

# Practical Approach to Infection Control

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# Objectives:

- Discuss strategies for infection control program design in a dialysis facility.
- Identify ways to reduce infection risks in a dialysis program.
- Integrate CDC guidelines into a dialysis infection control program.
- Determine types of surveillance needed in a dialysis facility.

# Why is this so important?

- Infection Control went from one tag in the old regulations to an entire condition in the 2008 regulations
- Covers V tags 110-148
- 3 Infection Control V tags are in Top Ten and 6 in the top 13
- 1/3 of all surveys in 2010 had at least one Vtag Citation for Infection Control

# What Are the Citations? Out of 1285 Surveys in 2010

- #1 V113 – gloves and hand hygiene 371
- #2 V122 – Clean and disinfect surfaces 300
- #9 V116 – Items taken to station 160
- #11 V117 – Clean/Dirty areas and Med Prep 153
- #12 V143 – Aseptic Technique 149
- #13 V 115 – Wearing of PPE 143

# Infection Control Program Design

- Identify & assign an Infection Control Nurse
- Identify attainable objectives which specify end-user involvement, e.g., patients, staff
- Establish Infection Control Committee that includes different scopes of practice, e.g., Clinical, Technical

# Key Areas of Focus

- **Patient Surveillance & Monitoring of all infections**
- **Patient Education**
- **Employee Health Screening & Monitoring**
- **Employee Training & Education**
- **Water Treatment Surveillance**
- **Physical Environment**

# Focus on Patients

- Infection Control  
Logs/Tracking Tools  
Monitor:
  - ✓ Bacteremic Events
    - Catheter Related
    - Non- Catheter Related
  - ✓ Patients on Antibiotics
  - ✓ Blood Culture Results
- Vascular Access  
Management  
Monitor:
  - ✓ Access Needle Placement & Removal
  - ✓ Buttonhole Procedure
  - ✓ CVC Initiation & Discontinuation
  - ✓ CVC Site Care
  - ✓ CVC Tracking

# Focus on Patients

- Screening/Testing:
  - ✓ Hepatitis B
  - ✓ Hepatitis C
  - ✓ Tuberculosis
- Vaccinations:
  - ✓ Hepatitis B
  - ✓ Flu
  - ✓ Pneumovax



# Focus on Patients

- Cohort Like with Like
- Do Not Co-mingle population, e.g. VRE, MRSA
- Keep infected areas covered
- Isolation Precautions as Indicated
- Contact Precautions as Indicated
- Report Diseases to Local Board of Health as Indicated, e.g., TB, Measles, Scabies

# Focus on Staff

- Employee Screening:

- ✓ Hepatitis B
- ✓ Hepatitis C
- ✓ Tuberculosis
- ✓ Rubella (State Specific)
- ✓ Rubeola (State Specific)

- Vaccination:

- ✓ Hepatitis B
- ✓ Flu

# Focus on Staff

- Employee Training:
  - ✓ Infection Control
  - ✓ Blood Borne Pathogens
  - ✓ Handwashing
  - ✓ Use of PPE
  - ✓ Exposure Control Plan
- Exposure Monitoring:
  - ✓ OSHA 300 A form
  - ✓ Needlesticks
  - ✓ Post Exposure Process/Package
  - ✓ Occupational Health
  - ✓ Confidential Health File

# Staff Competencies

- Cannulation Techniques
- CVC Site Care
- CVC Initiation
- CVC Discontinuation
- Handwashing
- Sharps Safety
- Use of Delivery System
- Disinfection Practices
- Use of PPE
- Medication Administration

# Clinicians Hold The Solution



# HANDWASHING

- The single most important thing you can do to prevent infection transmission to you or your patients
- If hands are contaminated anything you touch will become contaminated (cuts, eyes, mouth, surfaces, accesses)

# WHEN TO WASH HANDS

- As soon as possible after touching blood, body fluids, or any potentially contaminated item (Even if gloves have been worn)
- Everytime gloves or PPE is removed
- Between patient contact

