

# A Change Package To Improve Dialysis Care in Nursing Homes

(Decreasing Long-Term Catheter  
Infections, Peritonitis, and Blood  
Transfusions)

Key Change Ideas for Dialysis  
Facilities to Drive Local Action

Updated 2024





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## I. Introduction

This change package is intended to support dialysis facilities and End State Renal Disease (ESRD) Networks in decreasing long-term catheter (LTC) infections, peritonitis, and blood transfusions with a focus on patients receiving dialysis care in nursing homes. The change package includes actionable change ideas, collected from top-performing dialysis facilities. The change ideas presented are intended as a menu of interventions from which program leaders can choose to implement within their facilities.

The original change package was released by the Centers for Medicare & Medicaid Services (CMS) in 2023. The change package was updated after additional interviews were conducted with high-performing facilities.

### How to Get Started

Change happens at the local level. Dialysis facility Quality Assessment & Performance Improvement (QAPI) meetings are the perfect place to start. Giving interdisciplinary team (IDT) members this change package for review will allow them to identify and prioritize change ideas that could be implemented to decrease LTC infections, peritonitis, and blood transfusions.

The change ideas presented in this change package represent the practices used by high-performing dialysis programs with a focus on dialysis care in nursing homes. They are not meant to serve as the entire universe of approaches to decrease the number of LTC infections, peritonitis, and blood transfusions. They can, however, serve as “tests of change” that drive performance improvement and quality improvement programs.

**About QAPI:** QAPI merges quality assessment (QA) and performance improvement (PI) into a comprehensive approach to quality management. QA is the process of meeting standards and ensuring care reaches an acceptable level. PI is the proactive, continuous study of processes with the intent to identify opportunities and test new approaches to fix the underlying causes of persistent, systemic problems. Data-driven QAPI programs may be customized to facility needs. Key steps include:

- Identifying the problem and defining the goal
- Deciding on a measurement to monitor improvement
- Brainstorming solutions based on barriers and root causes
- Planning an intervention
- Using plan-do-study-act (PDSA) to implement the improvement project

Learn more about QAPI: <https://esrdnetworks.org/toolkits/professional-toolkits/qapi-toolkit/>



## Contacting ESRD Networks

Dialysis facilities can contact their local ESRD Networks for assistance with PDSA principles and practices, questions about change strategies, and nursing home dialysis resources. A complete listing of ESRD Networks can be found at <https://esrdncc.org/en/ESRD-network-map/>.

## II. Change Package Methodology

The ideas presented in this change package were identified through interviews with high-performing dialysis facilities. The facilities were selected using Medicare claims data related to LTC infections, peritonitis, and blood transfusions as well as facility-reported data entered into the ESRD Quality Reporting System (EQRS). During the interviews, systemic themes emerged, which were organized into driver diagrams, visual displays of what drives and contributes to achieving an overall aim.<sup>1</sup> The diagrams include drivers and associated change ideas, which were reviewed by quality improvement staff from three ESRD Networks to ensure relevance to a broad range of dialysis facilities. The input of these experts was incorporated into the document.

2024 Update: Information was added after 10 additional interviews were conducted with high-performing facilities. Change ideas were modified or added (indicated by asterisks) from information gathered from dialysis facility staff during the interviews.



### III. Drivers to Improve Dialysis Care in Nursing Homes

Interviews with high-performing dialysis programs revealed primary and secondary drivers being utilized to decrease rates of LTC infections, peritonitis, and blood transfusions for eligible patients (Table 1). “Primary drivers are the most important influencers” that “contribute directly to achieving the aim.” Secondary drivers are the actions and interventions that impact the primary drivers.<sup>2</sup>

The primary and secondary drivers (Tables 1–10), as well as the associated change ideas in the driver diagrams (Tables 2–10), are not in ranked order. They are numbered for easy reference.

**Table 1. Primary and Secondary Drivers to Decrease LTC Infections, Peritonitis, and Blood Transfusions**

AIM: IMPROVE DIALYSIS CARE IN NURSING HOMES	
PRIMARY DRIVERS	SECONDARY DRIVERS
<b>1. Create a culture that promotes quality</b>	1a: Focus on patients and families 1b: Ensure staff can support the dialysis program 1c: Engage physicians to drive improvement
<b>2. Build rapport and trust with the nursing home team</b>	2a: Develop and maintain relationships with nursing home leaders and staff 2b: Establish lines of communication
<b>3. Implement continuous quality improvement</b>	3: Track metrics and incorporate into QAPI processes
<b>4. Educate patients and staff</b>	4a: Provide patient education, so patients can be their own advocates 4b: Equip staff with knowledge to prevent infections and transfusions
<b>5. Prevent and treat peritoneal and LTC infections and anemia</b>	5. Follow procedures and implement protocols



## IV. Key Change Ideas

The following driver diagrams (Tables 2–10) expand on the nursing home dialysis drivers (Table 1) and include specific change ideas for all the secondary drivers identified with high-performing dialysis facilities. The visualizations show the relationships between the primary and secondary drivers and the associated change ideas.

