ACHC U®
EDUCATIONAL RESOURCES

RENAL DIALYSIS

Dialysis: Surveyor Eyes

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WELCOME

- Dialysis is complex
  - What is it?
  - Environment
  - Supplies
  - Water Quality
  - Machines
  - Patient
  - Staff
  - Questions?

AAMI, CDC, Instructions for Use (IFU) Policies, Competency

- **AAMI**: Association for the Advancement of Medical Instrumentation
- **CDC**: Guidelines, Recommendations, and Resources
- Establishing chemical standards for water used in dialysis including equipment and processes
- Devices used for storage and distribution of the water
- Threshold levels of water contamination
- IFU: Instructions for use: guide how the item/equipment is used and cleaned

Dialysis

Dialysis

- Kidney failure
- Artificial process:
  - Eliminate waste & toxins
- Filtering
- Control of blood pressure and electrolytes

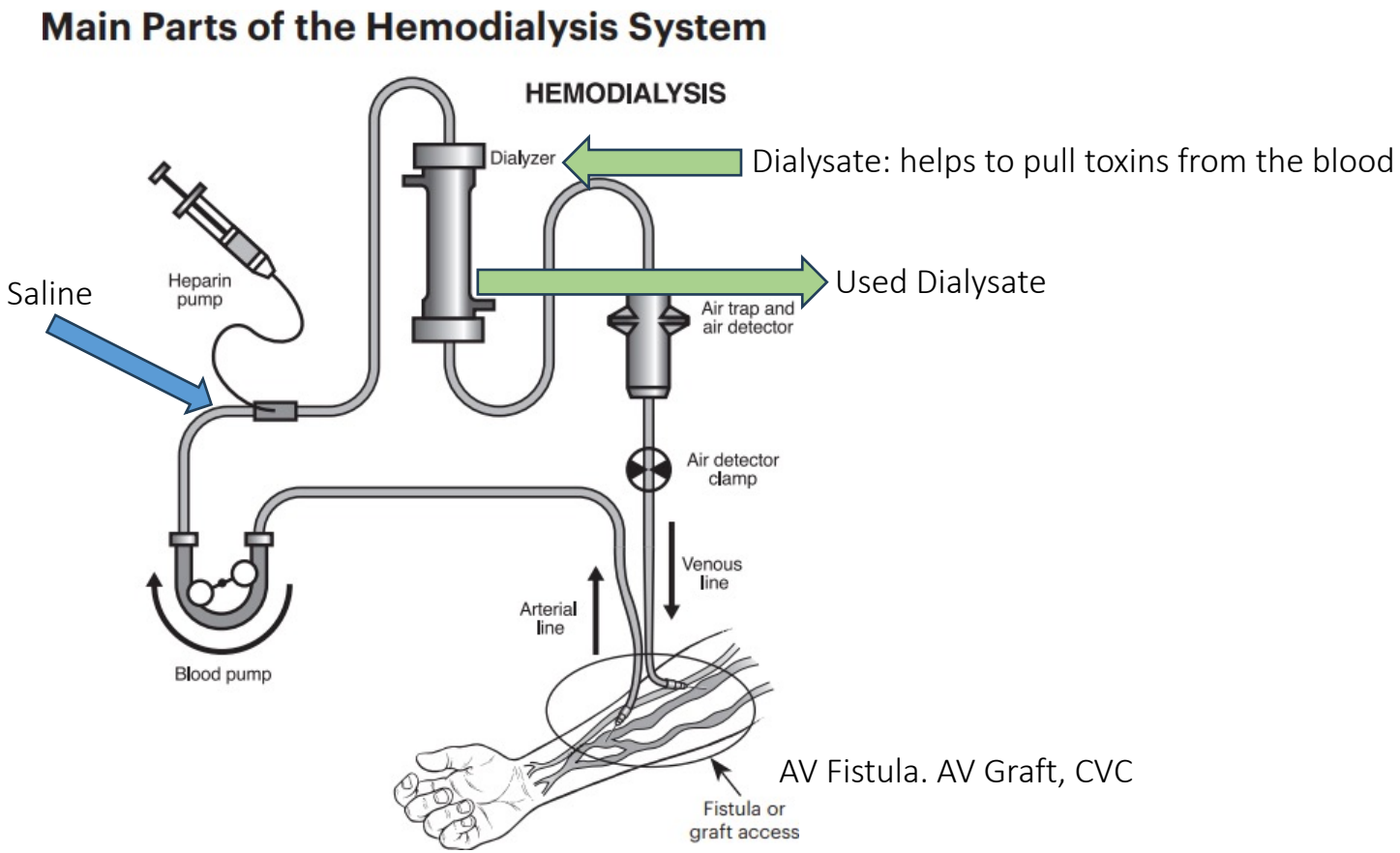
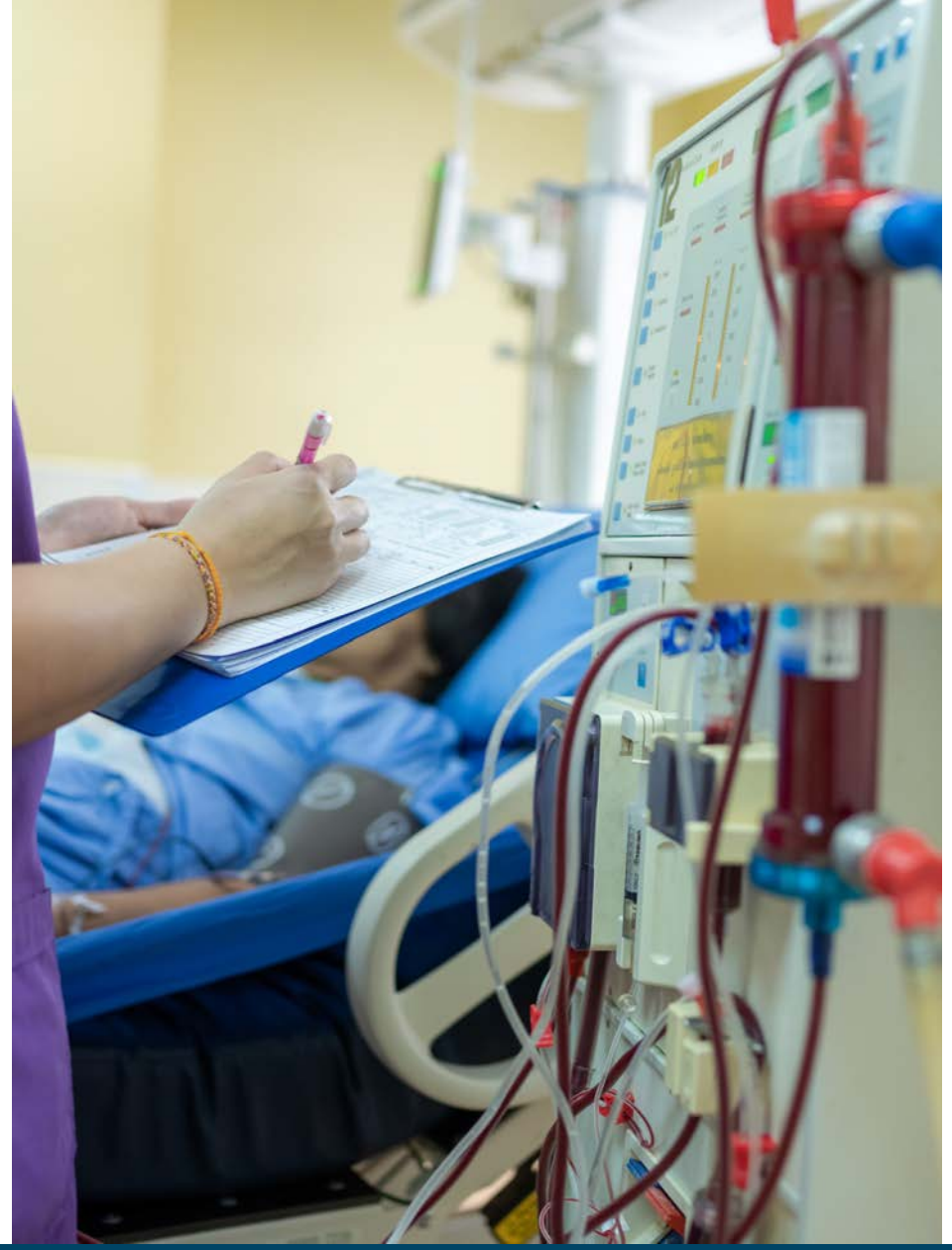


