National Center for Emerging and Zoonotic Infectious Diseases



## **Making Dialysis Safer for Patients Coalition**

**Christi Lines, MPH** NANT Symposium February 2017

## Outline

- Introduction to the Coalition
- Coalition resources
- How you can become involved

## Introduction

# CDC Dialysis BSI Prevention Collaborative 2009

- **Collaborative approach to BSI prevention**
- Goal to demonstrate preventability
  - Through increased adherence to *existing* recommendations
- Measure infection rates using NHSN
  - 32% reduction in BSIs; 54% reduction in ARBSIs; reduction sustained for 5 years

### Intervention package

- Based on CDC/HICPAC recommendations
- Focus on catheter maintenance practices

The *Making Dialysis Safer for Patients Coalition* is a collaboration of diverse organizations who have joined forces with the common goal of promoting the use of CDC's core interventions and resources to prevent bloodstream infections in dialysis patients.





## Making Dialysis Safer Coalition Goals

## Facilitate implementation and adoption of core interventions

through promotion, dissemination, and use of audit tools, checklists, and other resources;

Increase awareness about the core interventions for dialysis bloodstream infection prevention through educational efforts; and Share Experiences and Findings through collaboration with other *Coalition* participants.





## **Coalition Resources**

#### 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 monthlys urveillance for BSIs and other dialysis events using CDCS National Health care Safety Network (NHSN). Calculate faditiy rates and compare to rates in other NHSN fadilities. Actively share results with front-line clinical staff.

#### 2. Hand hygiene observations

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Provide standardized education to all patients on infection prevention topics including vas cular access care, hand hygiene, risks related to catheter use, recognizing signs of infection, and instructions for access management when away from the dialys s 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 (>0.5%) solution as the first line skin antiseptic agent for central line insertion and during dressing changes.\*

#### 8. Catheter hubdisinfection

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

#### 9. Antimicrobia lointment

Apply antibiotic ointment or povidone-iodine ointment to catheter exitsites during dressing change.\*\*\*

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### Set of 9 Interventions

Evidencebased CDC recommendations

#### http://www.cdc.gov/dialysis/prevention-tools/core-interventions.html

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# 1. Surveillance and feedback using NHSN

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### Calculate facility rates and compare to rates in other facilities using NHSN

### Actively share results with frontline clinical staff



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# 2. Hand hygiene observations

Perform monthly hand hygiene audits with feedback of results to clinical staff.



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## 3. Catheter care/ vascular access care observations

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Assess adherence to aseptic technique when connecting and disconnecting catheters and during dressing changes.

## Share results with clinical staff.

## **Checklists & Scrub-the-Hub Protocol**

#### Hemodialysis Central Venous Catheter Scrub-the-Hub Protocol

This protocol outlines a suggested approach to preparing catheter hubs prior to accessing the catheter for hemodialysis It is based on evidence where available and incorporates theoretical rationale when published evidence is unavailable.

#### Definitions

Catheter refers to a central venous catheter (CVC) or a central line

Hub refers to the end of the CVC that connects to the blood lines or can

Cap refers to a device that screws on to and occludes the hub

Limb refers to the catheter portion that extends from the patient's body to the hub

Rlood lines refer to the arterial and venous ends of the extracorporeal circuit that connect the patient's catheter to the dialyzer

#### **Catheter Connection and Disconnection** Steps:

#### **Connection Steps**

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1. Perform hand hygiene and don new clean gloves. 2. Clamp the catheter (Note: Always clamp the catheter before removing the cap. Never leave an uncapped catheter unattended)

3. Disinfect the hub with caps removed using an appropriate antiseptic (see notes).

- a. (Optional) Prior to cap removal, disinfect the caps and the part of the hub that is accessible and discard the antiseptic pad (i.e., use a separate antiseptic pad for the next step)
- b. Remove the caps and disinfect the hub with a new antiseptic pad for each hub. Scrub the sides (threads) and end of the hub thoroughly with friction, making sure to remove any residue (e.g., blood).

c. Using the same antiseptic pad, apply antiseptic with friction to the catheter, moving from the hub at least several centimeters towards the body. Hold the limb while allowing the antiseptic to dry.

d. Use a separate antiseptic pad for each hub/ catheter limb. Leave hubs "open" (i.e. uncapped and disconnected) for the shortest time possible

4. Always handle the catheter hubs aseptically. disinfected, do not allow the catheter hubs to nonsterile surfaces. 5. Attach sterile syringe, unclamp the catheter, y blood, and flush per facility protocol.