**Table 2. Focus on Patients and Families**

PRIMARY DRIVER #1: CREATE A CULTURE THAT PROMOTES QUALITY
Secondary Driver #1a: Focus on patients and families
<p>Providing patient-centered care is the first step in achieving quality goals. Patients become invested in their care and act as advocates for themselves. They trust staff and share concerns. Thus, issues can be addressed early and adverse events, such as infections, can be avoided.</p> <p><b>Change Ideas</b></p> <ol style="list-style-type: none"> <li>1. Treat patients with kindness. “No other culture is acceptable.”</li> <li>2. Act as if patients were family.</li> <li>3. Advocate for all patients, especially those who do not have families.</li> <li>4. Notice differences in the patient’s well-being, e.g., the patient is not eating well, and notify the nursing home nurse, nephrologist, or PCP.</li> <li>5. Recognize each patient’s individuality.</li> <li>6. If patients have cognitive impairments, communicate with the family or caregivers (after obtaining the appropriate paperwork).</li> <li>7. Talk/meet with the patient’s family weekly to provide updates (after obtaining the appropriate paperwork).</li> <li>8. Invite the family to be a part of the patient education process and/or to participate in the plan of care.*</li> </ol>

\*Added 2024



**Table 3. Ensure Staff Can Support the Dialysis Program**

<b>PRIMARY DRIVER #1: CREATE A CULTURE THAT PROMOTES QUALITY</b>
<b>Secondary Driver #1b: Ensure staff can support the dialysis program</b>
<p>Patients who are receiving dialysis care in nursing homes often have complex medical conditions in addition to living in a medical facility. They need staff who are experienced in providing patient-centered dialysis care, working as part of a team, and dedicated to achieving quality goals.</p> <p><b>Change Ideas</b></p> <ol style="list-style-type: none"> <li>1. Assign experienced staff to the nursing home for direct care as well as management positions, e.g., a home program manager with years of experience.</li> <li>2. Utilize consistent staff for the same nursing home and the same patients.</li> <li>3. When hiring or selecting staff to provide dialysis care in nursing homes:             <ol style="list-style-type: none"> <li>a. Determine if the candidate has good interpersonal and communication skills, which are necessary to work well with nursing home staff and patients.</li> <li>b. Include the dialysis program manager in the interviews for nursing home staff who would be providing dialysis treatments in the nursing home.</li> </ol> </li> <li>4. Validate skills with a preceptor for experienced nurses hired for the dialysis nursing home unit.</li> </ol>

**Table 4. Engage Physicians to Drive Improvement**

<b>Primary Driver #1: CREATE A CULTURE THAT PROMOTES QUALITY</b>
<b>Secondary Driver #1c: Engage physicians to drive improvement</b>
<p>A supportive leadership team, including the medical director, can positively impact patient care and drive quality improvement.</p> <p><b>Change Ideas</b></p> <ol style="list-style-type: none"> <li>1. Establish a nephrologist champion for dialysis care in the nursing home, one who is committed to nursing home care and a home program.</li> <li>2. Identify expert surgeons for peritoneal dialysis catheter placement. “The foundation for care is a good PD catheter.”</li> <li>3. Include both the dialysis medical director and the nursing home medical director in dialysis QAPI meetings and in nursing home QAPI meetings.</li> </ol>