Image: https://www.kidney.org/content/what-hemodialysis

Dialysis

Dialyzer (filter)

- The key to dialysis:
  - Section for dialysate and section for blood
  - Divided by a semipermeable membrane which does not allow blood to pass through



Environment

Environment

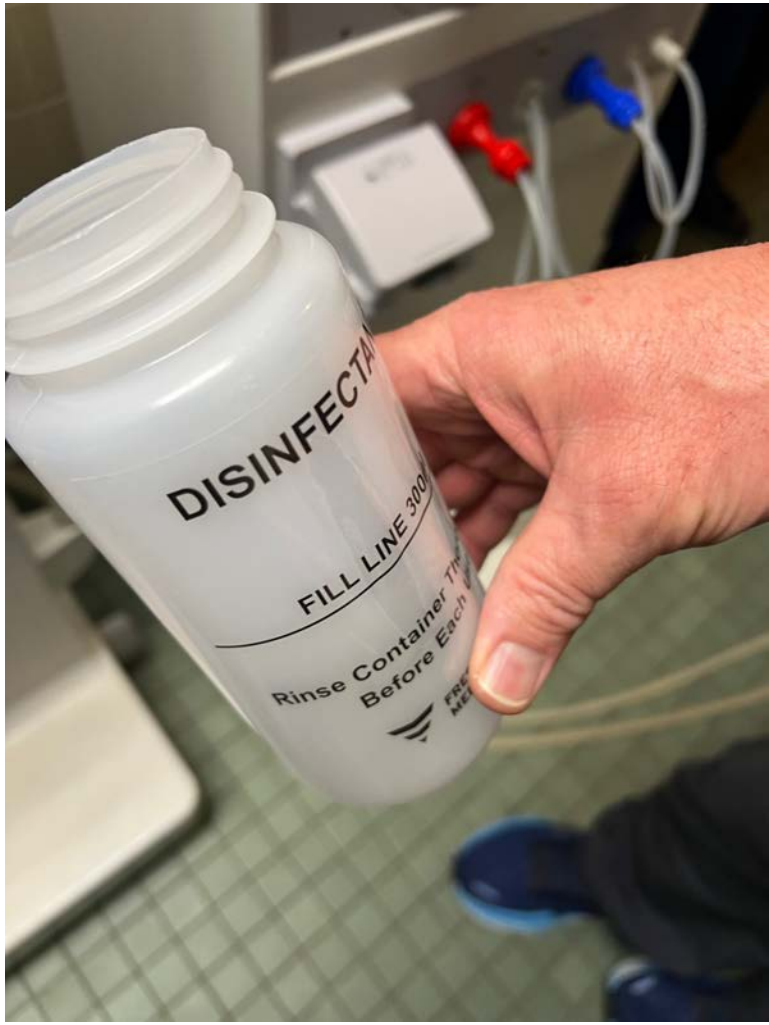
- Location
- In Dialysis unit vs patient room
- Proper spacing for privacy
- Proper spacing for infection prevention

General Environment

- Exit signs
- Fire extinguishers
- Gas shut off panels
- Oxygen Cylinder Storage
- Storage in hallways (is this area designated as a suite on LS drawings)
- Air Pressure:
  - Is Dirty Utility room negative pressure?
- Patient Bathrooms: Not often needed:
  - How do you get the door unlocked?
  - Is bathroom emergency pull cord wrapped around grab bar?
- Where are sharps bins and hazardous waste bins located?

Eye Wash

- Corrosive Chemicals: Bleach
  - OSHA
  - Eyewash stations and emergency showers are flushing devices required in locations where workers are handling injurious corrosive or caustic chemicals.