6. Repeat for other limb (this might occur in par 7. Connect the ends of the blood lines to the car aseptically. 8. Remove gloves and perform hand hygiene.

#### Disconnection Steps:

1. Perform hand hygiene and don new clean glc 2. Clamp the catheter (Note: Always clamp the c before disconnecting. Never leave an uncapp unattended) 3. Disinfect the catheter hub before applying th using an appropriate antiseptic (see notes). a. (Optional) Disinfect the connection prior disconnection. If this is done, use a sepa pad for the subsequent disinfection of tl

b. Disconnect the blood line from the cath disinfect the hub with a new antisentic ( the sides (threads) and end of the hub t with friction, making sure to remove any (e.g., blood).

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4. Always handle the catheter hubs aseptically. ( disinfected, do not allow the catheter hubs to nonsterile surfaces. Hold the catheter until th dried.

5. Attach the new sterile caps to the catheter as Use caution if tape is used to secure caps to th (see notes)

6. Ensure that catheter is still clamped. 7. Remove gloves and perform hand hygiene.



Checklist: Hemodialysis catheter disconnection

Wear mask (if required)

Perform hand hygiene

Put on new, clean gloves

Clamp the catheter

Disconnect catheter from blood lines aseptically

Scrub catheter hub with antiseptic

Allow hub antiseptic to dry

Attach new caps aseptically



#### Perform hand hygiene



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Wear mask (if required) Perform hand hygiene

connection

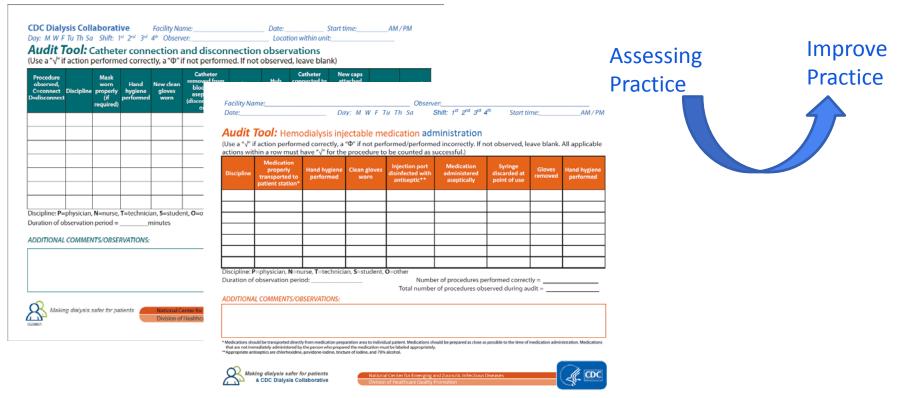
Put on new, clean gloves

Clamp the catheter and remove caps

**Checklist:** Hemodialysis catheter

- Scrub catheter hub with antiseptic
- Allow hub antiseptic to dry
- Connect catheter to blood lines aseptically
- **Remove** gloves
- Perform hand hygiene

## **Audit Tools are Part of Prevention Efforts**



http://www.cdc.gov/dialysis/prevention-tools/index.html

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> Staff education

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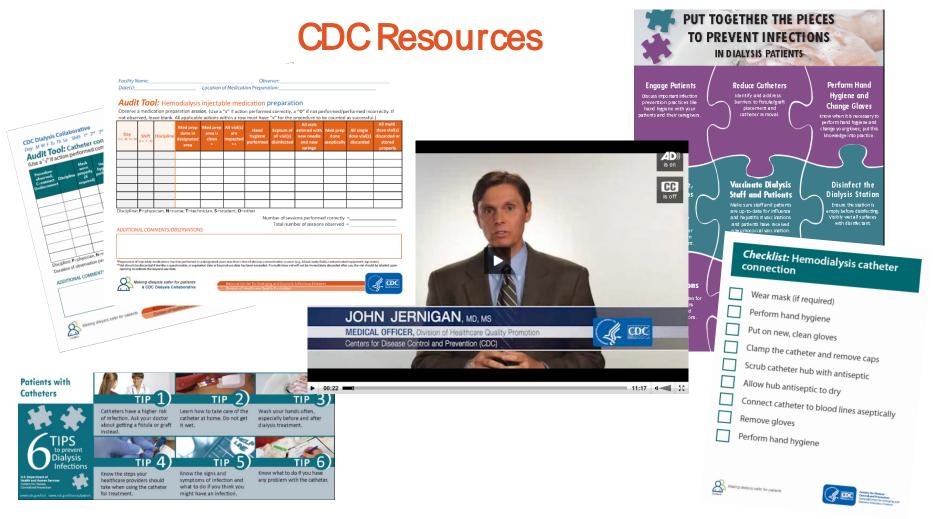