**Table 5. Develop and Maintain Relationships with Nursing Home Leaders and Staff**

<b>PRIMARY DRIVER #2: BUILD RAPPORT AND TRUST WITH THE NURSING HOME TEAM</b>
<b>Secondary Driver #2a: Develop and maintain relationships with nursing home leaders and staff</b>
<p>The staff at the dialysis program and the staff at the nursing home must work together as a cohesive team to ensure patients receive consistent, high-quality dialysis care. Building the team depends on initiating relationships between dialysis program leaders and nursing home leaders and developing relationships among IDT members.</p>
<p><b>Change Ideas</b></p> <ol style="list-style-type: none"><li>1. At the outset of establishing a dialysis program in a nursing home:<ol style="list-style-type: none"><li>a. Set up meetings between leaders of the nursing home (medical director, administrator, and director of nursing) and the dialysis program (medical director and home program manager).</li><li>b. Connect the IDT at the nursing home (e.g., nursing, dietary, and social work) with the IDT at the dialysis program.</li><li>c. Meet with all other departments in the nursing home, e.g., maintenance for water hook up, housekeeping for storage of supplies off of the floor, pharmacy for obtaining medications.</li><li>d. Develop a streamlined admission process between the nursing home and the dialysis center to incorporate coordination with hospital case managers.</li></ol></li><li>2. Identify a point of contact at each nursing home.</li><li>3. Schedule a meeting with new leaders to discuss all aspects of the nursing home dialysis program when turnovers of nursing home management occur, e.g., director of nursing.</li><li>4. Identify a key leader at the dialysis program to “own” the nursing home dialysis process and collaborate with the nursing home staff to ensure consistency and open communication.</li><li>5. Build relationships between the dialysis program IDT and the nursing home IDT.<ol style="list-style-type: none"><li>a. Be kind, respectful, professional, and approachable to the nursing home staff.</li><li>b. Respond to nursing home calls promptly.</li><li>c. Have the nurse manager and social worker attend monthly nursing home conferences at the nursing home to collaborate on the patient’s plan of care.</li><li>d. Invite the IDT and the physicians to attend the care plan meetings at the nursing home, especially the rounding physicians.</li></ol></li><li>6. Support nursing home staff, who may be overwhelmed and understaffed.<ol style="list-style-type: none"><li>a. Establish a 24-hour on-call nurse and post the number at the nurses’ stations, in the nursing home dialysis room, and on cyclers, so nursing home staff can call with questions or concerns.</li><li>b. Give the on-call nurse’s number to patients, e.g., put the number on the cycler or home hemodialysis machine.</li><li>c. Share observations that may not be specific to dialysis, e.g., letting the director of nursing or nurse practitioner at the nursing home know the patient has not been receiving baths or has a decreased level of consciousness.</li></ol></li></ol>





**Table 6. Establish Lines of Communication**

<b>Primary Driver #2: BUILD RAPPORT AND TRUST WITH THE NURSING HOME TEAM</b>
<b>Secondary Driver #2b: Establish lines of communication</b>
<p>High-performing facilities cite clear, consistent, and meaningful communications between the dialysis program and the nursing home as a core element in preventing infections and avoiding transfusions.</p> <p><b>Change Ideas</b></p> <ol style="list-style-type: none"><li>1. Set up regular times to communicate.<ol style="list-style-type: none"><li>a. Schedule brief meetings daily and on weekends to talk with nurses and patient care technicians (PCTs) and nursing home staff.</li><li>b. Hold weekly meetings with the nursing home director of nursing or unit manager via phone or in person to discuss all of the dialysis patients and their care, missed treatments, and hospitalizations.</li><li>c. Conduct a comprehensive IDT meeting weekly or monthly between the home program and the nursing home to discuss specific patients, infection surveillance, anemia management, hospitalizations, medications, and changes in dry weights.*</li></ol></li><li>2. Reach out to the director of nursing or the nurse at the nursing home immediately if something out of the ordinary occurs, e.g., wet dressing or site infection.</li><li>3. Engage the IDT via secure instant messaging conversations, as needed, e.g., for lab review and dialysate changes.</li><li>4. Ask the nursing home staff giving the dialysis care to call the home program nurse:<ol style="list-style-type: none"><li>a. Prior to starting home hemodialysis or peritoneal dialysis to review the vital signs, weights, and assessments.</li><li>b. Proactively to address concerns early, e.g., if the nurse forgot to put on a mask during connection, she would call the home program for next steps.</li></ol></li><li>5. Create a process for the nursing home staff not performing dialysis to contact the dialysis staff to ask questions or to report an issue.</li><li>6. Develop a daily communication hand-off sheet for each patient that can be shared between the dialysis provider and the nursing home to include:<ol style="list-style-type: none"><li>a. Pre-assessment vital signs from the nursing home and the status of the patient since the last dialysis treatment.</li><li>b. Medication changes or those administered during treatment.</li><li>c. Clinical appointments.</li><li>d. Pre- and post-weights, vital signs, and other relevant clinical information related to the treatment from the dialysis staff.</li><li>e. What lab tests need to be done for physician rounds.</li><li>f. Physician orders to be updated in the electronic health record (EHR).</li></ol></li><li>7. Use an SBAR (situation, background, assessment, recommendation) form to communicate pre- and post-dialysis information between the dialysis staff and the nursing home staff. Add the form to the patient's record.</li><li>8. Share access to patient portals to view lab results, etc.</li><li>9. Fax monthly lab results to the nursing home.</li></ol>