# WHERE TO WASH HANDS

- Federal regulations require we have “clean” and “dirty” sinks available in the treatment area
- Handwashing should only be done at the clean sink. The dirty sink is for washing dirty items and emptying saline bags or collection containers



# HANDWASHING TECHNIQUES

- Lather hands with friction 10-15 seconds
- Rinse hands and dry with a paper towel. If sink is not “hands free”, then use a clean paper towel to turn the water off
- If hands are not visably soiled, then an antiseptic rub can be used
- If hands are dry after 10-15 seconds, then you have not used enough hand sanitizer

# **Time it Takes to Wash Your Hands**

**20 seconds..as long as it takes to  
sing:**

**Happy Birthday**

**Mary Had a Little Lamb**

**Twinkle, Twinkle Little Star**

# Handwashing Facts

- Lack of handwashing spreads disease in health care settings
- Healthcare workers wash their hands only 30 % of the required time between patient contact and procedures ( US. Centers for Disease Control )
- VRE can grow on unwashed hands for over an hour. It has also been isolated on gloved hands
- VRE survival rate on counter tops – 5 to 7 days, bedrails- 24 hours, telephone handpieces 1 hour, Diaphragmatic surface of stethoscopes- 30 minutes

# STANDARD PRECAUTIONS

- Also called universal precautions
- PPE – “Personal Protection Equipment”
- PPE- Gown, Gloves, Face Shield
- Worn during initiation and termination of dialysis or whenever blood spatter might occur
- Wear PPE when transporting bio-hazard substance

# Personal Protection Equipment

- PPE should be removed when leaving the treatment area
- PPE is not to be worn in the lobby or in other non treatment areas, such as the hallway, breakroom or bathroom
- If wearing gloves outside the treatment area they must be clean.
- Shields and goggles are considered dirty after they are worn. Do not leave in clean areas.

# Focus on Water Treatment

- Water Sampling:
  - ✓ Bacteria- < 200 CFU/ML water
  - ✓ Bacteria - < 200 CFU/ML dialysate
  - ✓ Action Level is 50 CFU/ML
  - ✓ Endotoxins- < 2.0 EU/ML water
  - ✓ AAMI Water Analysis-
  - ✓ Disinfection Schedule
  - ✓ Operational Logs
  - ✓ Corrective Action

# Focus on Water Treatment

- Staff Training Requirements
- Staff Competencies
- Audit water logs
- Audit water sample results
- Track & trend data
- Report variances to Medical Director/Governing Body
- Review all in QAPI monthly

# Focus on Physical Environment

- Housekeeping Contract
- Housekeeping Rounds
- Housekeeping Audits
- OSHA Safety Checklist
- Designation of Clean versus Dirty
- Disinfection of Reusable Supplies
- Disinfection of External Surfaces
- Disinfection of Internal Components of Delivery Systems



# Focus on Physical Environment

- Regulated Medical Waste
- Non-regulated medical waste
- Sharps
- Personnel Training
- Documentation

# Integrate CDC Guidelines in an Infection Control Program

- ✓ Recommendations for Preventing Transmission of Infections Among Chronic Hemodialysis Patients April 27, 2001
- ✓ Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis June 29, 2001
- ✓ Guidelines for Prevention of Intravascular Catheter-Related Infections August 9, 2002

# Integrate CDC Guidelines in an Infection Control Program

- ✓ Recommendations for Preventing Transmission of Infections Among Chronic Dialysis Patients
- ✓ Guidelines for Environmental Infection Control in Health-Care Facilities June 6, 2003
- ✓ Prevention of Intravascular Catheter-Related Infections
- ✓ Recommendations for Preventing the Spread of Vancomycin Resistance September 22, 1995
- ✓ Guidelines for Preventing the transmission of Mycobacterium tuberculosis in health care facilities October 28. 1994

# Opportunities for Improvement in a Dialysis Center

- QA Committee reviews infectious episodes/infection control practices
- Development of a plan for improvement
- Audit adherence to Infection Control Policies/observe for cross contamination
- Observe handwashing practices, changing gloves, delivery of meds
- Surveillance is maintained and documented for Hepatitis B, C and TB for patients and staff
- Hepatitis B vaccine availability for patients and employees
- Encourage acceptance of flu and pneumonia vaccine for patients, flu for staff.