## 5. Patient education/ engagement

Provide standardized education to all patients on infection prevention topics including:

- Vascular access care
- Hand hygiene
- Risks related to catheter use
- Recognizing signs of infection

 Instructions for access management when away from the dialysis unit



http://www.cdc.gov/dialysis/prevention-tools/training-video.html

## Conversation Starter to Prevent Infections in Dialysis Patients



https://www.cdc.gov/dialysis/pdfs/mdsc ga final 508 2 sm.pdf



#### Does this facility use the CDC recommendations to help prevent infections?

Regular use of CDC resources and recommendations can keep patients from getting serious indections. These recommendations include monitoring staff hand highers and vasculer access care, training staff, and assisting patients in learning about these practices. Facilities should be using these recommendations and giving their staff Redback to know how they are doing. More information can be found at: www.cdc.gov/dissi/g/revention-tods

How does this facility handle cleaning dialysis stations in between patient treatments – specifically, are dialysis stations cleaned while a patient is still in the chair?

Dialysis stations need proper cleaning to prevent spread of germs between patients. CDC has steps for facilities to follow to make sure every station is safe for the next patient. Some steps should not start until the patient has completed their dialysis treatment and left the station. More information can be found at: www.cdc.gow/dialysis/prevention-tools



### Does this facility use a new, disposable dialyzer (artificial kidney) with each dialysis treatment? If not, can a patient opt out of reusing the dialyzer?

Reused dialyzers must be thoroughly cleaned and disinfected after each use, and mistakes can occur. Talk to your doctor about whether you could use a disposable dialyzer instead of a reused one.

#### How does this facility support patients to use a fistula instead of a catheter as early in their treatment as possible?

Somatimes it is medically necessary to use a catheter for dialysis. However, catheters can lead to serious infections and other problems. Fituulas and grafts are safer for most patients. Talk to your care team about what is right for you. More information can be found at www.sake.org/store/ifam/ understanding-your/hemodialysis-cocess-celtions.html



If there was an outbreak in this facility how would the facility communicate with patients? How would the facility partner with others such as the health department?

Contagious germs can spread through dialysis centers. Finding an outbreak (a sudden increase in numbers of sick persons) early and alerting public health can help to stop the spread of infection.



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Off-label use

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# 8. Catheter hub disinfection

Scrub catheter hubs with an appropriate antiseptic after the cap is removed and before accessing.

Perform every time catheter is accessed or disconnected.

If closed needleless connector device is used, disinfect per manufacturer's instructions.

### Scrub-the-Hub Protocol

#### Hemodialysis Central Venous Catheter Scrub-the-Hub Protocol

This protocol outlines a suggested approach to preparing catheter hubs prior to accessing the catheter for hemodialysis. It is based on evidence where available and incorporates theoretical rationale when published evidence is unavailable.

#### Definitions:

- Catheter refers to a central venous catheter (CVC) or a central line
- Hub refers to the end of the CVC that connects to the blood lines or cap
- Cap refers to a device that screws on to and occludes the hub
- Limb refers to the catheter portion that extends from the patient's body to the hub
- Blood lines refer to the arterial and venous ends of the extracorporeal circuit that connect the patient's catheter to the dialyzer

#### Catheter Connection and Disconnection Steps:

#### **Connection Steps**

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- 1. Perform hand hygiene and don new clean gloves.
- Clamp the catheter (*Note:* Always clamp the catheter before removing the cap. Never leave an uncapped catheter unattended).
- Disinfect the hub with caps removed using an appropriate antiseptic (see notes).
  - a. (Optional) Prior to cap removal, disinfect the caps and the part of the hub that is accessible and discard the antiseptic pad (i.e., use a separate antiseptic pad for the next step).
  - b. Remove the caps and disinfect the hub with a new antiseptic pad for each hub. Scrub the sides (threads) and end of the hub thoroughly with friction, making sure to remove any residue (e.g., blood).
  - c. Using the same antiseptic pad, apply antiseptic with friction to the catheter, moving from the hub at least several centimeters towards the body. Hold the limb while allowing the antiseptic to dry.
  - d. Use a separate antiseptic pad for each hub/ catheter limb. Leave hubs "open" (i.e., uncapped and disconnected) for the shortest time possible.