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## **Primary Driver #2: BUILD RAPPORT AND TRUST WITH THE NURSING HOME TEAM**

### **Secondary Driver #2b: Establish lines of communication**

10. Request that nursing home staff call the dialysis nurse prior to sending a patient to the hospital to determine if a dialysis treatment could prevent hospitalization, e.g., for fluid overload.
11. Establish communications with hospital case managers to follow up with hospitalized patients. Call the hospital daily to find out about treatment (e.g., erythropoietin-stimulating agent [ESA] dose in hospital) and to track if the patient was discharged, transferred, or died.
12. After monthly rounds by the social workers and dietitians, have them report back to their counterparts in the nursing home with any updates or changes. For example, if a patient has a low albumin, work with the nursing home to adjust the diet or suggest nutritional supplements.\*
13. Request access to the nursing home EHR to be able to chart dialysis treatments.\*

\*Added/updated 2024



**Table 7. Track Metrics and Incorporate into QAPI Processes**

<b>PRIMARY DRIVER #3: IMPLEMENT CONTINUOUS QUALITY IMPROVEMENT</b>
<b>Secondary Driver #3: Track metrics and incorporate into QAPI processes</b>
<p>Effective teams track and share metrics at regularly scheduled meetings that involve both the dialysis program and the nursing home. The teams also collaborate on quality improvement processes and strategies.</p> <p><b>Change Ideas</b></p> <ol style="list-style-type: none"> <li>1. Consider appointing an RN case manager to cover all the nursing homes to provide consistency in the following:             <ol style="list-style-type: none"> <li>a. Reviewing monthly or weekly lab results.</li> <li>b. Overseeing infection prevention and anemia management.</li> <li>c. Participating in care plans.</li> <li>d. Completing assessments.</li> <li>e. Visiting nursing home patients at least monthly.</li> <li>f. Collaborating with nursing home staff taking care of dialysis patients.</li> </ol> </li> <li>2. Establish goals, such as zero infections.</li> <li>3. Invite the nursing home administrator, director of nursing, and staff to join QAPI meetings and send minutes after the meeting. Participate in the nursing home QAPI meetings as well.</li> <li>4. Track hospitalizations and causes of death.</li> <li>5. Share outcomes with the nursing home.</li> </ol>
<p><b>Reducing Peritonitis – Change Ideas</b></p> <ol style="list-style-type: none"> <li>1. Track all infections, including peritonitis episodes per year rolling monthly average, the organisms causing the infections, catheter removals, and losses to peritonitis, i.e., patients having to transition from peritoneal dialysis to hemodialysis.</li> <li>2. Conduct a root cause analysis for each infection to determine how it occurred to include:             <ol style="list-style-type: none"> <li>a. Asking patients about the dialysis process, e.g., did someone touch the connections?</li> <li>b. Interviewing the nurse providing dialysis to determine the cause and identify opportunities to improve processes and care. Use an interview guide.</li> <li>c. Determining if the patient was hospitalized to factor in hospital-acquired infections.</li> <li>d. Assessing the environment during dialysis, e.g., is a fan on during the connection process?</li> </ol> </li> <li>3. Review data and details monthly at QAPI meetings.</li> <li>4. Take action to include re-education of nursing home staff and patients on infection control, as needed.</li> </ol>



## **PRIMARY DRIVER #3: IMPLEMENT CONTINUOUS QUALITY IMPROVEMENT**

### **Secondary Driver #3: Track metrics and incorporate into QAPI processes**

#### **Reducing LTC Infections – Change Ideas**

1. Identify LTC infections. Conduct root cause analyses. Discuss at QAPI meetings. Develop action plans.
2. Use CDC infection control audit tools to conduct audits on handwashing, disinfection of the station, initiation and termination of dialysis treatments, and catheter care at a predetermined frequency such as monthly or quarterly.
3. Utilize a tracking system to track each task or step required to obtain a fistula or graft and assign an individual responsible for each step. Include how long the patient has had the catheter plan, where the patient is at in the cannulation process (e.g., vein mapping), appointments, and barriers such as lack of transportation that could affect the timeline for catheter removal.

#### **Reducing Transfusions – Change Ideas**

1. Track anemia management using a spreadsheet.
  - a. Examine a three-month trend per patient. Determine if the patient has a comorbidity, e.g., cancer/cirrhosis, or something that precludes them from responding to ESAs.
  - b. Review comorbidities and reasons for low hemoglobin. Check for patterns, outliers, and infections. If patterns are identified, conduct a root cause analysis.
2. Review data with the nursing home director of nursing.
3. Discuss at monthly QAPI meetings.
4. For patients out of range for hemoglobin, identify complications, e.g., bleeds or infections.
5. Determine action steps.



