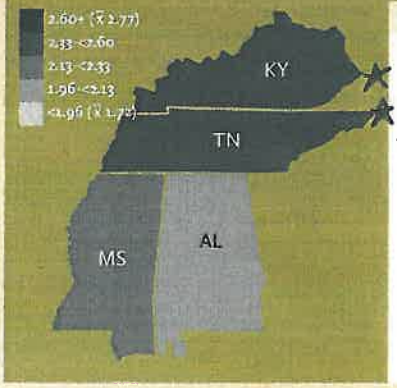
- First-year hospital admission rates have decreased 1.3 percent per year in the West North Central states. Leading the division are Iowa and Minnesota, where admission rates have fallen by slightly more than 2 percent per year.
- Among all states in the division, the highest rate in 2010 was observed in Missouri.

DIVISION 5 • SOUTH ATLANTIC

	2003	2004	2005	2006	2007	2008	2009	2010	APC
All	2.56	2.61	2.63	2.54	2.46	2.44	2.48	2.41	-1.1
Delaware	1.84	2.05	2.30	2.18	2.10	1.92	2.03	2.11	0.4
D.C.	2.49	2.51	2.99	2.25	2.50	2.60	2.98	2.41	0.4
Florida	2.90	2.83	2.85	2.82	2.83	2.84	2.80	2.74	-0.6
Georgia	2.37	2.38	2.47	2.35	2.20	2.19	2.24	2.21	-1.5
Maryland ▲	3.00	3.12	3.17	3.12	2.98	3.00	3.34	2.77	-0.5
N Carolina ▲	2.29	2.43	2.42	2.31	2.13	2.08	2.10	2.10	-2.2
S Carolina	2.14	2.33	2.33	2.18	2.21	2.02	1.95	2.03	-2.0
Virginia ▲	2.48	2.43	2.44	2.37	2.25	2.26	2.17	2.16	-2.1
West Virginia ▲	2.86	2.97	2.93	2.94	2.74	2.85	3.03	3.44	1.5

- Changes in first-year admission rates in the South Atlantic have been heterogeneous, with some increases in the northern part of the area and modest decreases in the Carolinas.

DIVISION 6 • EAST SOUTH CENTRAL



	2003	2004	2005	2006	2007	2008	2009	2010	APC
All	2.67	2.63	2.47	2.49	2.54	2.35	2.33	2.26	-2.2
Alabama	2.86	2.78	2.40	2.54	2.44	2.24	2.13	2.04	-4.6
Kentucky	2.74	2.78	2.65	2.50	2.92	2.64	2.72	2.57	-0.5
Mississippi	2.48	2.35	2.23	2.13	2.22	2.07	2.11	2.13	-2.1
Tennessee	2.57	2.56	2.57	2.70	2.62	2.43	2.38	2.34	-1.5

- First-year hospital admission rates have fallen 2.2 percent per year in the East South Central Division.
- Alabama had the highest rate in the division in 2003, but after a 4.6 percent decrease per year during the subsequent seven years, had the lowest rate in 2010.
- In Kentucky, rates have decreased only modestly, at a rate of 0.5 percent per year.
- After peaking in 2006, rates in Tennessee decreased cumulatively by more than 13 percent in the subsequent four years.

First-year hospital admission rates among incident dialysis patients (continued)

After first Medicare-covered dialysis session in freestanding facility.

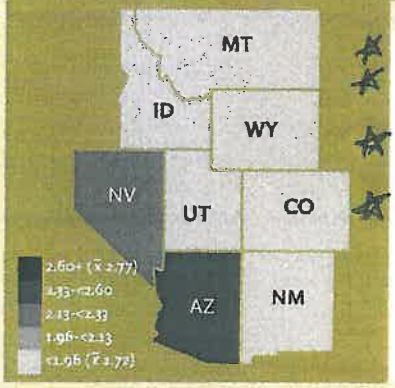
Admissions per patient year; APC, Annual Percent Change. Maps show 2010 rates.

DIVISION 7 • WEST SOUTH CENTRAL

	2003	2004	2005	2006	2007	2008	2009	2010	APC
All	2.57	2.52	2.47	2.39	2.38	2.27	2.20	2.19	-2.4
Arkansas	2.67	2.82	2.73	2.51	2.40	2.55	2.25	2.20	-3.2
Louisiana	3.13	2.92	2.86	2.65	2.64	2.45	2.36	2.33	-4.2
Oklahoma	2.74	2.62	2.63	2.42	2.39	2.31	2.20	2.40	-2.6
Texas	2.37	2.36	2.32	2.31	2.31	2.18	2.16	2.12	-1.6

- First-year hospital admission rates have decreased 2.4 percent per year in the West South Central states, the largest rate of decline among all U.S. Census Divisions.
- Leading the division is Louisiana, where rates fell 4.2 percent per year between 2003 and 2010.
- Admission rates in Oklahoma decreased 2.6 percent per year since 2003 and 2010, but, in a notable deviation from trend, increased substantially between 2009 and 2010.

