

**DHHS CIC STUDY SESSION**  
**Dialysis - Danene Price**  
**Perinatal care - Sharla Woodward**  
**IPC in oncology and other immunocompromised**  
**patients - Danene**



11/29/2022

# **DHHS CIC STUDY SESSION**

## **Dialysis - Danene Price**



11/29/2022

# Question #1

Which of the following is not a cause of end stage renal disease?

- a. Infection, stones, auto immune, birth defects
- b. Hypertension
- c. Diabetes
- d. Cholecystitis

# #1 Answer/Rational

## D. Cholecystitis

Not a cause of kidney failure

Most common causes of kidney failure:

Hypertension

Diabetes

Birth defects - ie.. polycystic kidney disease

## Question #2

What is the primary way that a nurse will evaluate the patency of an arteriovenous fistula (AVF).

- a. Palpate for pulses distal to the graft
- b. Auscultate for the presence of a bruit at the site.
- c. Evaluate the color and temperature of the extremity.
- d. Assess for the presence of numbness and tingling distal to the site.

## #2 Answer/Rational

**B - Auscultate for the presence of a bruit at the site.**

A patent arteriovenous fistula (AVF) creates turbulent blood flow that can be assessed by listening for a bruit or palpated for a thrill as the blood passes through the graft.

Assessment of neurovascular status in the extremity distal to the graft site is important to determine that the graft does not impair circulation to the extremity but the neurovascular status does not indicate whether the graft is open.

## Question #3

The patient with chronic kidney disease is considering whether to use peritoneal dialysis (PD) or hemodialysis (HD).

What are advantages of PD when compared to HD (select all that apply)

- a. Less protein loss
- b. Rapid fluid removal
- c. Less cardiovascular stress
- d. Decreased hyperlipidemia
- e. Requires fewer dietary restrictions

## #3 Answer/Rational

c, e

**Less cardiovascular stress and Requires fewer dietary restrictions**

Peritoneal dialysis is less stressful for the cardiovascular system and requires fewer dietary restrictions. Peritoneal dialysis actually contributes to more protein loss and increased hyperlipidemia. The fluid and creatinine removal are slower with peritoneal than hemodialysis



## Question #4

Risk of infection or adverse reactions in the dialysis unit can be reduced by all of the following EXCEPT:

- a. An effective patient education program that includes educating patients and families
- b. Strict adherence to aseptic technique during dialysis procedures.
- c. Knowledgeable, well-trained staff that understand the implications of deviating from established procedures
- d. Staff socials held on a monthly basis to create staff bonding.
- e. Careful monitoring of all procedures in which bacterial or chemical contamination can occur

# #4 Answer/Rational

## D - Staff socials held on a monthly basis to create staff bonding

Most common types of dialysis-associated infections include access site infection, bacteremia, and peritonitis. Less common are infections with bloodborne pathogens. In addition to infections, dialysis patients may be at risk for certain adverse reactions that, although not infectious in origin, may be difficult to distinguish from infections. These include pyrogenic, allergic, and chemical reactions, such as dialysis dementia, fluoride intoxication, and chloramine exposure that may be as life threatening as infections. Infections and adverse reactions may be the result of inadequate dialysis systems or procedures, breaks in established procedures, intrinsic contamination of any component of the dialysis system, lack of monitoring for known contaminants, reprocessing failure, or inadequately trained or unknowledgeable staff.

ADHERENCE TO ASEPTIC TECHNIQUE

MONITORING OF BACTERIA AND CHEMICALS

PATIENT EDUCATION PROGRAM THAT ALSO INCLUDES FAMILIES

WELL TRAINED STAFF

## Question #5

The purity of water used for hemodialysis, reuse, or concentrate preparation is critical. In order to be eligible for Medicare reimbursement, dialysis unit must meet the:

- a. American Nephrology Association (ANA)
- b. Advancing Technology in Dialysis Community (ATDC)
- c. Association for the Advancement of Medical Instrumentation (AAMI)
- d. American Nephrology Nurses Association (ANNA)

# #5 Answer/Rational - C

## Association for the Advancement of Medical Instrumentation (AAMI)

Most dialysis centers have water treatment systems that consist of the following:

- Water softener (ionic exchange of ca and mg for na)
- Carbon filters (removal of chlorine and chloramines)
- Particulate filters (removal of any impurities)
- Reverse Osmosis (RO) and or deionizers and filters ( removal of endotoxins bacteria, viruses, sediment and minerals)
- Ultrafilters with or without ultraviolet light (UV)

Systems should be designed to remove the anticipated chemical and biologic impurities found in the potable water in the location where they are installed.