Eye Wash

- Accessible locations that require no more than 10 seconds to reach. The eyewash shall be located on the same level as the hazard and the path of travel shall be free of obstructions (no doors) that may inhibit its immediate use
- Identified with a highly visible sign
- Area around the eyewash shall be well-lit and no obstructions to use
- Supply of flushing fluid to produce the required spray pattern for a minimum period of 15 minutes, 1.5 liters per minute
- Fluid is tepid, 16° to 38° Celsius (60° to 100° Fahrenheit)
- If shut off valves are installed, provisions shall be made to prevent unauthorized shut off
- Once activated the valve shall remain open without requiring further use of the operator's hands (single action operation)

Surveyor Eyes

What do you see?

Surveyor Eyes

- Eye wash can’t be easily reached
- Eye wash can’t be used hands free in this location
- Waste water into sink where eye wash is located
- Waste water into hand washing sink (soap/towels)
- Black substance on waste pipe

Surveyor Eyes

What do you see?

Surveyor Eyes

No eye wash station and bleach is in use

Surveyor Eyes

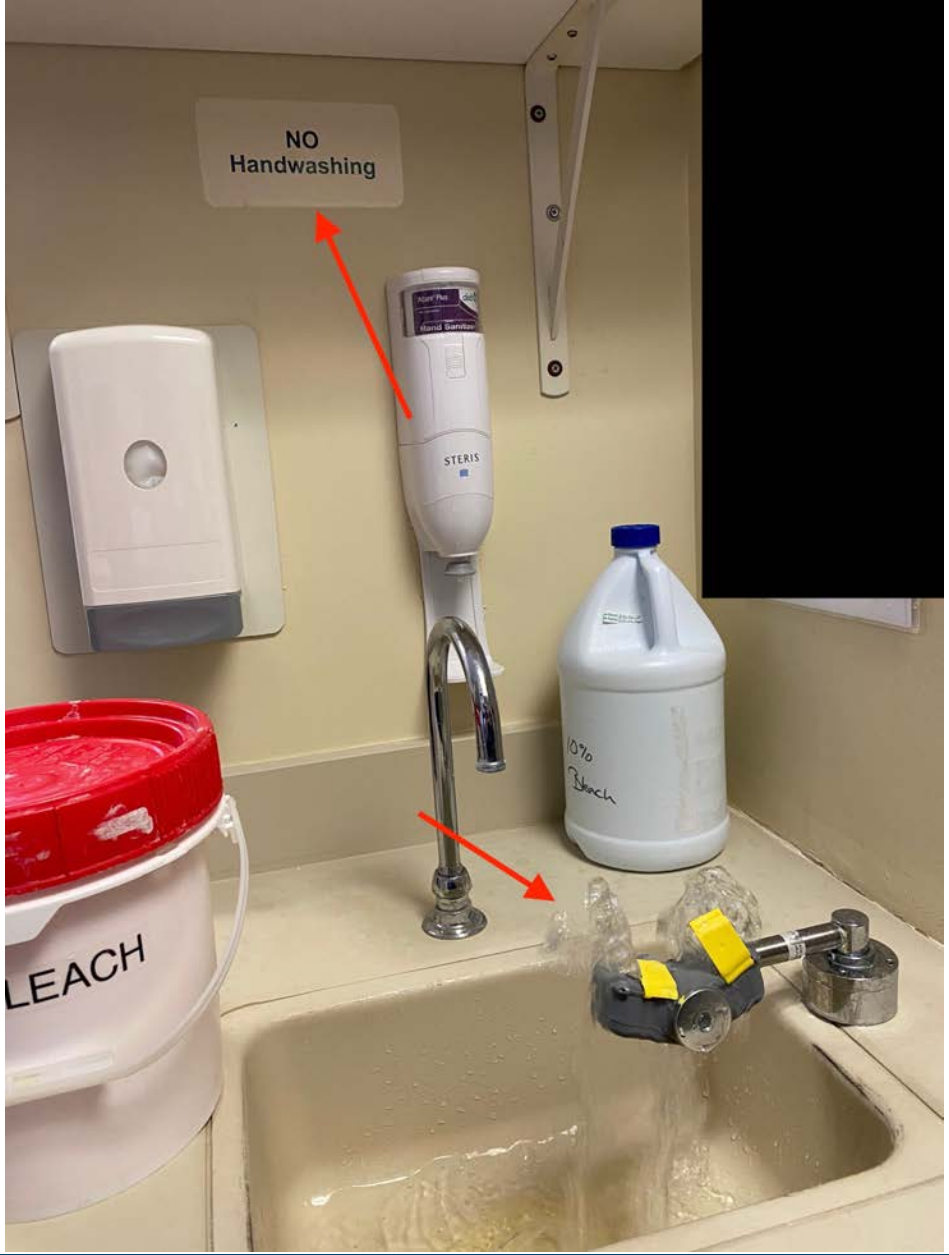
What do you see?

Surveyor Eyes

- Single nozzle for eye wash
- Can't provide 15 minutes of continuous flush to both eyes