# Opportunities for Improvement in a Dialysis Center

- Blood Borne Pathogen/Exposure Control and post exposure follow up plans are in place and being followed
- Newly Hired staff are trained on biohazards of their work place within first 10 days & annually
- Janitorial staff have been inserviced on Hepatitis Precautions
- Contact precautions are maintained for identified infectious diseases ( MRSA, VRE)
- Adherence to PPE & availability of supplies

# Opportunities for Improvement in a Dialysis Center

- Hand washing sinks are available and convenient for use
- Staff do not eat, drink in exposure areas ( no gum, candy, coffee,etc )
- Patient eating is specific to facility practice-guidelines may be State/Network Specific
- PPE is removed before leaving the treatment area
- Proper use of safety needles/no recapping
- Bleach solutions are mixed daily and according to recommended/desired strength

# Opportunities for Improvement in a Dialysis Center

- No stock piling of supplies on patient machines/counters
- Machines, chairs, reusable equipment disinfected after each patient treatment
- Linens are not reused
- Blood and effluent spills are cleaned as soon as possible with appropriate disinfectant
- HBsAg positive patients are identified and transmission control measures taken
- HBsAB positive patients are identified and serve as buffer
- Isolation equipment is labeled and secured

# Opportunities for Improvement in a Dialysis Center

- Equipment in isolation is decontaminated prior to servicing
- If used, transducers protectors are discarded after use
- Biomedical trash and sharps are placed in leak proof container, puncture proof and disposed of  $\frac{3}{4}$  full
- Bio-medical waste is stored away from clean supplies
- Bio-hazard labels are installed where products waste are stored



# Opportunities for Improvement in a Dialysis Center

- Limit visitors and prohibit during potential exposure opportunities
- Label laboratory specimens and follow lab guidelines for transport
- Keep sterile supplies in their packages until ready to use
- Clean and dirty areas are identified and not co-mingled
- Date and label open vials, solutions, test strips
- Maintain clean med preparation area

# Opportunities for Improvement in a Dialysis Center

- Pre- drawn meds are labeled and used within time limits
- Prepare and distribute meds from a centralized area. Do not use rolling carts
- Avoid clutter and allocate adequate space to facilitate cleaning & housekeeping
- Reuse guideline adherence- ex. Use reused dialyzer within 2 hours of rinsing
- Adherence to priming/set up of hemodialyzers and disposables

# Infection Rates

- KDOQI Guideline 32

The rate of infection should not exceed 1% in primary AV fistulae and should not exceed 10% in dialysis AV grafts, both calculated over the use of the access

(Opinion)