DIVISION 8 • MOUNTAIN



	2003	2004	2005	2006	2007	2008	2009	2010	APC
All	2.22	2.18	2.18	2.06	2.20	2.08	1.96	2.07	-1.3
Arizona	2.39	2.52	2.37	2.26	2.45	2.23	2.27	2.47	-0.5
Colorado	2.44	2.21	2.31	2.34	2.38	1.92	1.73	1.90	-4.1
Idaho	1.79	1.17	2.02	1.73	1.76	2.03	1.80	1.44	0.8
Montana	2.15	2.22	1.74	1.53	1.95	1.10	1.70	1.95	-3.7
Nevada	2.15	2.33	2.68	1.99	2.26	2.51	2.24	2.13	-0.4
New Mexico	2.19	1.83	1.89	1.93	2.05	1.90	1.71	1.80	-1.9
Utah	1.47	1.58	1.41	1.42	1.67	1.57	1.26	1.48	-0.7
Wyoming	1.33	1.50	1.35	2.08	1.19	1.78	1.28	1.83	2.2

- First-year admission rates have fallen 1.3 percent per year in the Mountain Division, and in 2010 the rate was the lowest among all Census Divisions. In Colorado, rates fell 4.1 percent per year between 2003 and 2010, primarily due to an abrupt decline between 2007 and 2008.

DIVISION 9 • PACIFIC

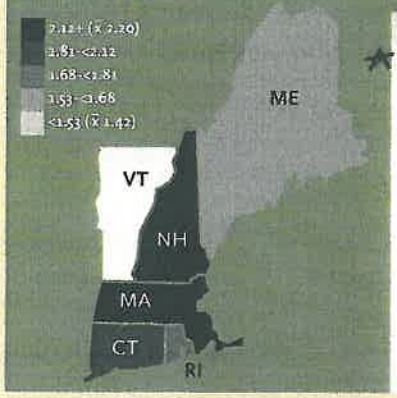
	2003	2004	2005	2006	2007	2008	2009	2010	APC
Pacific	2.35	2.34	2.23	2.13	2.18	2.12	2.11	2.08	-1.8
Alaska	1.92	1.90	1.71	1.67	1.67	1.21	1.63	1.30	-5.3
California	2.40	2.43	2.28	2.24	2.26	2.25	2.22	2.14	-1.5
Hawaii	1.57	1.75	1.47	1.48	1.48	1.25	1.36	1.59	-2.0
Oregon	2.14	1.97	2.22	1.78	2.12	1.65	1.87	1.96	-1.8
Washington	2.33	2.10	2.06	1.92	1.98	1.79	1.82	1.96	-2.7

- In the Pacific Division, first-year hospital admission rates have fallen by 1.8 percent per year, although rates remained relatively stable between 2006 and 2010.
- In California, rates were routinely the highest in the division, and decreased most slowly between 2003 and 2010.
- Alaska's first year hospital admission rates fell 5.3 percent per year between 2003 and 2010, the greatest decrease nationwide.

Hospital admission rates among prevalent dialysis patients

Among Medicare-enrolled dialysis patients on January 1 of each year.
Admissions per patient year; APC, Annual Percent Change. Maps show 2011 rates.

DIVISION 1 • NEW ENGLAND



	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	2.09	2.09	2.09	2.08	2.07	2.08	2.05	1.99	-0.5
Connecticut	1.86	1.87	1.92	1.94	1.89	1.91	1.89	1.83	-0.1
Maine	1.56	1.77	1.67	1.64	1.57	1.75	1.57	1.53	-0.8
Mass.	2.44	2.33	2.34	2.31	2.34	2.30	2.32	2.20	-0.9
New Hamp.	1.83	1.77	1.93	2.05	2.00	1.93	1.94	2.21	2.1
Rhode Island	1.99	2.28	1.98	1.93	1.87	1.99	1.78	1.73	-2.6
Vermont	0.85	0.99	1.48	1.61	.	.	.	.	.

- Although rates decreased by only 0.5 percent per year between 2004 and 2011 in New England, they have fallen sharply since 2009, with a cumulative decline of more than 4 percent. Leading the area has been Rhode Island, with a decline of 2.6 percent per year. In Massachusetts, the most populous state in the division, the rate fell more than 5 percent between 2010 and 2011. The rate in New Hampshire, in contrast, rose 2.1 percent per year between 2004 and 2011, with a substantial increase from 2010 to 2011.

DIVISION 2 • MIDDLE ATLANTIC

	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	2.16	2.22	2.19	2.18	2.15	2.07	2.06	2.04	-1.1
New Jersey	2.25	2.31	2.20	2.19	2.19	2.10	2.06	2.04	-1.7
New York	1.96	2.00	2.03	2.09	2.06	1.98	2.02	1.98	0.1
Pennsylvania	2.36	2.44	2.40	2.30	2.23	2.16	2.11	2.12	-2.1

- In the Middle Atlantic states, hospital admission rates fell by slightly more than 1 percent per year between 2004 and 2011.
- Leading the division was Pennsylvania, where rates decreased by 2.1 percent per year.
- Trailing the division was New York, where rates have been stable since 2004.

DIVISION 3 • EAST NORTH CENTRAL

	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	2.15	2.18	2.19	2.17	2.14	2.13	2.12	2.12	-0.4
Illinois	2.19	2.25	2.21	2.23	2.20	2.18	2.16	2.10	-0.6
Indiana	1.92	1.88	1.88	1.90	1.97	1.99	1.96	2.00	0.8
Michigan	2.24	2.28	2.30	2.23	2.22	2.26	2.22	2.23	-0.3
Ohio	2.18	2.26	2.25	2.25	2.19	2.13	2.17	2.20	-0.4
Wisconsin	1.99	1.94	2.06	1.94	1.90	1.82	1.75	1.75	-2.1

- Hospital admission rates in the East North Central Division fell by only 0.4 percent per year between 2004 and 2011, the lowest rate of decline among all U.S. Census Divisions.
- In turn, the rate in 2011 was 2.12 admissions per patient year, the highest among all U.S. Census Divisions.
- In Indiana, rates rose almost 1 percent per year between 2004 and 2011.
- In Wisconsin, rates fell by more than 2 percent per year between 2004 and 2011, and in 2011 the rate was the lowest in the division.