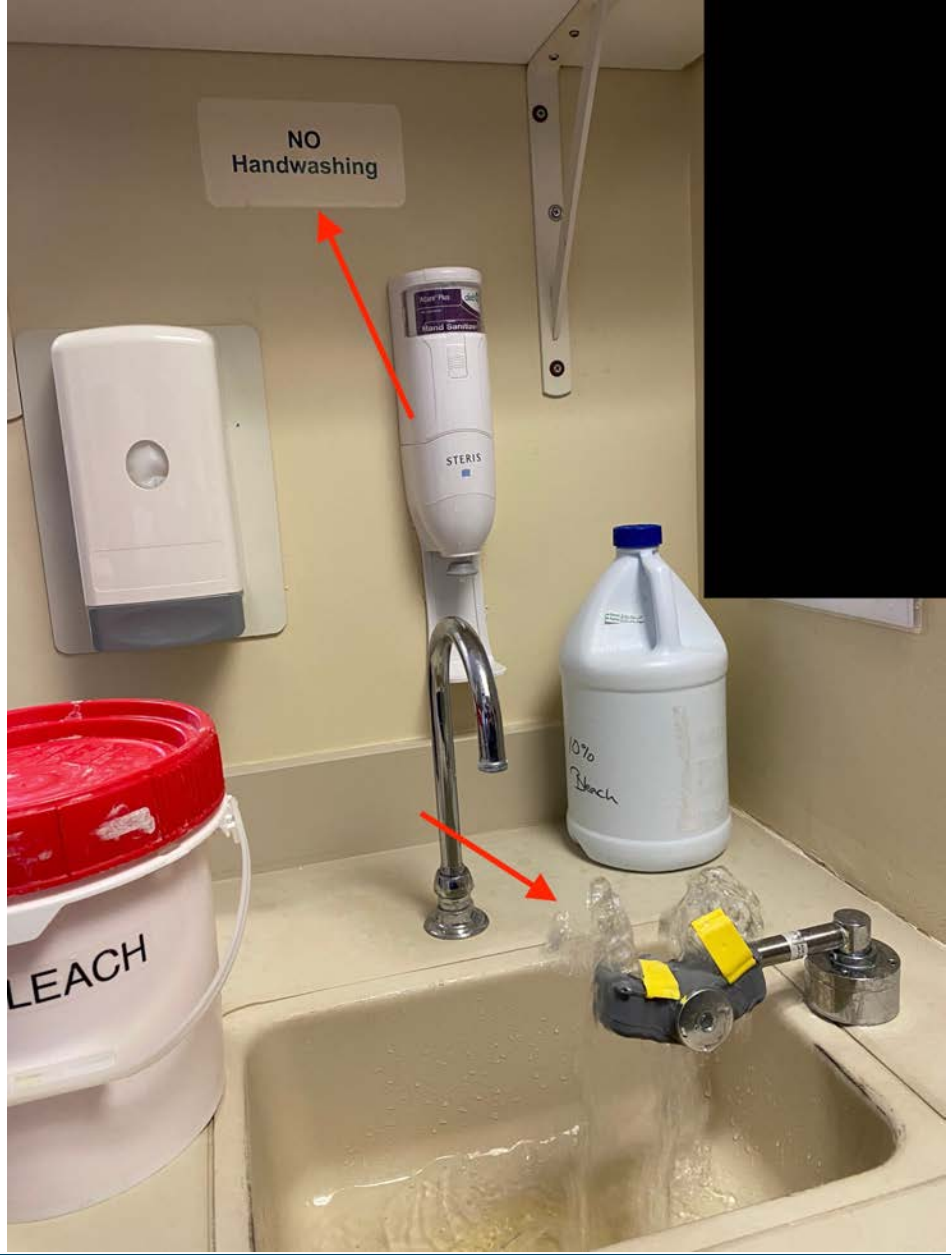
Surveyor Eyes

What do you see?



Surveyor Eyes

- Eye wash flow of water did not dislodge protective caps
- "No handwashing" sign but soap available
- If "no handwashing", sink is considered dirty. Cannot have eye wash in a dirty sink



Surveyor Eyes

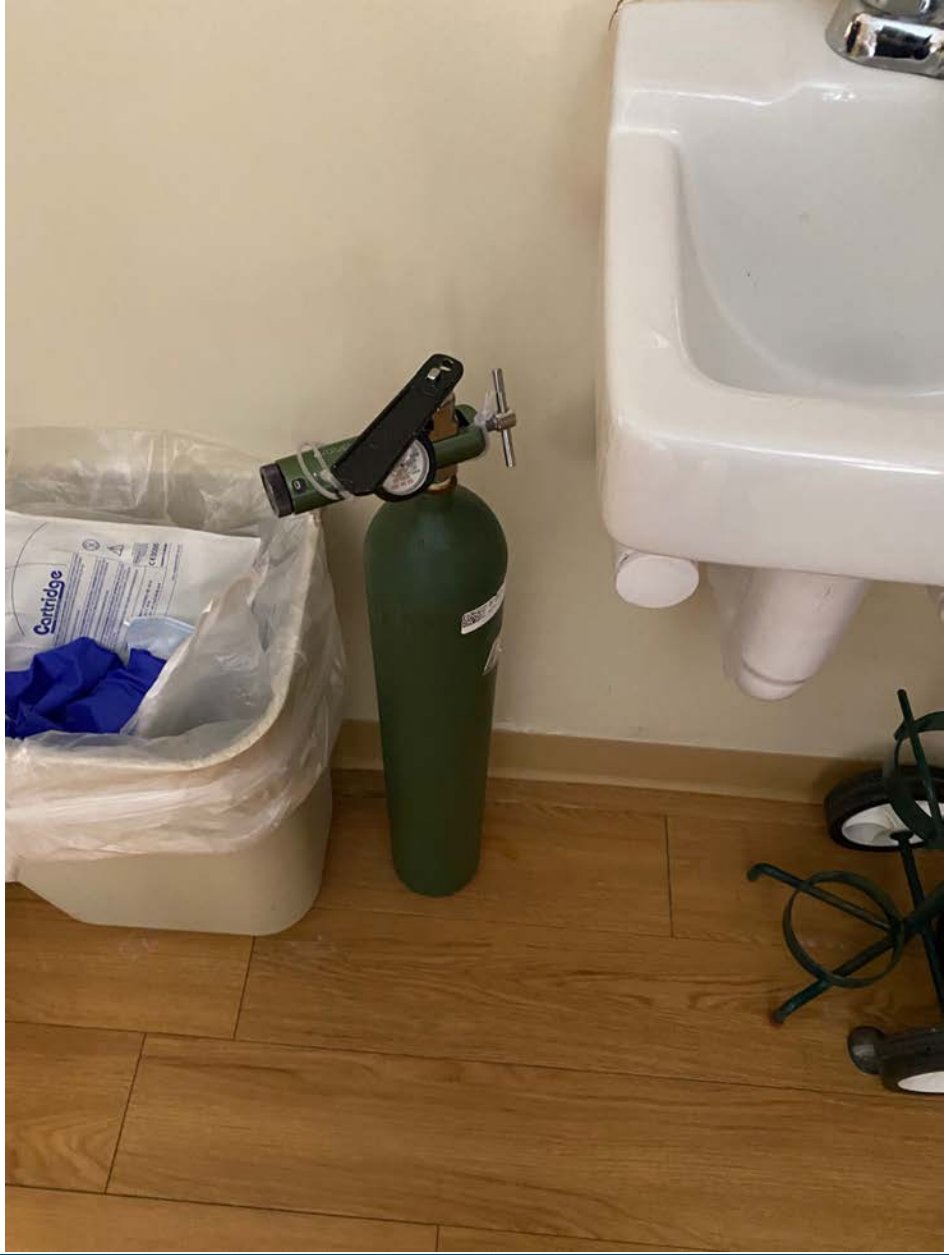
What do you see?