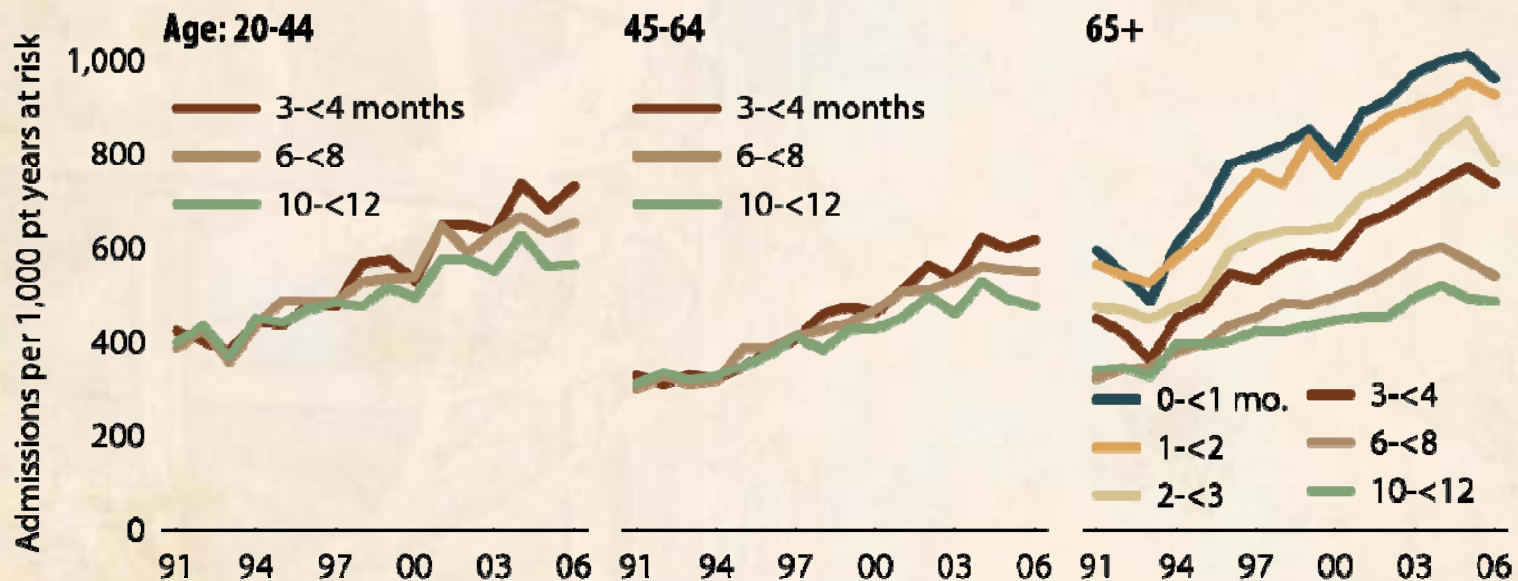
# Infection Rates

- KDOQI Guideline 32

For tunneled cuffed catheters, the recommended target rate of systemic infection is less than 10 % at 3 months and less than 50 % at 1 year  
(Opinion)

# Adjusted admissions for infection in the first year of hemodialysis, by month & age

Figure 1.8 (Volume 2)