HOSPITALIZATION

Hospital admission rates among prevalent dialysis patients (continued)

DIVISION 4 • WEST NORTH CENTRAL

	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	2.07	2.05	2.04	2.01	1.97	1.93	1.96	1.94	-1.0
Iowa	2.04	1.92	1.96	1.96	1.80	1.78	1.73	1.62	-2.9
Kansas	1.85	1.80	1.73	1.60	1.65	1.65	1.67	1.53	-2.1
Minnesota	2.27	2.29	2.32	2.29	2.27	2.12	2.25	2.17	-0.8
Missouri	2.16	2.16	2.15	2.18	2.09	2.09	2.12	2.16	-0.2
Nebraska	1.78	1.80	1.75	1.61	1.74	1.56	1.62	1.68	-1.4
North Dakota	2.10	2.00	1.67	1.99	1.56	2.04	1.41	1.51	-4.3
South Dakota	1.97	1.80	1.89	1.91	1.80	2.02	1.69	1.74	-1.2

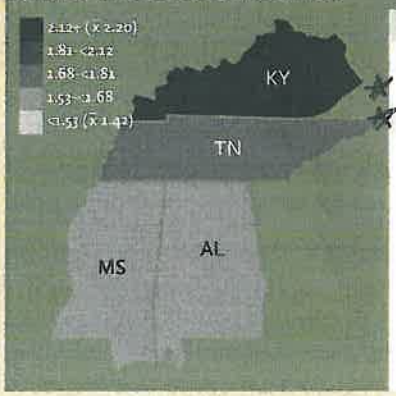
- Rates in this division fell 1.0 percent per year between 2004 and 2011. In North Dakota, the per year decline was 4.3 percent, although the case mix of patients has likely undergone substantial change with the opening of freestanding facilities in the state. Otherwise leading the division was Iowa, with a decline of 2.9 percent per year. In 2011, Minnesota had the highest hospital admission rate in the division, at 2.17 admissions per patient year.

DIVISION 5 • SOUTH ATLANTIC

	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	2.03	2.02	2.00	1.94	1.89	1.88	1.89	1.86	-1.3
Delaware	1.73	1.79	1.91	1.94	1.67	1.63	1.62	1.60	-1.9
D.C.	2.33	2.24	2.13	1.93	2.15	2.05	1.92	1.78	-3.1
Florida	2.18	2.17	2.17	2.11	2.09	2.13	2.10	2.09	-0.6
Georgia	1.85	1.87	1.86	1.77	1.72	1.68	1.71	1.69	-1.6
Maryland	2.49	2.45	2.42	2.42	2.38	2.33	2.39	2.26	-1.1
N Carolina	1.94	1.91	1.90	1.84	1.75	1.71	1.75	1.71	-2.0
S Carolina	1.82	1.86	1.76	1.70	1.67	1.64	1.63	1.63	-2.0
Virginia	1.96	1.88	1.84	1.79	1.72	1.74	1.74	1.75	-1.7
West Virginia	2.15	2.07	2.21	2.35	2.15	2.20	2.18	2.37	2.0

- Hospital admission rates in this division decreased by 1.3 percent between 2004 and 2011, but, in a notable deviation, increased 1.0 percent per year in West Virginia.

DIVISION 6 • EAST SOUTH CENTRAL



	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	1.92	1.99	1.86	1.89	1.87	1.80	1.78	1.74	-1.6
Alabama	1.97	2.01	1.91	1.92	1.77	1.69	1.65	1.66	-3.1
Kentucky	2.04	2.18	2.01	1.96	2.08	2.07	2.14	2.12	0.4
Mississippi	1.73	1.87	1.57	1.73	1.72	1.65	1.61	1.55	-1.6
Tennessee	1.97	1.95	1.97	1.95	1.96	1.89	1.84	1.77	-1.4

- In the East South Central Division, hospital admission rates decreased 1.6 percent per year between 2004 and 2011.
- Leading the division was Alabama, where rates fell by more than 3 percent per year between 2004 and 2011.
- In Kentucky, after admission rates fell to a nadir of 1.96 admissions per patient year in 2007, they have cumulatively increased by 8 percent.

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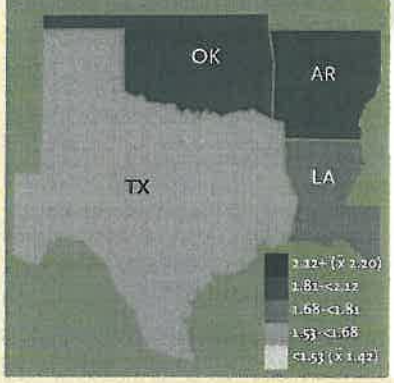
Hospital admission rates among prevalent dialysis patients (continued)

Among Medicare-enrolled dialysis patients on January 1 of each year.
Admissions per patient year; APC, Annual Percent Change. Maps show 2011 rates.