Surveyor Eyes

When eye wash is activated, water will flow onto the feet of person using the eye wash!

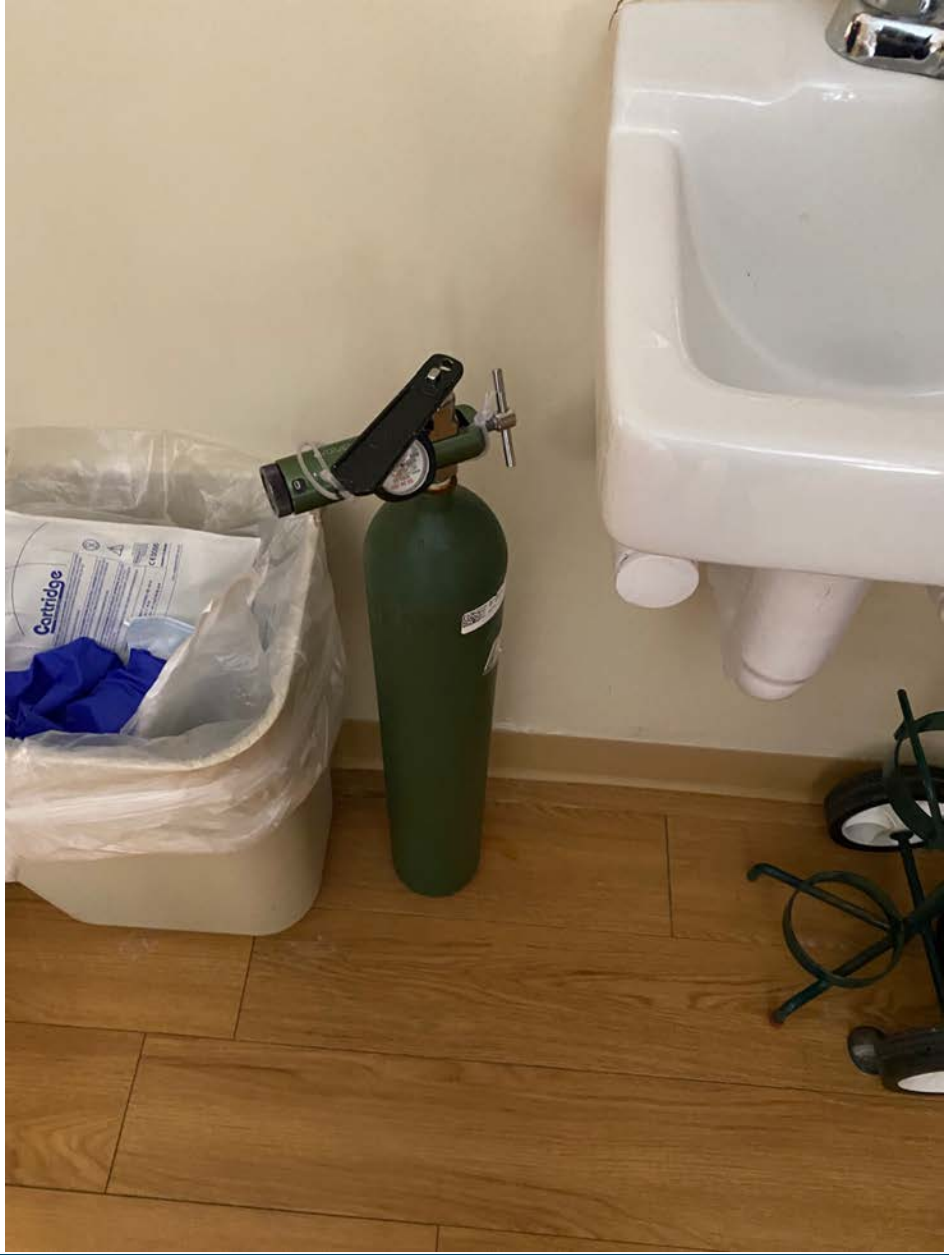
Surveyor Eyes

What do you see?



Surveyor Eyes

Unsecured oxygen cylinder



Surveyor Eyes

What do you see?

Surveyor Eyes

Water leak: standing water on the floor of the water treatment room

Surveyor Eyes

What do you see?

Surveyor Eyes

- Rusty equipment used at the patient bedside
- Single use scissors
  - There is no IFU to clean after use

Surveyor Eyes

What do you see?

Surveyor Eyes

Blocked electrical panels

Surveyor Eyes

What do you see?

