How We Decreased Our Standardized Infection Rate (SIR) by 50%!

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About Us

UP Health System-Portage Dialysis Center:

• Is a rural unit in Upper Michigan
  – Next nearest unit and vascular surgeon ~2 hours away

• Has 12 chairs with 2 shifts
  – Monday, Wednesday, Friday
  – Morning shift on Tuesday, Thursday, Saturday

• Provided 4,239 treatments in 2017 and 4,506 treatments in 2018

• Has a typically elderly patient population

• Just started treating acute kidney injury and one home peritoneal dialysis (PD) patient
Previous Practices
Catheter Care

The unit:

• Did Q-syte changes weekly
• Did dressing changes each treatment
  • Hypafix
  • 2x2 gauze
  • Triple antibiotic ointment
• Used chlorhexidine antisepsis
• Applied alcohol to the hub
• Flushed tubing with heparin lock
Staff and Patient Education

Portage:
• Determined competencies annually
• Gave a return demonstration of catheter care
• Distributed access and hand hygiene handouts
• Provided patient education on admission and annually
  • Centers for Disease Control and Prevention (CDC) 6 tips
  • CDC conversation starter
CDC’s 6 Tips to Prevent Dialysis Infections

**Patients with Catheters**

**TIP 1**
Catheters have a higher risk of infection. Ask your doctor about getting a fistula or graft instead.

**TIP 2**
Learn how to take care of the catheter at home. Do not get it wet.

**TIP 3**
Wash your hands often, especially before and after dialysis treatment.

**TIP 4**
Know the steps your healthcare providers should take when using the catheter for treatment.

**TIP 5**
Know the signs and symptoms of infection and what to do if you think you might have an infection.

**TIP 6**
Know what to do if you have any problem with the catheter.

CDC’s Conversation Starter

Conversation Starter to Prevent Infections in Dialysis Patients

Preventing infections is important for patient safety. The Centers for Disease Control and Prevention (CDC) wants dialysis patients and dialysis centers to start a conversation about preventing infections. Family members can also start the conversation. We hope this guide can be a starting point to improve awareness about patient safety issues.

How does this facility involve patients and their families in infection control activities? Are patients encouraged to speak up when they see a concerning practice (for example, a staff member who does not wash her hands)?

Dialysis centers should educate and empower patients to help prevent infections and support a safe care environment. Talk to your social worker or facility administrator for ideas on how you can get involved.

How does this facility make sure that all patients receive necessary vaccines to prevent illness (such as Hepatitis B, seasonal flu, and pneumococcal vaccines)?

Patients on dialysis have weakened immune systems and should get certain vaccines to keep from getting sick.

How does this facility make sure that dialysis center staff are vaccinated against the flu every year?

Sick staff members can spread the flu to patients. Requiring dialysis center staff to get vaccinated each year can help prevent this spread. Dialysis centers should also have policies that support staff to stay home when they are sick.

Does this facility check all patients for hepatitis C infection?

All hemodialysis patients should be tested for hepatitis C when they start treatment at a center, and then every 6 months if they could become infected. Testing is the only way to know if patients have hepatitis C and to find out if the infection is spreading in the facility.

Does this facility prepare medications in a separate room away from dialysis stations to avoid contamination?

Medications for injection should be prepared away from patient treatment areas to keep them safe from germs. One way to do this is to prepare them in a separate room. More information about injection safety can be found at www.oneandonlycampaign.org/

Surveillance

Surveillance included use of:

- CDC audit tools for:
  - Access surveillance
  - Hand hygiene surveillance
- Champion staff
# CDC Audit Tools

**Audit Tool:** Catheter exit site care observations
(Use a “v” if action performed correctly, a “0” if not performed. If not observed, leave blank)

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Mask worn properly (if required)</th>
<th>Hand hygiene performed</th>
<th>New clean gloves worn</th>
<th>Skin antiseptic applied appropriately</th>
<th>Skin antiseptic allowed to dry</th>
<th>No contact with exit site (after antisepsis)</th>
<th>Antimicrobial ointment applied</th>
<th>Dressing applied aseptically</th>
<th>Gloves removed</th>
<th>Hand hygiene performed</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
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</table>

Discipline: P=physician, N=nurse, T=technician, S=student, O=other

Duration of observation period: __________ minutes

Number of procedures performed correctly =

Total number of procedures observed during audit =

**Additional Comments/Observations:**

CDC Approach to BSI Prevention in Dialysis Facilities
(i.e., the Core Interventions for Dialysis Bloodstream Infection (BSI Prevention))

1. Surveillance and feedback using NHSN
   Conduct monthly surveillance for HEIs and other dialysis events using CDC’s National Healthcare Safety Network (NHSN). Calculate facility rates and compare to rates in other NHSN facilities. Actively share results with frontline clinical staff.

2. Hand hygiene observations
   Perform observations of hand hygiene opportunities monthly and share results with clinical staff.

3. Catheter/vascular access care observations
   Perform observations of vascular access care and catheter accessing quarterly. Assess staff adherence to aseptic technique when connecting and disconnecting catheters and during dressing changes. Share results with clinical staff.

4. Staff education and competency
   Train staff on infection control topics, including access care and aseptic technique. Perform competency evaluation for skills such as catheter care and accessing every 6-12 months and upon hire.

5. Patient education/engagement
   Provide standardized education to all patients on infection prevention topics including vascular access care, hand hygiene, risk related to catheter use, recognizing signs of infection, and instructions for access management when away from the dialysis unit.

6. Catheter reduction
   Incorporate efforts (e.g., through patient education, vascular access coordinator) to reduce catheters by identifying and addressing barriers to permanent vascular access placement and catheter removal.