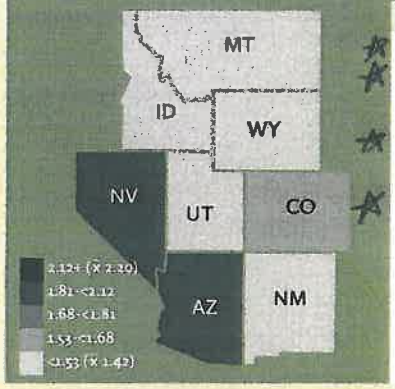
DIVISION 7 • WEST SOUTH CENTRAL



	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	1.99	1.95	1.88	1.81	1.79	1.75	1.71	1.68	-2.4
Arkansas	2.02	2.14	2.04	2.02	2.00	1.84	1.80	1.82	-2.2
Louisiana	2.23	2.11	2.04	1.88	1.84	1.82	1.69	1.68	-4.0
Oklahoma	2.15	2.11	2.02	2.02	1.97	1.91	1.80	1.84	-2.4
Texas	1.91	1.88	1.81	1.75	1.74	1.71	1.70	1.65	-2.0

- In the West South Central Division, hospital admission rates decreased 2.4 percent per year between 2004 and 2011, the most rapid rate of decline among all U.S. Census Divisions.
- Leading the division was Louisiana, where rates fell 4.0 percent per year between 2004 and 2011, the third most rapid rate of decline in the nation.

DIVISION 8 • MOUNTAIN



	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	1.78	1.81	1.77	1.72	1.77	1.74	1.72	1.69	-0.8
Arizona	1.96	2.04	2.00	1.93	2.03	1.95	1.96	1.93	-0.4
Colorado	1.78	1.82	1.78	1.65	1.70	1.68	1.60	1.56	-2.0
Idaho	1.41	1.32	1.32	1.48	1.47	1.52	1.57	1.44	2.7
Montana	1.61	1.69	1.70	1.66	1.52	1.26	1.40	1.48	-3.0
Nevada	1.82	1.83	1.83	1.79	1.90	1.86	1.86	1.81	0.2
New Mexico	1.69	1.66	1.60	1.59	1.60	1.56	1.51	1.48	-1.7
Utah	1.27	1.45	1.42	1.37	1.29	1.37	1.36	1.40	0.3
Wyoming	1.37	1.15	1.17	1.43	1.16	1.54	1.55	1.46	3.2

- Between 2004 and 2011, hospital admission rates fell 0.8 percent per year in the Mountain Division.
- Rates decreased most rapidly in Montana and Colorado.

DIVISION 9 • PACIFIC

	2004	2005	2006	2007	2008	2009	2010	2011	APC
Pacific	1.80	1.82	1.73	1.70	1.69	1.66	1.68	1.64	-1.4
Alaska	1.51	1.83	1.60	1.47	1.41	1.24	1.19	1.20	-5.3
California	1.81	1.84	1.76	1.76	1.75	1.72	1.72	1.69	-1.1
Hawaii	1.43	1.35	1.31	1.11	1.14	1.19	1.31	1.15	-2.3
Oregon	1.69	1.75	1.61	1.58	1.63	1.42	1.53	1.50	-2.2
Washington	1.85	1.78	1.67	1.65	1.60	1.65	1.66	1.67	-1.4

- In the Pacific Division, hospital admission rates decreased by 1.4 percent per year between 2004 and 2011.
- In 2011, the admission rate was 1.64 admissions per patient year, the lowest among all U.S. Census Divisions.
- Rates decreased most rapidly in Alaska, at 5.3 percent per year.
- In California, the most populous state, rates decreased most slowly, at 1.1 percent per year.

First-year mortality in incident dialysis patients, by U.S. Census Division

After first dialysis session in freestanding facility.

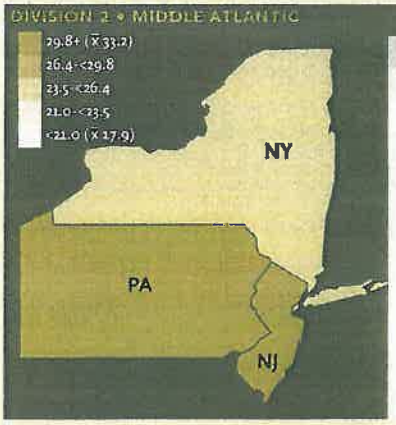
Deaths per 100 patient years; APC, Annual Percent Change. Maps show 2011 rates.

DIVISION 1 • NEW ENGLAND

	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	31.7	32.4	29.3	29.2	27.6	28.5	29.3	27.6	-1.4
Connecticut	32.5	30.9	27.3	25.7	27.4	31.1	30.3	29.5	-0.4
Maine	28.8	30.7	22.0	26.1	25.6	21.4	21.7	19.1	-5.5
Mass.	30.6	31.9	30.9	30.1	26.9	26.3	30.1	25.9	-2.4
New Hamp.	29.2	30.2	28.4	31.6	33.3	29.3	21.0	33.4	-0.9
Rhode Island	39.3	43.2	35.0	35.2	28.3	35.6	34.5	31.1	-3.4
Vermont	0.0	.	.	0.0	0.0	50.9	49.4	23.5	.

- Between 2004 and 2011, first-year mortality rates decreased by 1.9 percent per year in New England. Leading the area was Maine, where rates fell by 5.5 percent per year, corresponding to a cumulative decline of more than 33 percent between 2004 and 2011.
- In Massachusetts, the most populous state, rates fell slightly more rapidly than in other states in the division. In neighboring Connecticut, however, rates decreased only modestly, due to a sudden increase between 2008 and 2010.