Surveyor Eyes

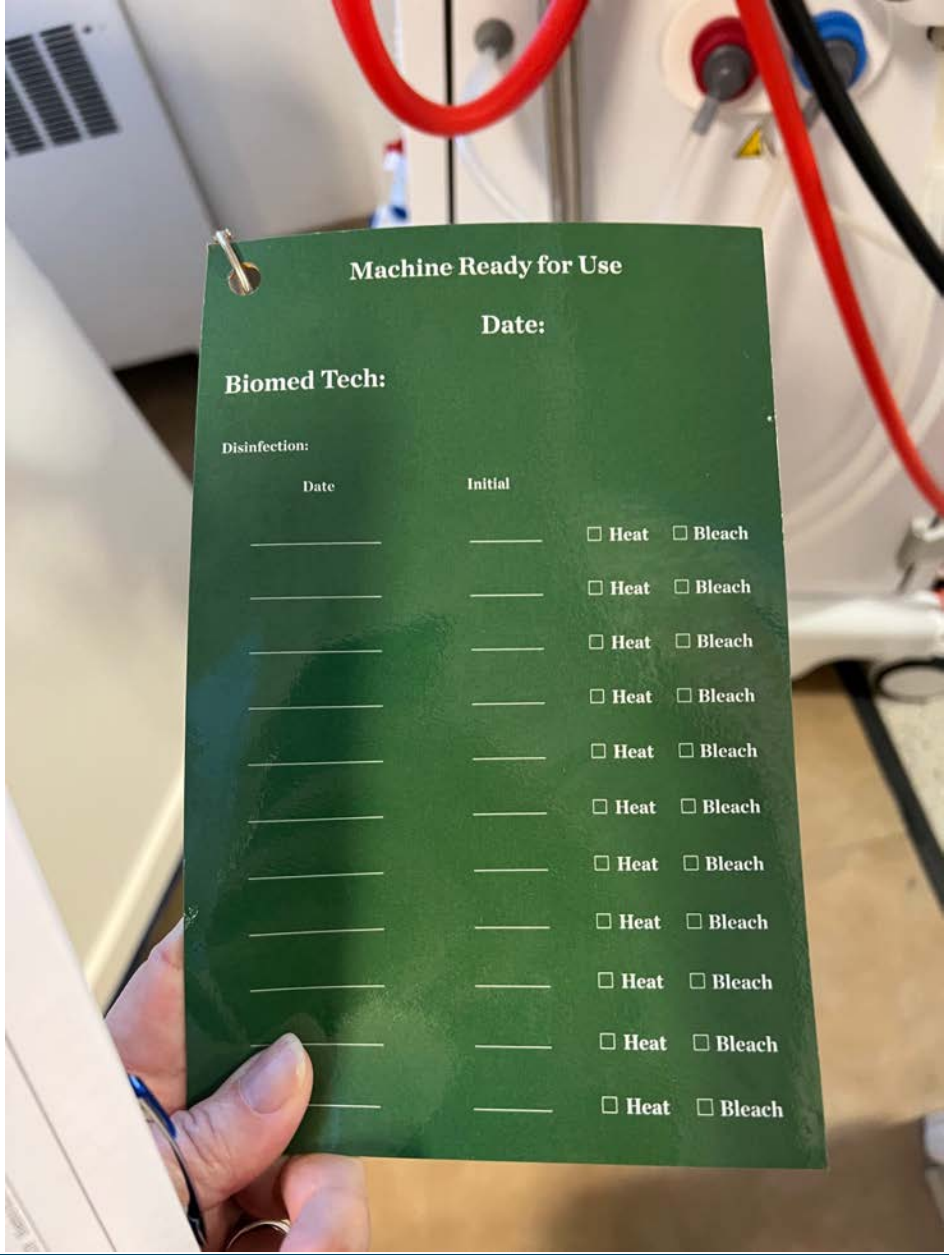
Blocked gas shut off panels

Ask Staff

- Emergency Management Plan?
  - Alternative source of utilities including water supply
- Information/EMR Downtime procedures?
- Preventive Maintenance (PM)?
- Are alarms functioning properly and how are they tested?

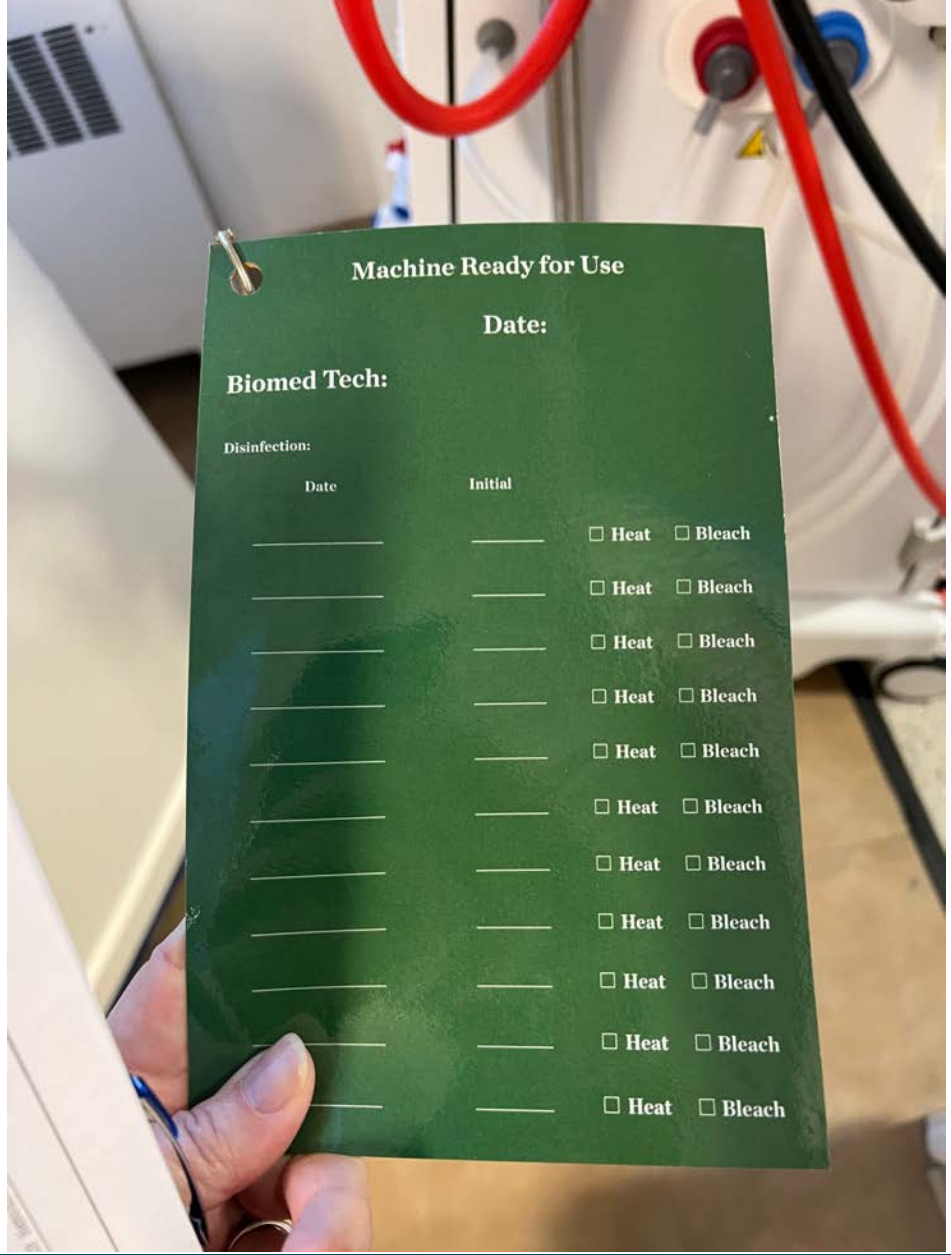
Surveyor Eyes

What do you see?