7. Chlorhexidine for skin antisepsis
   Use an alcohol-based chlorhexidine (4%) solution as the first line skin antiseptic agent for central line insertion and during dressing changes.*

8. Catheter hub disinfection
   Scrub catheter hubs with an appropriate antiseptic after cap is removed and before accessing. Perform every time catheter is accessed or disconnected.**

9. Antimicrobial ointment
   Apply antibiotic ointment or povidone-iodine ointment to catheter exit sites during dressing change.***

* Povidone-iodine (preferably with alcohol) or 70% alcohol are alternatives for patients with chlorhexidine intolerance.
** If closed needleless connector device is used, disinfect device per manufacturer’s instructions.
*** See information on selecting an antimicrobial ointment for hemodialysis catheter exit sites on CDC’s Dialysis Safety website https://www.cdc.gov/dialysis/prevention-tools/core-interventions.html#step 3. Use of chlorhexidine-impregnated sponge dressing might be an alternative.

For more information about the Core Interventions for Dialysis Bloodstream Infection (BSI) Prevention, please visit http://www.cdc.gov/dialysis

Newly Developed Practices which Resulted in Our Decreased SIR Rate
Catheter Care

Changes to catheter care included:

- Implementing use of TEGO® caps
  - Weekly cap change
  - 0.9% normal saline dwells (no heparin)

Use improved blood flow

- Changing tegaderm dressing
  - Weekly dressing changes

Use of the transparent dressing allowed visual assessment of exit sites without exposure to elements
New Expanded Staff Education

Quality staff education and engagement included:

• Watching *Preventing Bloodstream Infections in Outpatient Hemodialysis Patients* on day 1 of orientation
  – https://www.youtube.com/watch?v=_0zhY0JMGCA

• Providing a one-on-one preceptor for orienting
• Developing a culture of staff engagement
Expanded Patient Education

Expanded patient education included:
• Using monitors in lobby to encourage/model proper hand hygiene for patients and visitors
  – Entry and exit
• Adding signage to remind patients/visitors to wash
• Providing patient catheter education
• Developing/maintaining a monthly education schedule of:
  – PowerPoints mixed with photos
  – Coordinated handouts
  – Education documentation
    ▪ In electronic medical records
    ▪ To be more efficient
Promoting Unit Engagement

Patient, staff, and leadership engagement was achieved by:

• Including peer audit participation with CDC access observations
• Posting *Days Since BSI* signs
• A 100 days since BSI celebration
Operational Excellence

The unit:

• Joined the CDC’s Making Dialysis Safer Coalition
• Adopted UPHS Portage foundational five processes:
  – Daily brief
  – Huddles
  – Daily debrief
  – Learning boards
  – Executive patient safety rounding
• Included the processes ongoing in the quality assurance and performance improvement (QAPI) plan
Adopting a Learning Board from Briefs

Our learning board promotes communication by openly depicting issues:

- Identified during briefs
- In progress
- Resolved
## Quality & Service: The Operational Impact of Action Planning

### December 2017 QAPI Priorities

<table>
<thead>
<tr>
<th>High Priority</th>
<th>Mid-Priority</th>
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</thead>
<tbody>
<tr>
<td>Equipment (dialysis machine) maintenance</td>
<td>Decrease catheters &gt;90 days</td>
</tr>
<tr>
<td>Infection prevention</td>
<td>Improved iron outcomes/TSat's &lt;20%</td>
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</tbody>
</table>

### December 2018 QAPI Priorities

<table>
<thead>
<tr>
<th>High Priority</th>
<th>Mid-Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase patients on transplant list</td>
<td>Decrease catheters &gt;90 days</td>
</tr>
<tr>
<td></td>
<td>Improved iron outcomes/TSat's &lt;20%</td>
</tr>
<tr>
<td></td>
<td>Delivered prescription accuracy</td>
</tr>
</tbody>
</table>

### Low Priority:

<table>
<thead>
<tr>
<th>Fluid management</th>
<th>Dialysis machine maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved phosphorus levels</td>
<td>Infection prevention</td>
</tr>
<tr>
<td>Improve iron outcomes</td>
<td></td>
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<tr>
<td>Improve hypercalcemia</td>
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</table>
## Performance Improvement

### Outcome Success

<table>
<thead>
<tr>
<th>Year</th>
<th>Predicted BSI Rate</th>
<th>SIR Rate</th>
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<tbody>
<tr>
<td>2014</td>
<td>2.48</td>
<td>2.82</td>
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<tr>
<td>2015</td>
<td>2.83</td>
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<td>2016</td>
<td>2.88</td>
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<td>2017</td>
<td>2.30</td>
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<tr>
<td>2018</td>
<td>2.75</td>
<td>2.18</td>
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</table>
Performance Score Report—Quality Incentive Program Subdomains

- Safety Domain Measures (Topic and Clinical Measure)

<table>
<thead>
<tr>
<th>Safety Measures</th>
<th>Measure Score</th>
<th>Measure Weight (% of Domain)</th>
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</thead>
<tbody>
<tr>
<td>NHSN Topic</td>
<td>4^c</td>
<td>100.00%</td>
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<tr>
<td>NHSN Bloodstream Infection</td>
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</table>

- Safety Domain Measures (Reporting Measure)

<table>
<thead>
<tr>
<th>Safety Measure</th>
<th>Measure Score</th>
<th>Measure Weight (% of Domain)</th>
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<tbody>
<tr>
<td>NHSN Dialysis Event Reporting</td>
<td>10</td>
<td>N/A</td>
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</tbody>
</table>

Eligible Safety Measures: 2 of 2
Weighted Safety Domain Score: 40.000

^c The measure score was calculated by aggregating its component measure scores
Future Performance Improvement Projects

In future, Portage will:

• Work to improve patient involvement in access and hand hygiene audits.

• Continue research for new evidence-based practices to implement.
Questions?