## Question #6

In hemodialysis, which is true regarding the dialyzer:

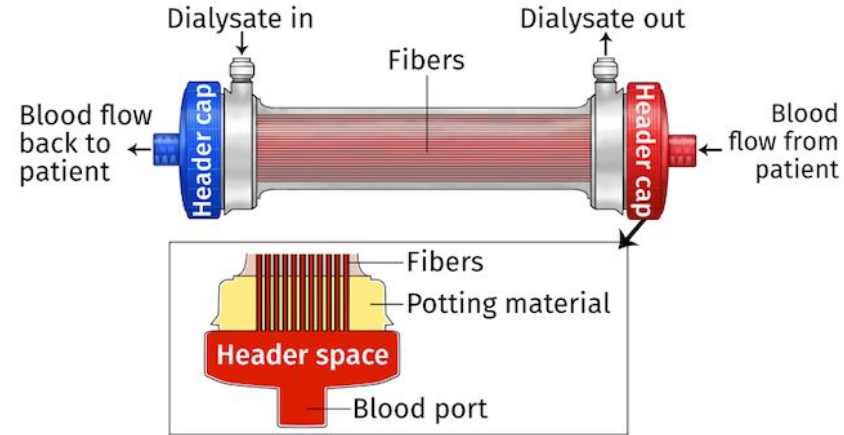
- a. It has a permeable membrane
- b. Can be used for several patients
- c. Allows only water and waste to pass through
- d. Does not allow blood cells to pass through

# #6 Answer/Rational

## C and d

The dialyzer is an artificial kidney, it is **semipermeable** only allowing water and waste to pass through not blood cells.

Use of an artificial (hemodialyzer) or a natural (peritoneum) semipermeable membrane allows passage of some molecules while passage of other molecules is restricted. Blood and dialysate pass on opposite sides of the membrane but do not mix. Molecules that can pass through the semipermeable membrane move from the area of higher concentration to that of lower concentration.



## Question #7

The IP has received a notification that a facility chronic dialysis patient has tested positive for HBsAg. What should the IP do? Choose all correct answers:

- a. Verify that the patient has not received Hepatitis B vaccine within the preceding 30 days
- b. The patient can continue to dialyze incenter as normal with no changes needed.
- c. The patients lab result shows HBsAg is positive, no further concern or action is needed.
- d. Report positive HBsAg to the LHD

## #7 Answer/Rational A and D

- A. Verify no hep b vaccine in the last 30 days
- D. Report positive HBsAg to the LHD

Recommend that the patient's physician **verify** infection by sending Hepatitis B viral load, anti/HBs, and anti-HBc

Required by state regulations to contact the LHD

Segregate the patient until the case is ruled out. Review records of other patients to ensure there not an outbreak in the facility

If this is a true positive HBsAg, patient will need to be dialyzed in a separate isolation room

Separating HBsAg patients by room or area and using a separate dedicated machine is still recommended to reduce transmission of HBV in the dialysis setting because the incidence of HBsAg has been found to be higher in dialysis units that are not following recommendations on the segregation of patients, and those who are HBsAg positive should not be included in dialyzer reuse programs.



## Question #8

The preferred Insertion Site for a tunneled, cuffed venous catheter for dialysis is:

- a. Always place on the same side as a maturing AV fistula if one has been placed
- b. Femoral
- c. Subclavian
- d. Right internal jugular

# #8 Answer/Rational D

## D. Right internal jugular

- Tunneled cuffed catheters **should not** be placed on the same side as the maturing AV fistula if possible
- Subclavian access should be used only when the jugular options are not available and in patients who are not anticipated to need permanent vascular access. There is greater incidence of central venous thrombosis and stenosis when the subclavian is used
- Femoral, only used when conventional sites are not available
  - Femoral catheters should be placed only in bed-bound patients only with good exit site care and should be left in place for no more than 5 days because of associated infection rates.

## Question #9

Steps to reduce peritoneal dialysis (PD) catheter-associated infections include which of the following: (choose all that apply)

- a. Exit site care after healing should be performed weekly if needed
- b. Placement of a double-cuff catheter
- c. Patient may resume aquatic exercise once exit site has healed.
- d. Placement of catheter should include consideration of dominant hand (e.g., right handed or left-handed).