**Table 8. Provide Patient Education, So Patients Can Be Their Own Advocates**

<b>PRIMARY DRIVER #4: EDUCATE PATIENTS AND STAFF</b>
<b>Secondary Driver #4a: Provide patient education, so patients can be their own advocates</b>
<p>Knowledgeable patients are active participants in their own care. They point out symptoms to staff (e.g., tenderness at the catheter site), report issues (e.g., the dressing got wet), and prevent issues from developing (e.g., telling the nursing home staff they cannot draw blood from the catheter).</p> <p><b>Change Ideas</b></p> <ol style="list-style-type: none"> <li>1. Provide educational materials in the patient’s language.</li> <li>2. Include families in the education, especially for patients experiencing cognitive impairment.</li> <li>3. Create a calendar and select a different topic each month, e.g., emergency preparedness, emergency take-off procedure, dietary restrictions, and hospitalization due to missed treatments.</li> <li>4. Engage the IDT to reinforce education, such as the benefits of frequent dialysis.</li> <li>5. Use a variety of educational materials, such as videos and flyers.</li> <li>6. Partner with the nursing home to create and brand materials together.</li> <li>7. Document patient education in the EHR.</li> </ol>
<p><b>Reducing Peritonitis – Change Ideas</b></p> <ol style="list-style-type: none"> <li>1. Provide education that includes:               <ol style="list-style-type: none"> <li>a. The addition of antibiotics to the patient’s peritoneal dialysis fluid bags in the nursing home.</li> <li>b. Signs and symptoms of peritonitis.</li> <li>c. Infection control methods, including mask wearing and handwashing.</li> </ol> </li> <li>2. Re-educate patients quarterly on handwashing with specifics, such as washing between the fingers and using paper towels. Observe patients washing their hands.</li> <li>3. Use the monthly clinic/physician visits to educate patients.</li> <li>4. Re-educate patients on infection control principles and environmental concerns after an infection occurs.</li> <li>5. Assign a nurse who has primary patients at the nursing home to provide oversight of their care as well as one-on-one education.</li> </ol>
<p><b>Reducing LTC Infections – Change Ideas</b></p> <ol style="list-style-type: none"> <li>1. Start vascular access education during the first treatment with follow-up discussions to be conducted between the patient and the social worker, nurses, and PCTs.</li> <li>2. Tell patients, “Your catheter is your lifeline.”</li> <li>3. Provide patients with education on dialysis modality options (peritoneal dialysis versus hemodialysis; graft versus fistula), pros/cons of a catheter, risks of having a catheter for an extended period of time, signs and symptoms of infection (e.g., pain, redness), and the need to keep the dressing clean and dry. Ask them not to shower.</li> </ol>



## **PRIMARY DRIVER #4: EDUCATE PATIENTS AND STAFF**

### **Secondary Driver #4a: Provide patient education, so patients can be their own advocates**

4. Request that patients notify the dialysis nurse if they see a problem with the catheter, e.g., the catheter is coming out or the dressing got wet.
5. Give the patients the on-call nurse's phone number and show them where it is posted in the nursing home.
6. Re-educate patients at least once a week on keeping the catheter and dressing clean and dry.
7. Advise patients that the nursing home staff should never try to draw blood from the catheter and should not touch the catheter.

### **Reducing Transfusions – Change Ideas**

1. Print monthly report cards of lab results and review them with patients. Use for re-enforcement of education.
2. Provide extra education and handouts for patients whose hemoglobin is falling below the goal, e.g., the National Kidney Foundation flyer, "Educate Your Dialysis Patients About Anemia."