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 Always handle the catheter hubs aseptically. Once disinfected, do not allow the catheter hubs to touch nonsterile surfaces.

- 5. Attach sterile syringe, unclamp the catheter, withdraw blood, and flush per facility protocol.
- 6. Repeat for other limb (this might occur in parallel).
- Connect the ends of the blood lines to the catheter aseptically.
- 8. Remove gloves and perform hand hygiene

#### Disconnection Steps:

- 1. Perform hand hygiene and don new clean gloves.
- Clamp the catheter (Note: Always clamp the catheter before disconnecting. Never leave an uncapped catheter unattended).
- Disinfect the catheter hub before applying the new cap using an appropriate antiseptic (see notes).
- a. (Optional) Disinfect the connection prior to disconnection. If this is done, use a separate antiseptic pad for the subsequent disinfection of the hub.
- b. Disconnect the blood line from the catheter and disinfect the hub with a new antiseptic pad. Scrub the sides (threads) and end of the hub thoroughly with friction, making sure to remove any residue (e.g., blood).
- c. Use a separate antiseptic pad for each hub. Leave hubs "open" (i.e., uncapped and disconnected) for the shortest time possible.
- Always handle the catheter hubs aseptically. Once disinfected, do not allow the catheter hubs to touch nonsterile surfaces. Hold the catheter until the antiseptic has drived
- Attach the new sterile caps to the catheter aseptically. Use caution if tape is used to secure caps to the catheter (see notes).
- 6. Ensure that catheter is still clamped.
- 7. Remove gloves and perform hand hygiene

#### Notes/Discussion:

#### Antiseptic Use and Selection

As described in the 2011 CDC/Healthcare Infection Control Practices Advisory Committee (IHCPAC Guidelines for the Prevention of Intravascular Catheter-Related Infections, prior to accessing the catheter thus It should be disinfected with an appropriate antiseptic (greater than 0.5% is cholmaddine that an experiment of the should be disinfected with an appropriate antiseptic (greater than 0.5% is cholmaddine that enough whether to encommend one antiseptic over the others. Generally, antiseptics should be allowed to dry for maximal effect.

If using 70% alcohol, sterile antiseptic pads should be used (sterile pads are labeled sterile and packaging for nonsterile pads often does not state whether the pads are sterile or nonsterile). For practical reasons, pads or similar products might be preferred over other forms of antiseptics (e.g., swabsticks) for disinfecting the catheter as they are maileable and allow for vigorous cleaning of small spaces.

If using an antiseptic that leaves a residue (e.g., chlorhexidine), avoid allowing large amounts of antiseptic to enter the lumen of the catheter to avoid potential toxicities to the patient.

If using chlorhexidine, removing all blood residue is particularly important to maximize the effect of the antiseptic.

#### Soaking Caps

The role of soaking caps in an antiseptic prior to removing them is not clear. It is not a CDC/HICPAC recommendation. This procedure is described in the 2000 National Kidney Foundation's Kidney Disease Outcomes Quality Initiative (KDOQI) Vascular Access Guidelines but was not included in the 2006 update.

#### Handling Catheter Hubs

Catheter hubs should always be handled aseptically. Once disinfected, the catheter hubs should not be allowed to touch nonsterile surfaces. This might be best performed by holding them until the antiseptic dries. During this time, the staff member performing the procedure should also ensure that the catheter remains clamped.

When disinfecting catheter hubs, clean, nonsterile gloves can be used if aseptic technique is maintained.

#### **Bloodline Disinfection**

When accessing the line, disinfecting the ends of the sterile blood lines is not required if care has been taken not to contaminate the ends of the blood lines (i.e., through careful aspit: technique). Blood lines can become contaminated during connections and disconnections, as well as during the priming process. Contact with contaminated prime waste in prime buckets that have not been properly cleaned and disinfected or through backflow from waste handling ports must be avoided. Disinfecting the bloodlines does not address this issue.

#### Disconnection and Line Reversals

Catheter hubs should be disinfected again after disconnecting from bloodines and before reglacing a new capa at the end of a treatment. This should be done in a manner similar to that used when disinfecting the hub prior to accessing. Disinfecting the catheter hub and the end of the extracoprover blood ine should also be performed? I do the structure of the structure of the structure as the circular and anythms are before circuit a disconnected this should be done septically and the number of times a patient's catheter is disconnected from the blood lines should be minimized to the extent possible.