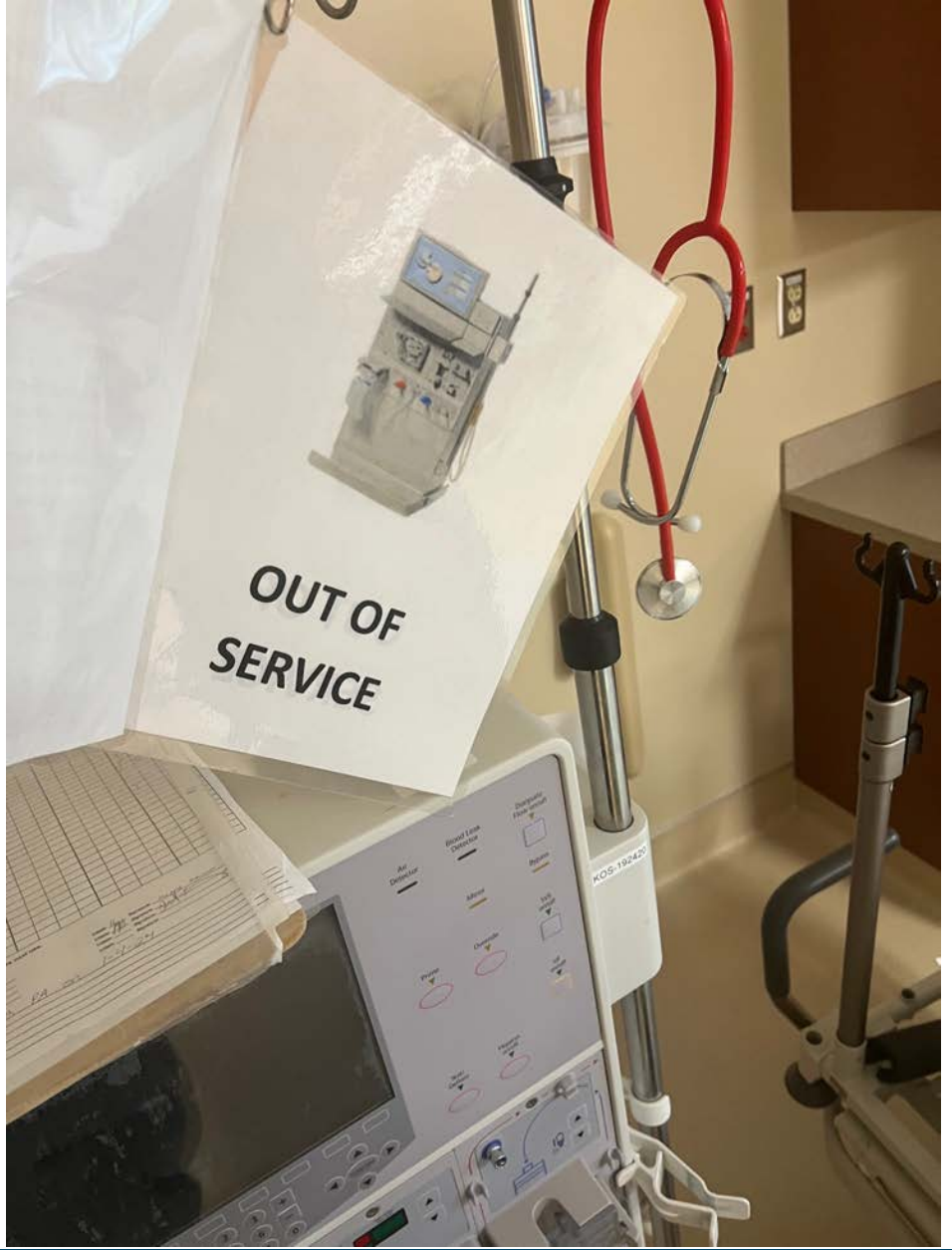
Surveyor Eyes

The machine tag was blank and not filled out



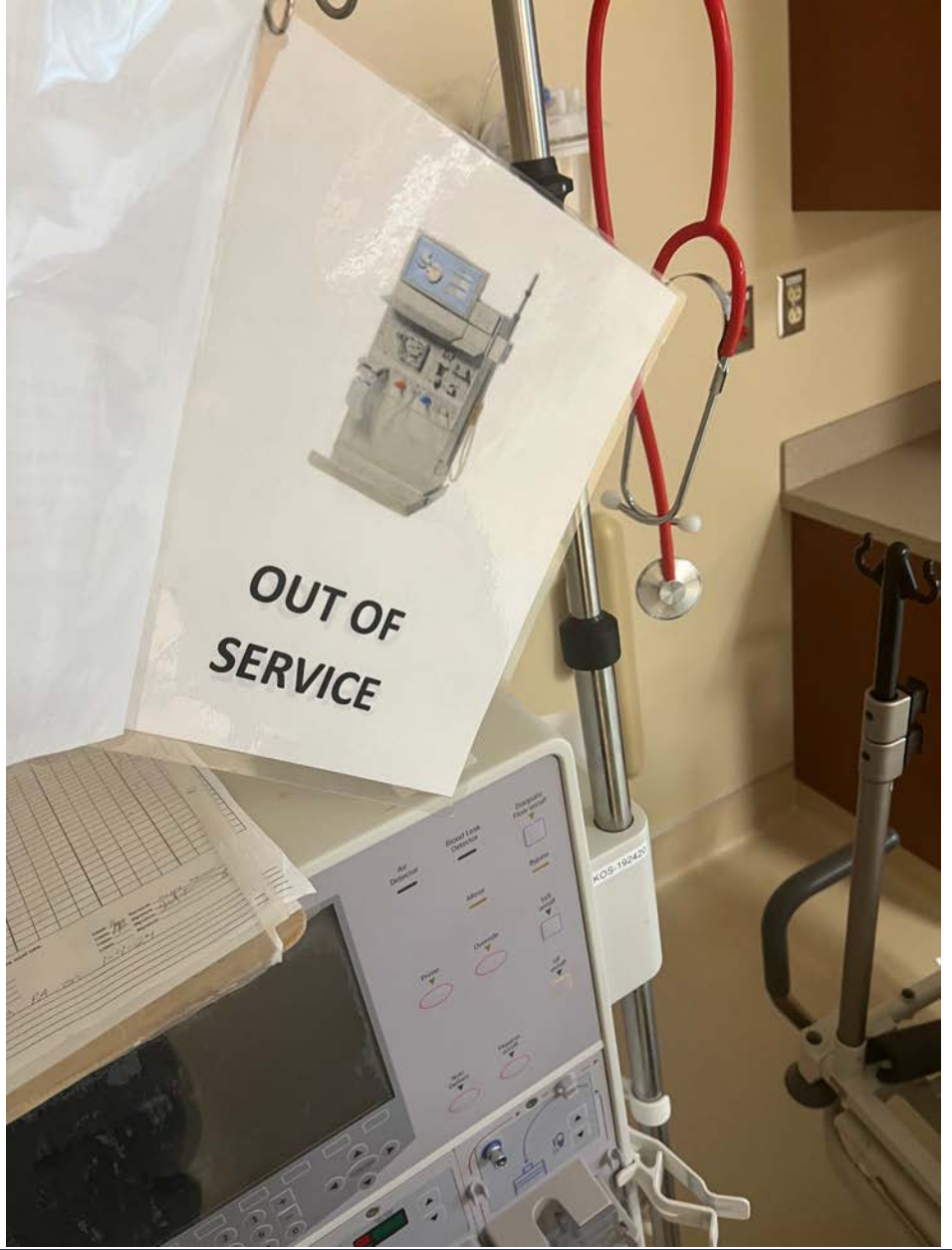
Surveyor Eyes

What do you see?



Surveyor Eyes

- Machine labeled as “Out of Service” was in use
- Ask: Is there a process to identify a machine as “out of service”



Patient Bathroom Dialysis Set-up

- Bedside: Patient Bathroom Set-Up
- Trip and fall hazard
- Sink: Dedicated for that purpose during treatment: disinfected after treatment
- Use of Toilet: Need air gap between end of hose and water in toilet
- Privacy and use of bathroom can be an issue if the patient is in a double room

Surveyor Eyes

What do you see?

Surveyor Eyes

Free standing and unsecured tanks can easily fall over

Surveyor Eyes

- Are patients spaced enough to allow for Infection Prevention guideline implementation?
- Where is the location of the hand washing sinks or alcohol dispensers?
- Is there an eyewash that can provide 15-min of flush where bleach is used?
- How is eyewash tested and how often? Does water dislodge caps? Can staff activate the eyewash and can speak to 15-min flush needed?
- Are extinguishers, gas shut off panels or electrical panels blocked?
- Are dirty utility rooms negative air pressure?
- If dialysis set up is in patient room: is there a trip hazard, how will sink be cleaned after use, if waste goes into toilet: is there an air gap for safety?

Supplies

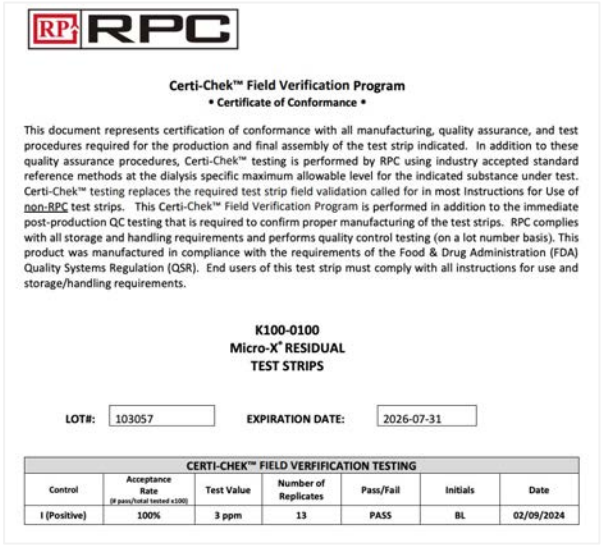
Test Strips

- Water Hardness
- Disinfection Chemicals
- Blood Leak
- PH
- Total Chlorine