# #9 Answer/Rational

B- Placement of a double-cuff catheter

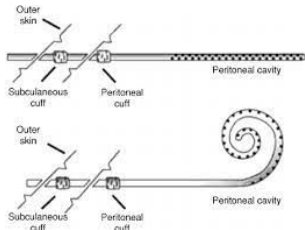
D- Placement of catheter should include consideration of dominant hand (e.g., right handed or left-handed).

The International Society for Peritoneal Dialysis (ISPD) advocates use of a **double-cuff** catheter because of fewer exit site complications and longer survival times than are seen with single-cuff catheters

The catheter should be easily accessible to the patient to allow for routine catheter inspection and care and **consider the dominant hand** (e.g., right-handed or left-handed).

Exit site care should be performed **DAILY** NOT WEEKLY

Patient should avoid tub bathing, swimming pools and hot tubs to avoid contamination



## Question #10

A patient with documented HIV has just been admitted to the dialysis facility. What precautions and practices does the IP need to put into place:

- a. The patient will need to be isolated and receive dialysis on separate machines
- b. Routine screening for HIV antibody for patients is not recommended
- c. Careful attention to standard precautions should be followed and should be effective in preventing transmission if strictly enforced
- d. All patients will need to be screened for HIV monthly
- e. B and C

# #10 Answer/Rational

E. B and C

Routine screening for HIV antibody for patients is not recommended

Careful attention to standard precautions should be followed and should be effective in preventing transmission if strictly enforced

Transmission of HIV from infected patients to other hemodialysis patients or staff members **has not been** reported in the United States.

The efficiency of **transmission of HIV in the dialysis setting appears low and careful attention to standard precautions and routine precautions that should be followed in all dialysis units** (asepsis, disinfection of multiple use equipment, single use of disposables, safe medication practices, etc.) should be effective in preventing transmission if strictly enforced

Patients who are HIV-antibody positive or have acquired immunodeficiency syndrome (AIDS) **do not have to be isolated from other patients** or receive dialysis on separate machines. Routine screening for HIV antibody **is not recommended** and, if known, HIV-infected patients may be included in reprocessing programs. Standard Precautions should be followed



## Question #11

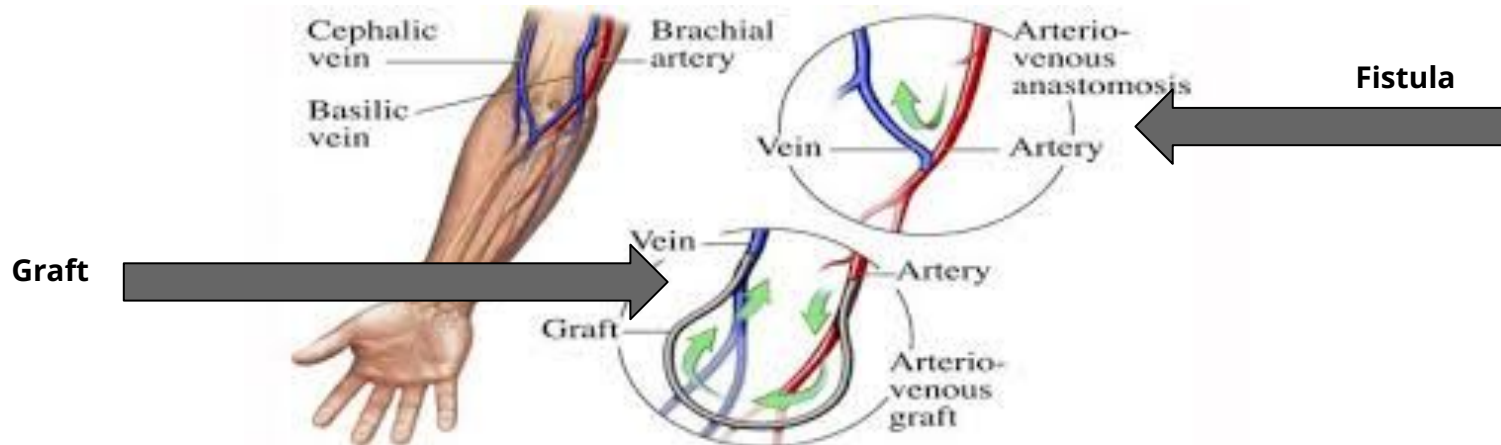
The risk of infection related to circulatory access for hemodialysis varies with the type of vascular access used. Which type of access is recommended for long-term for hemodialysis patients?