**Table 9. Equip Staff With Knowledge to Prevent Infections and Transfusions**

PRIMARY DRIVER #4: EDUCATE PATIENTS AND STAFF
<p><b>Secondary Driver #4b: Equip staff with knowledge to prevent infections and transfusions</b></p>
<p>Educating staff on infection control practices and anemia management can prevent peritoneal and LTC infections and avert blood transfusions. Staff can initiate protocols to treat infections early and manage patients with low hemoglobin levels, thus preventing hospitalizations.</p> <p><b>Change Ideas</b></p> <ol style="list-style-type: none"> <li>1. For nursing home staff:               <ol style="list-style-type: none"> <li>a. Provide in-services at program initiation, annually, and following staff turnover. Include a broad overview on the care of the patient receiving dialysis to all nursing home staff.</li> <li>b. Train dietary, housekeeping (e.g., infection control, storing items off of the floor, not to touch machines), and maintenance (e.g., water hook up) staff.</li> <li>c. At least quarterly, reinforce relevant topics, including the importance of treatment adherence, accurate weighing of patients, and medication management, such as when to take binders.</li> <li>d. Provide on-the-spot education, e.g., if a nursing home transporter is new to the job.</li> <li>e. Implement peer-to-peer education, e.g., dietitian to dietitian.</li> <li>f. Leave educational materials with the staff to reinforce their learning.</li> <li>g. If the nursing home staff are providing dialysis, present dialysis theory and hands-on skills.</li> </ol> </li> <li>2. When possible, establish partnerships with dialysis machine vendors and invite their educators to give in-services on-site at the nursing home.</li> <li>3. Employ a variety of methods for staff education, e.g., written materials, video library, one-to-one instruction.</li> <li>4. For dialysis staff:               <ol style="list-style-type: none"> <li>a. Hold weekly huddles to discuss new educational topics or policies and procedures.</li> <li>b. Use lunch-and-learn opportunities to share information.</li> <li>c. Combine classroom and hands-on dialysis machine training for dialysis staff inexperienced with the home hemodialysis machine.</li> </ol> </li> <li>5. Track staff education by using in-service sign-in sheets.</li> <li>6. Conduct annual skills assessments, utilizing a skills checklist.</li> <li>7. Utilize electronic tablets for didactic training via the dialysis organization’s portal.</li> </ol>
<p><b>Reducing Peritonitis – Change Ideas</b></p> <ol style="list-style-type: none"> <li>1. Educate new nursing home staff on peritoneal dialysis either at the nursing home or at the home program clinic. Include how peritoneal dialysis works, how to set up the cyclor, machine alarms, connections, areas that must remain sterile during peritoneal dialysis, troubleshooting, signs and symptoms of peritonitis (e.g., abdominal pain, cloudy fluid, fever), reconstituting antibiotics for peritonitis.</li> </ol>



## PRIMARY DRIVER #4: EDUCATE PATIENTS AND STAFF

### Secondary Driver #4b: Equip staff with knowledge to prevent infections and transfusions

2. Utilize a skills checklist for competencies and the teach-back method for nurses providing dialysis care.
3. Bring in the peritoneal dialysis machine for hands-on training for nursing home staff to understand the connect and disconnect procedures and how to set up the cyclor. Repeat annually and as needed. Have staff practice multiple times, e.g., how to connect bags.
4. Re-educate nurses in the nursing home on peritoneal dialysis processes at least annually and after an infection occurs.
5. Stress that nursing home staff supporting peritoneal dialysis treatments should call the dialysis home program immediately if there is a break in technique, so that it can be immediately addressed. "Let us know; we can fix this."
6. Ensure staff is diligent with technique to decrease peritonitis by providing continual education and staff support.
7. Teach one skill per month or provide one story about the care of a patient receiving peritoneal dialysis and the prevention of peritonitis.
8. Emphasize to nursing home staff that staff who have not been trained on peritoneal dialysis should not touch the machine or the patient's catheter.

### Reducing LTC Infections – Change Ideas

1. For nursing home staff who are not administering hemodialysis in the nursing home:
  - a. Educate nurses and CNAs to keep the dressing clean and dry and to notify the dialysis staff if the dressing comes off or if signs and symptoms of infection (e.g., fever, pain at the catheter site, discharge) are present.
  - b. Review what not to do: do not touch the catheter or the dressing; do not get the dressing wet; do not access the catheter for blood draws; do not tug on the catheter, especially when transferring patients.
  - c. Meet weekly with the director of nursing to provide education and handouts to share with staff, e.g., signs and symptoms of central venous catheter infections.
  - d. Reinforce with the nursing home staff the importance of keeping the access site dry and calling the on-call dialysis nurse if the dressing gets wet and ensuring the clamps and end caps are intact.\*
  - e. Train nursing home staff as needed, e.g., if the dressing looks like it had gotten wet, and the dialysis staff was not notified.
  - f. Use educational handouts and resources from the ESRD Network.
2. For staff who are providing hemodialysis in the nursing home:
  - a. Train all staff on aseptic technique for changing the central venous catheter dressing and accessing the port.
  - b. Educate nurses/PCTs on the correct way to change the dressing.
  - c. Hold quarterly in-services on catheter care to include how to change the dressing, when to use or not to use antibiotic ointment, and signs and symptoms of infection.
  - d. Re-teach central venous catheter care as processes change, so "all are cooking from the same pot."