DIVISION 2 • MIDDLE ATLANTIC



	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	34.5	34.6	31.7	32.1	30.7	28.8	29.1	28.8	-2.9
New Jersey	37.5	36.8	35.5	33.0	33.6	29.1	30.4	29.8	-3.7
New York	31.6	32.4	29.3	30.6	27.7	26.1	26.3	25.5	-3.5
Pennsylvania	35.5	35.4	31.9	33.2	32.3	31.5	31.5	32.0	-1.6

- Between 2004 and 2011, first-year mortality rates decreased by 2.9 percent per year in the Middle Atlantic Division, albeit with little change since 2009.
- Leading the division was New Jersey, where rates decreased by 3.7 percent per year.
- In Pennsylvania, rates have been stable since 2008.

DIVISION 3 • EAST NORTH CENTRAL

	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	30.0	30.0	31.1	31.6	31.6	31.3	30.8	30.9	0.4
Illinois	29.4	27.9	30.6	31.0	32.3	31.1	30.6	29.5	0.7
Indiana	27.2	29.2	29.7	30.4	30.2	29.3	30.8	32.9	1.9
Michigan	29.1	32.2	30.7	28.8	31.9	28.8	28.8	28.2	-1.0
Ohio	31.8	30.9	32.3	35.6	33.1	34.8	33.1	33.8	1.1
Wisconsin	33.6	29.6	32.0	29.6	26.0	30.0	28.0	28.7	-2.0

- In the East North Central Division, first-year mortality rates have increased 0.4 percent per year since 2004.
- In 2011, the rate was 30.9 deaths per 100 patient years, the highest among all U.S. Census Divisions.
- Rates increased most rapidly in Indiana, at a rate of 1.9 percent per year, and also rose in Ohio and Illinois.
- In Wisconsin, in contrast, rates have fallen 2.0 percent per year.

MORTALITY

First-year mortality in incident dialysis patients, by U.S. Census Division (continued)

DIVISION 4 • WEST NORTH CENTRAL

	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	30.3	28.7	30.5	30.0	26.5	27.0	26.6	26.3	-2.2
Iowa	30.8	30.9	31.9	29.6	32.7	31.8	29.6	28.0	-0.9
Kansas	28.8	31.7	35.0	27.7	29.3	26.2	25.8	28.0	-2.4
Minnesota	25.1	28.5	31.9	28.4	26.0	27.9	25.6	22.4	-2.1
Missouri	32.1	28.2	28.7	30.2	24.7	25.1	26.5	26.7	-2.6
Nebraska	33.0	25.7	29.6	37.9	24.2	28.8	28.1	26.4	-1.9
North Dakota	21.9	23.1	9.6	36.3	28.9	62.7	30.5	37.3	13.3
South Dakota	44.4	22.0	19.0	19.3	23.5	12.7	15.7	20.0	-6.4

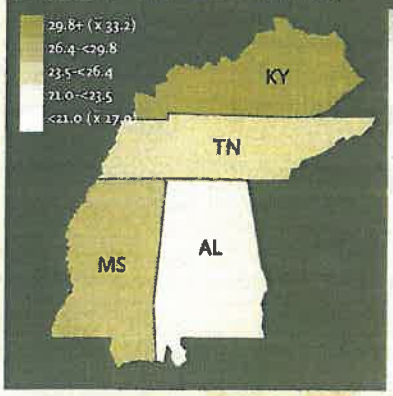
- In the West North Central Division, first-year mortality rates decreased by 2.2 percent per year between 2004 and 2011. Excluding the less populous Dakotas, leading the division was Missouri, where rates fell 2.6 percent per year.
- Rates in Iowa fell only 0.9 percent per year between 2004 and 2011, but, after peaking in 2008, cumulatively decreased by nearly 15 percent.

DIVISION 5 • SOUTH ATLANTIC

	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	31.2	30.9	29.1	28.3	27.8	27.1	27.1	26.4	-2.4
Delaware	25.9	24.0	23.6	22.5	22.9	21.0	22.3	31.6	0.8
D.C.	21.9	23.0	17.3	15.8	14.7	16.7	21.6	15.5	-3.4
Florida	35.7	35.7	33.9	33.3	32.4	31.1	31.3	31.5	-2.1
Georgia	28.9	29.5	25.9	24.6	24.9	24.8	25.4	25.2	-2.1
Maryland	34.6	34.9	32.9	31.4	30.3	30.5	27.0	27.0	-3.8
N Carolina	28.1	25.6	23.5	24.2	21.7	22.5	21.5	21.0	-3.7
S Carolina	25.1	23.0	26.3	23.7	23.8	22.8	24.3	22.3	-2.2
Virginia	28.1	29.6	26.9	27.6	28.4	25.2	25.6	23.1	-2.7
West Virginia	41.7	43.6	41.6	38.8	42.9	40.2	44.4	37.8	-0.7

- First-year mortality rates in this division decreased by 2.4 percent per year between 2004 and 2011. Leading the area was Maryland, with a decline of 3.8 percent per year.

DIVISION 6 • EAST SOUTH CENTRAL



	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	30.9	31.3	29.9	29.3	27.7	27.2	26.0	26.9	-2.6
Alabama	31.1	31.0	29.3	26.5	26.2	25.2	24.7	22.5	-4.5
Kentucky	31.8	34.1	31.5	34.5	29.5	32.4	30.6	34.5	-0.1
Mississippi	28.4	28.6	25.4	27.1	26.4	26.9	24.5	27.4	-1.0
Tennessee	31.7	31.5	32.2	30.0	28.6	25.9	24.9	25.8	-3.9

- First year mortality rates in the East South Central Division decreased by 2.6 percent per year between 2004 and 2011.
- Rates decreased most rapidly in Alabama, at 4.5 percent per year.
- First-year mortality rates in Kentucky, in contrast, were unchanged between 2004 and 2011.