#### Securing Caps with Tape

Caution should be used if taping caps on to hubs between treatments. Tape can leave residue on the hubs that might make disinfecting them more difficult.

#### Use of Masks

Although data supporting the use of masks during catheter accessing/deacessing to prevent vascular access infections is lacking, this practice is recommended for patients and staff in the 2000 KDOQI guidelines and is included in the Centers for Medicare and Medicaid Services (CMS) End Stage Renal Disease Program Conditions for Coverage Interpretive Guidance.

#### Personal Protective Equipment (PPE)

Proper PPE should always be worn by staff to avoid exposure to potentially infectious blood and body fluids when connecting/disconnecting catheters.

#### Aseptic Technique

This includes practices that prevent the contamination of clean/sterile items and surfaces. Once tasks requiring aseptic technique have been started; care must be taskn to avoid contamination of gloves and other clean/sterile items that can occur when touching dirty surfaces (e.g., positioning patient, using computer keyboard).

#### Selected References:

 National Kidney Foundation. KDOQI Clinical Practice Guidelines and Clinical Practice Recommendations for 2006 Updates: Hemodialysis Adequacy, Peritoneal Dialysis Adequacy and Vascular Access. Am J Kidney Dis 2006; 48 (suppl 1):51–5322.

 National Kidney Foundation. KDOQI Clinical Practice Guidelines for Hemodialysis Adequacy, 2000. Am J Kidney Dis 2001; 37 (suppl 1):57-S64.

 O'Grady NP, Alexander M, Burns LM, et al. Guideline for the prevention of intravascular catheter-related infections. *Clin Infect Dis* 2011; 52:e162-e193.

#### http://www.cdc.gov/dialysis/PDFs/collaborative/Hemodialysis-Central-Venous-Catheter-STH-Protocol.pdf

#### 1. Surveillance and feedback using NHSN

Conduct monthlys urveillance for BSIs and other dialysis events using CDC's National Health care Safety Network (NHSN). Calculate facility rates and compare to rates in other NHSN facilities. Actively share results with front-line clinical staff.

#### 2. Hand hygiene observations

Perform observations of hand hygiene opportunities monthly and share results with dinical staff.

#### 3. Catheter/vascular access care observations

Perform observations of vascular access care and catheter accessing quarterly. Assess staff adherence to as eptic 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 aseptictechnique. Perform competency evaluation for skills such as ortheter 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 vas cular access care, hand hygiene, risks related to catheter use, recognizing signs of infection, and instructions for access management when away from the dialys is 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 (>0.5%) solution as the first line skin antiseptic agent for central line insertion and during dressing changes.  $^{\bullet}$ 

#### 8. Catheter hubdisinfection

Scrub catheter hubs with an according units privative spin and and before accessing. Perform every time orthogen is accessed or disconnected. \*\*

#### 9. Antimicrobial ointment

👍 oly antibiotic ointment or povidone-iodine ointment to catheter exits ites 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 antimic robal ointment for hemodialysis catheter exit sites on CDC's Dialysis Safety we bate (<u>http://www.cdc.gov/dialysis/prevention-took/core-interventions.html#sites</u>). Use of chohexdine.impregrated sponge dressing might be an alter mative.

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

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# 9. Antimicrobial ointment

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

Triple antibiotic ointment might have similar benefit to bacitracin/gramicidin/polymyxin B

Chlorhexidine-impregnated sponge dressing might be an alternative

Off-label use

## How you can become involved

## **Coalition** Participation





## **Becoming a Member**

- Member participants may include individual clinics, clinical staff, and/or individual patients or caregivers
- To become a member:
  - "Contact Us" section of the *Making Dialysis Safer for Patients Coalition* Website
  - Send an email to <u>DialysisCoalition@cdc.gov</u>
  - Collaborative participants are automatically signed up as *Coalition* members

## **Members**

Individual Clinics, Clinical Staff and Patients/Advocates

Promote, Adopt, Use,



## Becoming a Member: 5 Steps to Get Started



Making Dialysis Safer for Patients Coalition Member Welcome Packet

On behalf of the Making Dialysis Safer for Patients Coalition, welcome! We are thrilled to have you as a member in this important effort! To get started, here are 5 ways to become active in the Coalition:

#### Learn more about the Coalition

Check our <u>Website</u> to read the most up-to-date information about the *Coalition*, to access tools and resources and to see the schedule of upcoming events. Starting in January, CDC will offer a bimonthly webinar to *Coalition* participants—check the website for details on upcoming topics.