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**PRIMARY DRIVER #4: EDUCATE PATIENTS AND STAFF**

**Secondary Driver #4b: Equip staff with knowledge to prevent infections and transfusions**

- e. Conduct competency evaluations at initial training and periodic audits, for instance, on catheter care, to test proficiency.

**Reducing Transfusions – Change Ideas**

1. Educate nursing home nurses on anemia management and how to recognize the need for a blood transfusion (e.g., GI bleeding).
2. Monitor lab values that could indicate blood loss.
3. Encourage the home program dietitian to talk with each nursing home dietitian monthly or more often if needed to discuss dietary guidance, e.g., increasing iron in the diet.

\*Updated 2024



**Table 10. Follow Procedures and Implement Protocols**

PRIMARY DRIVER #5: PREVENT AND TREAT PERITONEAL AND LTC INFECTIONS AND ANEMIA
<p><b>Secondary Driver #5: Follow procedures and implement protocols</b></p>
<p>Successful facilities have found that adherence to procedures, the use of protocols, constant vigilance, and prompt action can result in lower peritonitis and long-term catheter infection rates and fewer blood transfusions for patients who reside in nursing homes.</p> <p><b>Change Ideas</b></p> <ol style="list-style-type: none"> <li>1. Assign an RN case manager to cover all the nursing homes providing dialysis to review lab results, care plans, assessments, and anemia management; visit the patients at least monthly; and communicate with the nursing home.</li> <li>2. Create clear workflows for medications, supplies, and pharmacy, e.g., which medications are obtained through the dialysis program. Adapt workflows as needed after meeting with key staff, e.g., the medication order needs to be faxed to the nursing home.</li> <li>3. Develop policies that outline responsibilities, roles, and the reporting structure for routine and emergent patient issues.</li> <li>4. Share care plans and annual assessments with the nursing home.</li> <li>5. Enlist a nurse renal champion from the nursing home who has received dialysis education to act as a “bridge” between the nursing home and the dialysis program, be on-site to respond to questions (e.g., what to do for a dislodged dressing), and to contact the dialysis nurse as needed.</li> <li>6. Request access to the nursing home EHR to review lab results, medications, progress notes, and hospitalizations.</li> </ol>
<p><b>Reducing Peritonitis – Change Ideas</b></p> <ol style="list-style-type: none"> <li>1. Overlap the timing of peritoneal dialysis treatments and hemodialysis treatments in the nursing home, so that an on-site, cross-trained hemodialysis nurse is available to provide guidance to the nursing home staff providing peritoneal dialysis.</li> <li>2. Cohort patients to keep on a similar schedule, when possible, to maximize staffing.</li> <li>3. Conduct monthly clinic visits with each patient, which requires transportation from the nursing home to the home program clinic.</li> <li>4. Bring the patient to the home program clinic for a quarterly full IDT care plan meeting and to see the physician in person.</li> <li>5. Observe for signs and symptoms of infection. If present, implement a peritonitis protocol with steps such as assessing the patient, notifying the physician, drawing peritoneal fluid cultures, giving antibiotics, communicating with the nursing home regarding antibiotic administration, and following up with culture results and actions that were taken, e.g., removal of the peritoneal catheter.</li> <li>6. Follow International Society for Peritoneal Dialysis (ISPD) guidelines.</li> </ol>



## **PRIMARY DRIVER #5: PREVENT AND TREAT PERITONEAL AND LTC INFECTIONS AND ANEMIA**

### **Secondary Driver #5: Follow procedures and implement protocols**

#### **Reducing LTC Infections – Change Ideas**

1. Focus on removing LTCs as quickly as possible.
  - a. Follow a central venous catheter removal algorithm to make sure that catheters are out within 90 days.
  - b. Assign an access manager to perform, coordinate, and track steps related to transitioning to fistula or graft, including patient education, vein mapping, surgical evaluation and appointments, surgery, surgical follow-up, cannulation, and catheter removal.
  - c. Arrange vascular access appointments, so dialysis staff can answer questions from the access center and keep the patient on track to remove the LTC.
  - d. Coordinate transportation arrangements with the nursing home to avoid missed dialysis treatments.
  - e. Gather the dialysis program IDT weekly to discuss patient concerns and to monitor where patients are in the fistula placement process. Assign individuals tasks, e.g., access education.
2. Follow CDC Core Interventions, such as those for infection control, vascular access, and catheters.
3. Adhere to infection control protocols when assessing and cleaning the LTC site and accessing the LTC, e.g., cleansing the LTC site with sterile antiseptic solution and covering the site with an approved catheter dressing to prevent infection.
4. Start interventions early if signs and symptoms of infections are identified.
  - a. Develop and follow protocols, e.g., notifying the nephrologist, culturing the exit site.
  - b. Implement an antibiotic stewardship program.
  - c. Consult an infection preventionist.
5. Observe the dressing and check for signs of infection at each treatment. Ask the patient about the site, “Does it itch?” “Is it tender?”
6. Conduct regular (e.g., weekly or monthly) audits for infection control, setting up machines, initiating and disconnecting treatment (peritoneal dialysis and hemodialysis), and catheter care.
7. Ask the nursing home staff to call the 24-hour on-call nurse for issues, e.g., wet dressing. Post the contact number at the nurses’ stations and in the dialysis room in the nursing home. Provide the number to patients.
8. Create a central venous catheter pack with everything needed for pre- and post-treatment (e.g., supplies for cleaning the site, flush, dressing), so all supplies are at chairside, the site is exposed for minimal time, and staff are not touching other surfaces/boxes during the dressing change.