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First-year mortality in incident dialysis patients, by U.S. Census Division (continued)

After first dialysis session in freestanding facility.

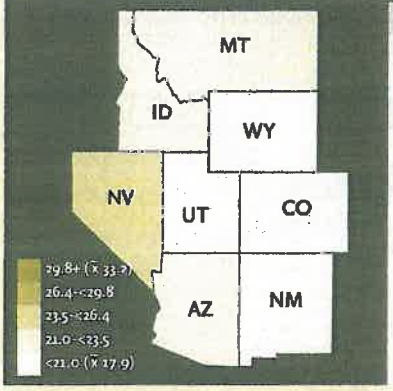
Deaths per 100 patient years; APC, Annual Percent Change. Maps show 2011 rates.

DIVISION 7 • WEST SOUTH CENTRAL

	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	27.8	27.7	27.2	26.2	24.7	24.1	22.5	22.6	-3.4
Arkansas	35.6	34.9	32.8	30.8	30.0	30.1	23.6	24.9	-5.5
Louisiana	36.5	35.3	32.2	31.5	29.9	28.2	25.6	24.8	-5.5
Oklahoma	32.4	28.6	30.9	31.5	29.3	28.4	25.4	26.0	-2.9
Texas	23.8	24.8	25.0	23.7	22.2	21.9	21.2	21.4	-2.3

- Between 2001 and 2011, first-year mortality rates in the West South Central Division decreased by 3.4 percent per year, the most rapid rate of decline among all U.S. Census Divisions.
- In both Arkansas and Louisiana, rates fell 5.5 percent per year.
- In the most populous state, Texas, rates declined more modestly, at 2.3 percent per year.

DIVISION 8 • MOUNTAIN



	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	26.3	26.1	24.4	23.3	23.8	21.9	21.7	21.1	-3.2
Arizona ★ △	29.5	28.2	25.1	24.9	25.6	22.7	22.4	23.2	-3.6
Colorado ★ △	22.5	19.7	21.6	20.3	20.8	16.3	19.7	18.9	-2.4
Idaho	24.2	24.9	24.1	30.5	35.4	28.9	27.3	22.9	0.9
Montana ★	28.4	20.5	24.9	18.4	16.4	23.8	38.7	22.8	1.7
Nevada △	32.6	32.6	28.7	25.2	23.3	22.3	21.0	23.5	-6.1
New Mexico ★ △	18.7	23.9	20.6	21.7	20.6	19.0	17.6	13.1	-5.0
Utah △	18.7	22.8	23.4	15.1	18.7	29.9	22.8	20.6	2.0
Wyoming	12.7	19.5	24.6	14.3	23.8	12.2	27.8	17.0	2.7

- First-year mortality rates in the Mountain Division fell by 3.2 percent per year between 2004 and 2011, and decreased most rapidly in Nevada and New Mexico.
- Rates increased in four states, albeit with substantial year-to-year variability.

DIVISION 9 • PACIFIC

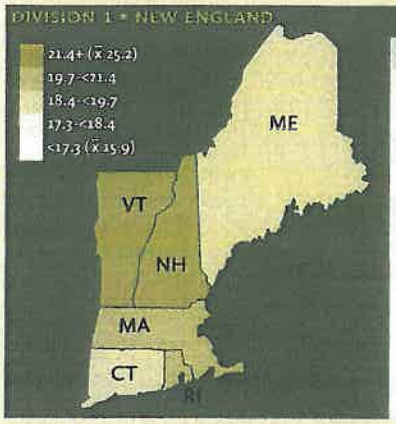
	2004	2005	2006	2007	2008	2009	2010	2011	APC
Pacific	27.2	26.5	25.2	25.4	23.4	22.8	22.1	22.2	-3.2
Alaska	26.4	18.3	21.2	25.8	20.6	17.3	21.4	20.3	-2.2
California ★	27.3	26.1	25.5	25.2	23.4	22.9	22.3	22.6	-2.9
Hawaii	12.4	19.6	15.9	18.9	15.6	16.4	14.2	14.3	-0.8
Oregon ★ △	31.3	30.5	30.0	27.4	26.7	24.6	22.7	24.9	-4.3
Washington △	27.7	30.3	25.1	28.9	25.3	24.0	23.5	20.6	-4.2

- First-year mortality rates in the Pacific Division fell 3.2 percent per year between 2004 and 2011, and more than 4 percent per year in both Oregon and Washington.
- In the most populous state, California, rates decreased by nearly 3 percent per year.

Mortality in prevalent dialysis patients, by U.S. Census Division

Deaths per 100 patient years among patients alive on January 1 of each year; APC, Annual Percent Change. Maps show 2011 rates.

DIVISION 1 • NEW ENGLAND



	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	25.9	25.5	24.7	23.3	21.7	22.0	21.5	20.4	-3.4
Connecticut ★ △	24.2	22.2	20.7	21.8	18.8	20.0	19.0	19.0	-3.2
Maine △	23.2	28.5	27.2	22.0	21.2	23.3	25.4	18.4	-3.2
Mass. △	26.4	26.1	25.5	23.4	23.2	21.8	22.0	20.6	-3.6
New Hamp. △	33.8	27.1	29.7	26.9	26.2	24.2	23.8	26.2	-3.6
Rhode Island △	25.6	30.5	28.9	27.4	21.2	27.8	24.6	20.1	-3.7
Vermont	24.5	27.2	0.0	0.0	.	0.0	5.5	37.7	.