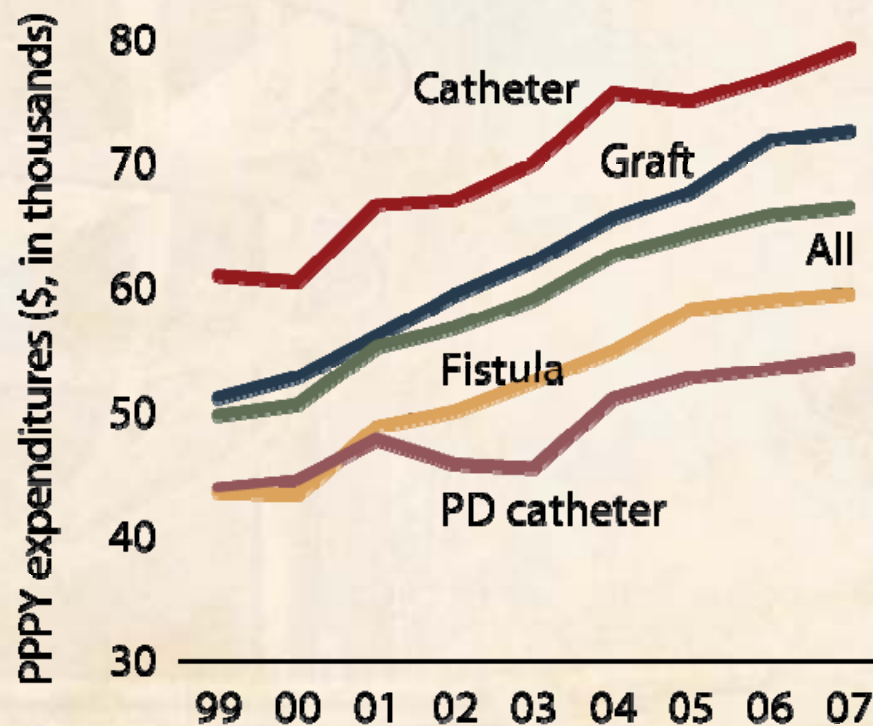


We believe that we can do something about this.

Incident hemodialysis patients age 20 and older; followed from the day of onset of ESRD; adjusted for gender, race, & primary diagnosis. Incident hemodialysis patients alive at day 90 after initiation, 2005, used as reference.

# Per person per year total expenditures, by access type

Figure 11.17 (Volume 2)



Dialysis patients from the 1999–2007 ESRD CPM data with Medicare as primary payor & vascular access data. Intent-to-treat model. Vascular access type in use in December prior to cost years 1999–2007.

# Catheter Use Remains High

Despite the NKF's effort to reduce the number of hemodialysis patients maintained with catheter access, 64.8% of patients start dialysis with a catheter, compared to 15.3% for AVF

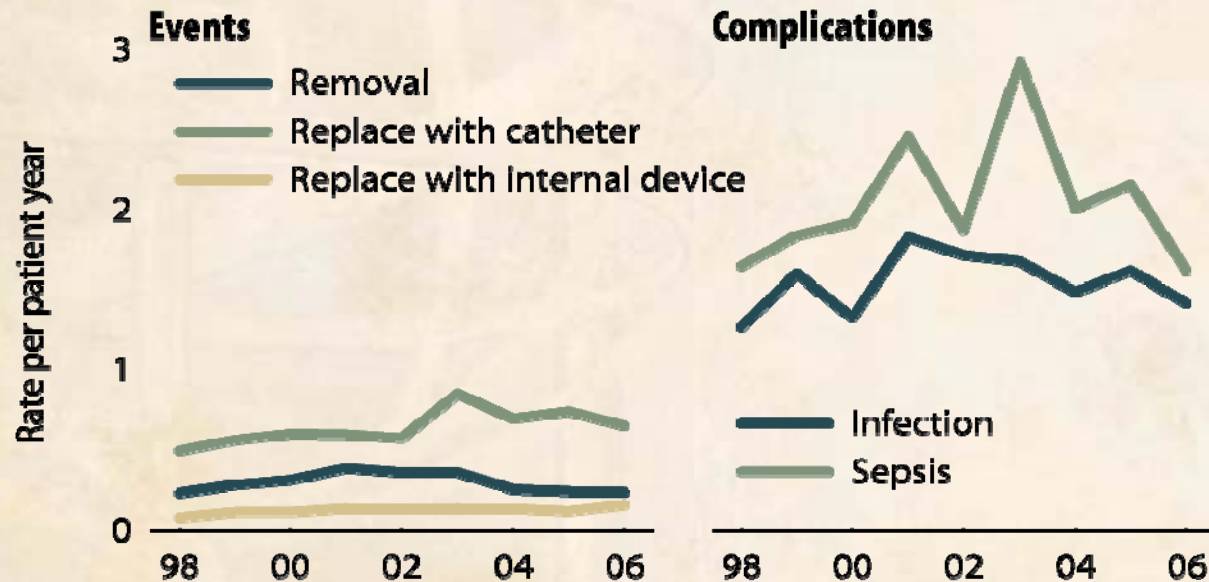
After 12 months 44% still were using a catheter and only 30% were using an AVF

2010 USRDS Report

# Catheter events & complications

Figure 5.20 (Volume 2)

Fistula events and complication are .2 to .4 as prevalent



Prevalent hemodialysis patients age 20 & older, ESRD CPM data; only includes patients who are also in the USRDS database. Year represents the prevalent year & the year the CPM data were collected. Access is that listed as "current" on the CPM data collection form.