## **PRIMARY DRIVER #5: PREVENT AND TREAT PERITONEAL AND LTC INFECTIONS AND ANEMIA**

### **Secondary Driver #5: Follow procedures and implement protocols**

#### **Reducing Transfusions – Change Ideas**

1. Implement an anemia management protocol that includes physician oversight. Include when to start, titrate, or hold an ESA.
2. Start early doses of an ESA and start iron if needed for new patients admitted to the nursing home.
3. Ensure all patients are on a maintenance iron protocol.
4. Draw blood for hemoglobin:
  - a. On the first day the patient is discharged from the hospital and returned to the nursing home.
  - b. Weekly, if the patient is unstable, to adjust medications.
5. Monitor the patient's hemoglobin for trends.
6. Be aware of co-morbidities that could affect hemoglobin.
7. Review the lab results immediately. Notify the nephrologist of lab results (low hemoglobin) and patient status without delay, so the physician can give orders, such as starting an ESA sooner than the algorithm indicates.
8. Provide lab results drawn for dialysis to the nursing home.
9. Do not give iron if an infection is present.
10. If the protocol needs to be modified, discuss with the patient, e.g., the need for more frequent hemoglobin draws.
11. Have the dialysis program dietitian talk with the nursing home dietitian after review of the patient's labs to discuss results and changes to diet.
12. Obtain the hospital discharge summary to determine care in the hospital, e.g., if the patient received transfusions.
13. Conduct a root cause analysis if the patient is hospitalized, has an infection, or has anemia; discuss at QAPI meetings.
14. Be alert to symptoms of anemia, e.g., decreased level of consciousness, change in complexion. Notify the physician to avoid hospitalization.



## V. Conclusion and Next Steps

The ideas presented in this change package are being implemented by high-performing dialysis facilities across the United States. These ideas can be tailored and adapted to fit the needs of dialysis facilities and the patients with ESRD that they serve across the country.

As with any change, a best practice is to start small and build improvement toward systemic change. Facilities can start with one test of change and do it well. This will relieve the burden on staff and encourage buy-in when change begins. Measuring and monitoring performance improvement will ensure the facility stays on track with goals. Celebrating every success with staff, patients, families, and community partners at every change will be contagious. Above all, the best time to start performance improvement is now. With this change package in hand, program leaders, administrators, and staff should ask themselves, “What can I do by next Tuesday to get this started?”

## VI. References

1. Institute for Healthcare Improvement. *QI Essential Toolkit* [ebook]. 2017; pp. 7–8. Available at: [http://www.ihl.org/resources/Pages/Tools/Quality-Improvement-Essentials-Toolkit.aspx?utm\\_campaign=QI-Toolkit-Promotion&utm\\_medium=Whiteboard-Video&utm\\_source=ihl](http://www.ihl.org/resources/Pages/Tools/Quality-Improvement-Essentials-Toolkit.aspx?utm_campaign=QI-Toolkit-Promotion&utm_medium=Whiteboard-Video&utm_source=ihl). Accessed February 5, 2020.
2. Institute for Healthcare Improvement. *QI Essential Toolkit* [ebook]. 2017; pp. 7–8. Available at: [http://www.ihl.org/resources/Pages/Tools/Quality-Improvement-Essentials-Toolkit.aspx?utm\\_campaign=QI-Toolkit-Promotion&utm\\_medium=Whiteboard-Video&utm\\_source=ihl](http://www.ihl.org/resources/Pages/Tools/Quality-Improvement-Essentials-Toolkit.aspx?utm_campaign=QI-Toolkit-Promotion&utm_medium=Whiteboard-Video&utm_source=ihl). Accessed February 5, 2020.

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