- While mortality rates in New England fell by 3.4 percent per year between 2004 and 2011, the rate in 2011 of 20.4 deaths per 100 patient years was the highest among all U.S. Census Divisions.
- Rates fell by more than 3 percent per year between 2004 and 2011 in all states within the division, excluding Vermont.

DIVISION 2 • MIDDLE ATLANTIC

	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	23.4	23.1	22.6	21.4	20.6	20.3	19.2	19.0	-3.2
New Jersey △	23.6	23.3	23.7	21.0	21.4	20.9	19.1	19.7	-3.2
New York	21.2	20.9	19.7	19.6	18.7	18.8	16.9	17.2	-3.2
Pennsylvania	25.8	25.7	25.4	23.7	22.5	21.8	22.0	20.8	-3.3

- Mortality rates in the Middle Atlantic states fell by 3.2 percent per year between 2004 and 2011.
- Rates fell commensurately in New Jersey, New York, and Pennsylvania.
- In both New Jersey and New York, however, rates increased between 2010 and 2011.

DIVISION 3 • EAST NORTH CENTRAL

	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	23.7	22.7	22.4	22.0	21.3	21.0	20.3	20.2	-2.2
Illinois	23.0	22.2	21.9	21.0	19.4	20.3	18.9	18.6	-3.0
Indiana △	25.0	23.2	23.4	23.6	22.2	21.6	21.7	22.3	-1.7
Michigan △	21.5	21.1	21.1	21.2	20.8	20.5	19.2	19.5	-1.5
Ohio ★ △	25.4	24.3	23.5	22.5	22.7	21.9	21.6	21.4	-2.3
Wisconsin △	24.7	22.8	23.3	23.2	21.9	20.5	22.3	20.5	-2.2

- Between 2004 and 2011, mortality rates in the East North Central Division fell by 2.2 percent per year, the lowest rate of decline among all U.S. Census Divisions.
- In Michigan, rates fell only 1.5 percent per year.
- In Indiana, rates increased between 2009 and 2011.
- In Illinois, in contrast, rates decreased by 3.0 percent per year between 2004 and 2011.

MORTALITY

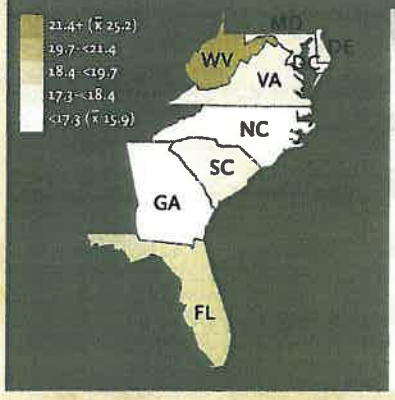
Mortality in prevalent dialysis patients, by U.S. Census Division (continued)

DIVISION 4 • WEST NORTH CENTRAL

	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	24.7	23.2	22.9	22.4	22.3	21.7	21.3	20.3	-2.3
Iowa	26.8	27.7	25.8	24.9	25.7	24.3	25.6	22.4	-2.1
Kansas	24.9	23.4	22.2	21.2	24.5	19.3	21.7	17.9	-3.5
Minnesota ▲	23.2	21.7	22.7	22.4	20.9	20.4	20.1	20.5	-1.9
Missouri	24.4	22.6	23.1	22.2	21.4	22.9	20.4	20.3	-2.2
Nebraska	27.3	23.2	21.2	24.1	21.7	21.0	22.7	21.3	-2.3
North Dakota	38.2	38.2	30.9	30.1	34.8	25.4	19.4	29.9	-6.4
South Dakota	19.5	26.8	18.9	15.3	22.4	16.1	20.8	17.5	-2.5

- Between 2004 and 2011, mortality rates in the West North Central Division fell by 2.3 percent per year. Except for the less populous Dakotas, leading the division was Kansas, where rates fell by 3.5 percent per year.
- Lagging was Minnesota, where rates fell by 1.9 percent per year between 2004 and 2011.

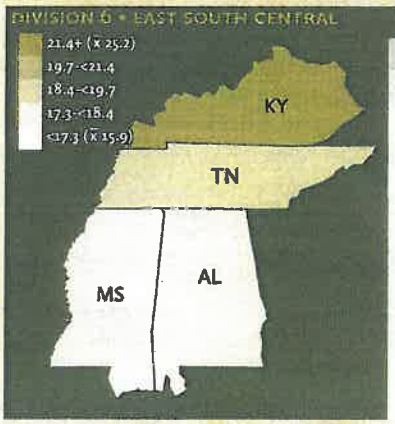
DIVISION 5 • SOUTH ATLANTIC



	2004	2005	2006	2007	2008	2009	2010	2011	APC
South Atlantic	21.7	21.9	21.3	20.5	19.3	19.0	18.4	17.5	-3.3
Delaware	21.4	20.4	21.5	21.1	17.2	18.3	15.7	18.0	-3.7
D.C.	17.3	19.3	17.6	14.4	14.8	13.2	12.9	12.9	-5.7
Florida	23.9	24.9	24.0	22.9	21.5	20.6	20.6	19.4	-3.4
Georgia	19.1	19.7	19.3	17.6	17.0	16.4	16.6	15.5	-3.3
Maryland ★▲	22.6	23.4	21.7	22.2	20.8	19.9	18.0	17.3	-4.1
N Carolina ▲	20.3	19.2	19.4	18.9	18.1	18.0	17.2	16.4	-2.7
S Carolina	20.4	20.6	18.9	19.4	18.3	19.2	18.2	17.3	-2.1
Virginia ★▲	22.2	21.4	22.5	21.0	19.7	19.8	18.2	18.1	-3.1
West Virginia ★▲	30.3	27.6	27.2	27.6	25.8	27.8	26.7	25.0	-1.8

- Mortality rates fell 3.3 percent per year in the South Atlantic Division, with relatively more rapid rates of decline in the District of Columbia, Maryland, and Delaware.