- a. Femoral Catheter
- b. Right intrajugular Catheter
- c. Graft
- d. Arteriovenous fistula

# Answer/Rationale #11 -

## D - Arteriovenous fistula

Arteriovenous fistula is the preferred access for chronic hemodialysis. It is a surgical anastomosis between an artery and a vein that allows arterial blood to flow through the vein, causing the vein to distend and vessel to thicken. Maturation of the anastomosis is necessary for 6 weeks to 4 months before use. Infection may result from a break in infection prevention practices, including aseptic technique, bacterial seeding from another part of the body, or poor hygiene and care of the access arm.





# End Dialysis

# DHHS CIC STUDY SESSION

## Infection Prevention in oncology and other immunocompromised patients - Danene Price



11/29/2022

# Question #1

Can Restaurant food, and prepared food by other families or groups be brought into the hospital for an immunocompromised patient? Choose all the are correct.

- a. Yes, immunocompromised patients often have poor appetites and will most likely be more apt to eat when it is their favorite restaurant or families favorite dish.
- b. No, tracking food is difficult if the products were not distributed by the healthcare facilities food service.
- c. Food prepared at off-site locations can easily be monitored and safe for immunocompromised patients.
- d. Food prepared off-site might be able to have organisms that cause gastroenteritis and Hepatitis A.

# #1 Answer/Rational

B. No, tracking food is difficult if the products were not distributed by the healthcare facilities food

D. Food prepared off-site might be able to have organisms that cause gastroenteritis and Hepatitis A.

Though patients with poor appetites are likely to be tempted by food from their favorite restaurant or from those prepared by other families or support groups, food preparation techniques in off-site locations **cannot be monitored closely**, and organisms causing **gastroenteritis and Hepatitis A** are more likely to be introduced through this setting than through the hospital kitchen.

Additionally, tracking food recalls is difficult if the products were not distributed by the healthcare facility's food services department. Therefore, restaurant food, and that prepared by other families or groups, **should not be** brought into the hospital for immunocompromised patients.

## Question #2

Capnocytophaga canimorsus or Leptospira spp. can be carried by this animal. Both can become potential pathogens in immunocompromised patients. What animal is it?

- a. Rabbit
- b. Guinea pig
- c. Dog
- d. Horse

## #2 Answer/Rational

### C. Dogs

**Animals.** Experts in rehabilitation medicine advocate animal-assisted therapy to enhance physical, cognitive, and emotional participation in treatments. Ordinarily, dogs are selected for this role and, in order to minimize risks to patients, undergo health monitoring by veterinarians and training to encourage docile behavior. Animals involved in pet therapy visit patients as appropriate depending on individual needs, **but involvement of immunocompromised patients in pet therapy programs should be carefully considered, because even visits by healthy animals may pose risks for medically fragile patients. Healthy dogs, for example, can shed *Capnocytophaga canimorsus*, part of their normal oral flora, or *Leptospira Spp.*, both potential pathogens in immunocompromised patients.** Animals that pose an unacceptable risk of zoonotic disease because of an inability to control secretions or the risk of a particularly concerning organism include puppies, kittens, mice, rats, skunks, raccoons, bats, reptiles, and amphibians. These animals **should not** be part of a pet therapy program.

## Question #3

Aspergillus Fumigatus and Trichoderma are types of \_\_\_\_\_ that have been known to infect immunocompromised patients?

Answer? \_\_\_\_\_

# #3 Answer/Rational

## MOLD

People with weakened immune systems may be **more vulnerable to infections by molds**. *Aspergillus fumigatus* has been known to infect the lungs of immunocompromised individuals. These individuals inhale the mold spores, which then start growing in their lungs. *Trichoderma* Has also been known to infect immunocompromised children.

The most effective way to manage mold in a building is to eliminate or limit the conditions that foster its establishment and growth. The underlying moisture condition supporting mold growth should be identified and eliminated



## Question #4

The most common source of filamentous fungal infection is thought to be through dissemination of airborne spores by the hospital \_\_\_\_\_?

Answer: \_\_\_\_\_

# #4 Answer/Rational

## Hospital Ventilation System

**Air.** Most efforts to filter air in areas housing immunocompromised patients have focused on minimizing the airborne risk of *Aspergillus*, which infects between 2 and 40 percent of Hematopoietic stem cell transplantation (HSCT) patients, depending on the diagnostic criteria used.