Helpful links: Dialysis Safety Home page, Coalition Home page and Coalition Resources

#### Check your email

You have been added to the Making Dialysis Safer for Patients Coalition email list and will receive a bimonthly newsletter featuring current Coalition events, spotlighting dialysis infection prevention in action, highlighting participant stories from "Share Your Story" submissions, and outlining upcoming Coalition events. The first Coalition Newsletter is planned for February 2017.

#### 2 "

#### Help put #DialysisPatientsFirst

Here's how you can help to reduce bloodstream infections:

- Participate, and invite your staff to join Coalition webinars
- Use <u>CDC Core Interventions</u> and <u>Coalition Resources</u> within your facility
- Distribute Coalition messages to staff and promote CDC tools and resources among your staff
- Use <u>Coalition patient education resources</u> to encourage patient engagement
- Encourage patients to speak up about infection prevention
- Delace the Coalition button, materials and resources on your organization's Website

#### Order free materials here

#### Spread the word

Add the Making Dialysis Safer Coalition logo to your website by copying the code below:

 <a href="https://www.cdc.gov/dialysis/coalition/index.html" title="Making Dialysis Safer Coalition"><img src="https://www.cdc.gov/dialysis/images/making-dialysis-safer-coalitionbutton.jpg" style="width:355px; height:150px; border:0px;" alt="Making Dialysis Safer Coalition" /></a>

Use **#DialysisPatientsFirst** to let us know how you are keeping dialysis patients safe on Facebook and by directing tweets to @CDCgov. Here are some sample messages to get you started.

Sample Tweet: I am excited to be a new member of the Making Dialysis Safer Coalition, and am focused on keeping #DialysisPatientsFirst

#### Share your story

"Share your Story" about how you are putting DialysisPatientsFirst and how you are helping to prevent bloodstream infections by emailing information on your *Coalition* activities and successes to <u>DialysisCoalition@cdc.gov</u>. Stories may be highlighted in the bi-monthly *Coalition* newsletter.



## **Member Activities**

- Participate in, and invite your staff to join Coalition webinars
- Use <u>CDC Core Interventions</u> and <u>Coalition Resources</u> within your facility
- Distribute Coalition messages to and promote CDC tools and resources among staff
- Use <u>Coalition patient education resources</u> to encourage patient engagement
- Encourage patients to speak up about infection prevention
- Place the Coalition button, materials and resources on your organization's Website
- "Share Your Story" about how you are putting #DialysisPatientsFirst and about how you are helping to prevent bloodstream infections by emailing DialysisCoalition@cdc.gov.



## **Coalition Activities**

- Webinars with CEs
- Listserv Distribution
- Educational Webinars
- Newsletter

2017	Webinar	Coalition Newsletter
January	x	
February		x
March	X	



## coalitionNEWSLETTER

#### Making Dialysis Safer for Patients Coalition is Launched

The Centers for Disease Control and Prevention, in partnership with the CDC Foundation, formally launched the <u>Making Dialysis</u> <u>Safer for Patients Coalition</u> on September 27<sup>th</sup>, 2016.

During the *Coalition's* launch, <u>CDC</u> and three *Coalition* partner organizations, the <u>American Association of Kidney Patients</u>, the <u>National Kidney Foundation</u>, and the <u>National Renal</u>



Administrators Association, issued press releases to announce the joint effort to reduce bloodstream infections among hemodialysis patients.

Combined efforts of *Coalition* participants led to media coverage in <u>HealthDay</u> news. *Coalition* participants capitalized on launch momentum by leveraging social media outreach—several partners posted <u>Twitter</u>, <u>Facebook</u>, and <u>LinkedIn</u> messages using the hashtag #DialysisPatientsFirst.



## **Coalition Materials and Resources**

All items are available to order or download free of charge

### Coalition Ordering Sheet

- order online at <u>www.cdc.gov/pubs</u> and select 'dialysis safety' from the programs menu OR call 1-800-CDC-INFO and provide the item number
- All materials are available at no cost





## **Next Steps**

- We can protect patients from potentially deadly bloodstream infections-but we can't do it without you!
- Collaborative participants are automatically included as Coalition members
- Look for your Member Welcome Packet and start your Coalition activities to put
  DialysisPatientsFirst





## **Questions?**



For more information, contact CDC 1-800-CDC-INFO (232-4636) TTY: 1-888-232-6348 www.cdc.gov http://www.cdc.gov/dialysis/

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