DIVISION 6 • EAST SOUTH CENTRAL



	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	22.5	21.9	21.2	20.6	20.4	19.9	19.4	19.3	-2.2
Alabama	23.1	22.0	22.2	20.4	19.9	19.8	19.3	18.2	-3.2
Kentucky ★	25.7	22.6	23.5	23.2	22.9	22.9	24.2	23.9	-0.3
Mississippi ★	18.9	19.5	18.0	18.5	19.3	18.4	18.2	17.8	-0.8
Tennessee	23.1	23.4	21.3	20.8	20.4	19.3	17.9	18.8	-3.6

- Mortality rates decreased by 2.2 percent per year in the East South Central Division.
- Leading the division was Tennessee, where rates fell 3.6 percent per year between 2004 and 2011.
- In Kentucky, rates have tended to increase since 2005, following a sharp decline between 2004 and 2005.

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Mortality in prevalent dialysis patients, by U.S. Census Division (continued)

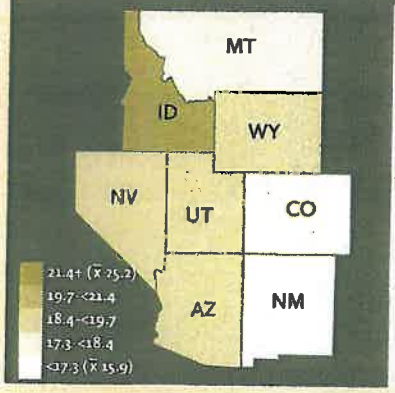
Deaths per 100 patient-years among patients alive on January 1 of each year; APC, Annual Percent Change. Maps show 2011 rates.

DIVISION 7 • WEST SOUTH CENTRAL

	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	21.4	21.1	20.7	19.5	19.0	18.7	18.0	17.7	-2.9
Arkansas	26.6	25.4	24.1	24.0	22.9	22.7	20.8	22.1	-3.0
Louisiana	23.8	23.5	24.2	21.2	20.7	19.3	19.6	17.9	-4.2
Oklahoma	24.3	24.6	23.7	24.1	23.1	23.3	21.0	21.5	-2.2
Texas	19.9	19.7	19.2	18.2	17.8	17.7	17.0	16.8	-2.6

- Between 2004 and 2011, mortality rates in the West South Central Division decreased by 2.9 percent per year.
- Leading the area was Louisiana, where rates fell 4.2 percent per year, one of the five most rapid rates of decline in the nation.
- In the most populous state, Texas, rates fell by 2.6 percent per year.
- Even in Oklahoma, where mortality rates have decreased more slowly, there was a sharp decline between 2009 and 2011.

DIVISION 8 • MOUNTAIN



	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	21.7	21.1	21.0	19.3	19.7	18.4	17.9	18.2	-2.9
Arizona ★ △	22.6	21.8	22.4	19.5	20.9	18.2	18.3	18.5	-3.3
Colorado ★ △	18.4	19.7	19.2	16.4	17.4	16.8	15.6	16.9	-2.5
Idaho	23.5	24.0	24.8	22.2	22.6	22.9	22.7	24.7	+0.2
Montana ★	19.5	18.1	19.0	23.1	24.4	20.4	17.9	18.1	-0.4
Nevada △	25.1	23.2	21.7	21.8	21.1	18.5	17.6	18.5	-4.7
New Mexico ★ △	18.5	18.1	17.5	17.4	16.1	18.5	16.3	15.9	-1.8
Utah △	24.5	20.6	21.4	22.3	20.7	19.5	23.3	19.5	-1.0
Wyoming	24.9	22.1	19.3	23.0	15.8	27.5	18.5	19.0	-2.5

- In the Mountain Division, mortality rates fell by 2.9 percent per year between 2004 and 2011.
- While rates fell in every state in the division, the most rapid decline occurred in Nevada, at 4.7 percent per year. Rates changed relatively little in both Idaho and Montana.

DIVISION 9 • PACIFIC

	2004	2005	2006	2007	2008	2009	2010	2011	APC
All	19.8	20.0	19.2	18.3	17.5	16.9	15.7	15.8	-3.8
Alaska	16.4	25.6	21.8	19.8	20.5	19.2	16.0	19.7	-1.7
California ★	19.6	19.7	18.8	18.1	17.2	16.4	15.2	15.5	-4.0
Hawaii	18.7	15.0	17.5	15.0	16.4	15.9	16.1	14.8	-1.7
Oregon ★ △	22.2	25.2	23.1	22.6	21.6	20.0	18.4	16.6	-4.7
Washington △	21.6	21.0	21.7	20.3	19.0	20.1	18.9	18.7	-2.3

- In the Pacific Division, mortality rates fell by 3.8 percent per year, the most rapid rate of decline among all U.S. Census Divisions.
- In 2011, the rate of 15.8 deaths per 100 patient years was the lowest among all divisions.
- Leading the division was Oregon, where rates fell 4.7 percent per year.
- In the most populous state, California, rates fell 4.0 percent per year between 2004 and 2011.