# Infection Trends

- Infection hospitalizations substantially increasing over past 10 years, largely due to catheters
- Infection hospitalizations increasing at a rate greater than cardiovascular hospitalizations
- Much higher costs in patients with catheters
- There is even likely a linkage between one access infection and associated ongoing risk of death
- Higher mortality in catheter patients and facilities with high numbers of catheter pts

# Other Access Issues

- Grafts – continue to have a high rate of infection
- Buttonhole –
  - gaining popularity
  - Can result in an increased risk of infection due to cannulation of non-healed skin
  - Aseptic skin prep and scab removal is key
  - Access infections can lead to loss of access and death

# Quality Assurance

- Collect Data monthly
- Include Bacteremic Events ( Catheter )
- Include Bacteremic Events ( Non-Catheter )
- Identify % infection rate per month
- Use a trend chart to see if rates rising/falling
- Identify organisms
  - S. Aureus
  - S. Epidermidis
  - Enterococcus
  - Gram Negative

# Use of CQI in an Infection Control Program

- Identify the problem- gather data that support the problem ( QA data )
- Brainstorm with the staff- include Nurses, Technicians- all make a difference
- Every idea is valued
- Clarify & collapse all ideas
- Select a filter..such as impact & feasibility
- Use multiple voting

# Use of CQI in an Infection Control Program

- Questions posed could be:

- What is wrong?

The number of infections increase when.....

- What are possible solutions?

We decrease our infection rate when we.....

# Use of CQI in an Infection Control Program

- ❖ Identify the “root cause” of the problem
- ❖ Identify possible solutions
- ❖ Develop an Action Plan
- ❖ Include Action Steps, Target Dates, Responsible Parties
- ❖ Measure improvement over time
- ❖ Hold Monthly QAPI Meetings

# Suggested Solutions to Decrease Infection Rate

- Educate new patients and staff as early as possible on infection control
- Proper patient assessments-monitor for infection
- Adequate trained staff
- Adherence to Policy/Procedure
- Good handwashing technique
- Routine Peer Audits

RENAL VENTURES MANAGEMENT

Infection Control Surveillance and Reporting Monitoring Tool

Unit:	Audit Conducted By:	Date:
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Infection Control Rounds

Standard	Met	Not Met	Findings	Recommendations
<b>1. Personnel Practices</b>				
a. Personal Protective Equipment (PPE), including gloves, mask, protective eye wear/ face shields, and gowns, are readily available and worn when appropriate according to established protocols.(observe at least 3 staff members during initiation and discontinuance)				
b. PPE are removed and stored appropriately before leaving work area.				
c. Hand washing performed between patients and after removing gloves according to established protocols.				
d. Documentation of annual Infection Control Training is maintained in each staff member's personnel file.				
e. The Policy and Procedure Manual are readily available for staff review.				
<b>2. Patient Practices</b>				
a. Hepatitis-B testing of all patients is performed per CDC guidelines, prior to admission.				
b. Hepatitis-B vaccine is offered to patients who are Hep B AB negative.				
c. All patients are screened for TB on admission and per state regs and policy. Documentation is readily available.				
<b>3. Environmental Practices</b>				
1. Unit is maintained in a clean and sanitary manner, free from dirt/dust and excess clutter.				
2. Dialysis chairs are free from gross contamination and are in good repair.( No rips/tears)				
3. Hand washing solution and paper towels are available at sinks in all areas.				
4. Clean and dirty functions are separated by physical				

Manual: Infection Control Manual  
 Policy Number: 03.103aF  
 Page:1 of 2  
 Effective Date: 08/01/05  
 Revised: 7/01/09



# Road to a Successful Infection Surveillance & Control Program

Begins with you, best of luck!