Although contaminated linen or clothing may contain *Aspergillus Spores* that can become airborne with agitation, **the most common source of filamentous fungal infections is thought to be through dissemination of airborne spores by the hospital ventilation system.**

## Question #5

What is the risk of having people manipulate ventilation systems and other internal transient events?

- a. Manipulation of the ventilation system should only be done during the night time hours when patients are asleep in order to avoid risk.
- b. Manipulating of the ventilation system rarely causes risk to patients.
- c. May cause short term increases in spore concentrations, known as “bursts”
- d. As long as the manipulation of the ventilation system does not last for greater than 24 hours there is no risk.

## #5 Answer/Rational

**C. May cause short term increases in spore concentrations, known as “bursts”**

Manipulations of the ventilation systems and other internal transient events have been demonstrated to cause short-term increases in spore concentrations, known as "bursts".

## Question #6

The IP should be aware that prevention of MDROs is paramount in centers that care for oncology and other immunocompromised patients. The IP's strategies may include which of the following: (choose all that apply)

- a. Direct observation of Hand hygiene.
- b. Observing the duration of staff breaks.
- c. Ensure that disinfecting of the environment between patients is being performed correctly.
- d. Robust antimicrobial stewardship program is in place.

# #6 Answer/Rational

A, C, D

**Direct observation of Hand hygiene.**

**Ensure that disinfecting of the environment between patients is being performed correctly.**

**Robust antimicrobial stewardship program is in place**

In all settings, it is of utmost importance for the IP to spend time in the patient care environment to directly observe practices—including **hand hygiene compliance**, central line insertion, linen changing, and **disinfecting of the environment between patients**. Based on observations and risk assessment for the healthcare setting involved, the prevention strategies may be different.

Although important in all healthcare settings, the prevention of MDROs is paramount in centers that care for oncology and other immunocompromised patients. One important key to minimizing infections is a **robust antimicrobial stewardship program**. Together with a comprehensive hand hygiene program, an ongoing system for the identification of infected or colonized patients and subsequent routine use of appropriate use of personal protective equipment should be in place.

## Question #7

Cases of invasive mold disease with onset of symptoms \_\_\_\_\_ days after hospital admission are more likely to be hospital associated.

- a. 3
- b. 10
- c. 14
- d. 7

## #7 Answer/Rational

### D. 7 days

The optimal surveillance definition for healthcare-associated invasive mold disease is unclear. Because hematopoietic cell transplant (HCT) recipients have frequent contact with ambulatory healthcare facilities and the incubation period for invasive mold disease is unknown, all cases of invasive mold infection should be tracked regardless of time to onset after admission.

**Cases of invasive mold disease with onset of symptoms 7 days after hospital admission are more likely to be hospital-associated.**



## Question #8

Good oral and dental hygiene are essential for immunocompromised patients. The severe \_\_\_\_\_ experienced by many oncology patients predispose to translocation of these organisms into the bloodstream.

Answer: \_\_\_\_\_

# #8 Answer/Rational

## MUCOSITIS

Good oral and dental hygiene are essential for immunocompromised patients. The oral cavity is a reservoir for microorganisms capable of causing life-threatening infection. The severe **mucositis** experienced by many oncology patients predisposes to translocation of these organisms into the bloodstream.

A program of gentle oral hygiene involving rinses with sterile water, normal saline, or bicarbonate solutions and brushing with a soft toothbrush is recommended in the CDC's *Guidelines for Preventing Opportunistic Infections Among Hematopoietic Stem Cell Transplant Recipients*, whereas other sources suggest that brushing teeth may increase the risk of bacteremia or bleeding. Based on the severity of mucositis and level of neutropenia, instruct patients on when to brush teeth or use another method of oral hygiene.

## Question #9

The oral polio vaccine (live attenuated vaccine) should not be administered to household contacts of severely \_\_\_\_\_ individuals.

Answer: \_\_\_\_\_

# #9 Answer/Rational

## IMMUNOCOMPROMISED

It is also important to encourage family and other close contacts to receive an annual **inactivated seasonal influenza vaccination**. Live attenuated seasonal influenza vaccines are contraindicated for close contacts of severely immunocompromised persons. Caregivers and family should consult their healthcare provider before receiving any live vaccinations. For example, **oral polio vaccine should not be administered to household contacts of a severely immunocompromised individual**, but a measles/mumps/rubella vaccine is not contraindicated. If a polio vaccination is indicated for a close contact, then inactivated polio vaccine should be administered. The degree to which a person is immunocompromised should be determined by a qualified healthcare provider.

**End IPC in oncology  
and other  
immunocompromised**