Images: rpc-rabrenco.com, dialmedsupply.com/serim/index.html

Test Strips

- Instructions for Use
- Expiration Date
  - Manufacturer's vs BUD once opened
- Dip Time and Read Time
  - Is a timer used?
- Quality Control (QC)
  - On-line
  - Requires testing
  - Included with product
- Is color comparison chart used?



RPC

Certi-Chek™ Field Verification Program

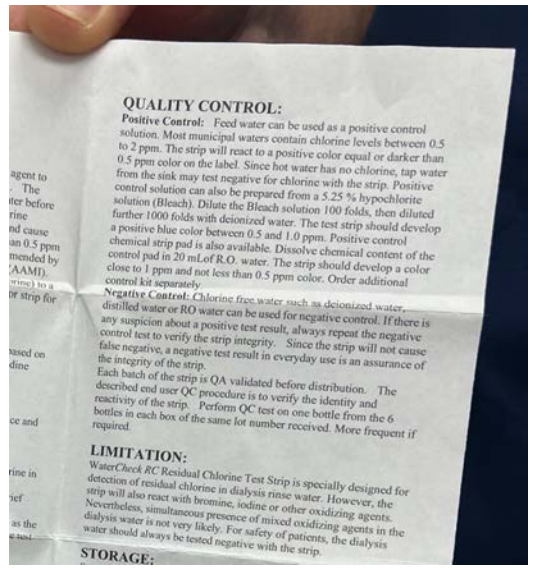
• Certificate of Conformance •

This document represents certification of conformance with all manufacturing, quality assurance, and test procedures required for the production and final assembly of the test strip indicated. In addition to these quality assurance procedures, Certi-Chek™ testing is performed by RPC using industry accepted standard reference methods at the dialysis specific maximum allowable level for the indicated substance under test. Certi-Chek™ testing replaces the required test strip field validation called for in most Instructions for Use of non-RPC test strips. This Certi-Chek™ Field Verification Program is performed in addition to the immediate post-production QC testing that is required to confirm proper manufacturing of the test strips. RPC complies with all storage and handling requirements and performs quality control testing (on a lot number basis). This product was manufactured in compliance with the requirements of the Food & Drug Administration (FDA) Quality Systems Regulation (QSR). End users of this test strip must comply with all instructions for use and storage/handling requirements.

K100-0100
Micro-X® RESIDUAL
TEST STRIPS

LOT#: 103057 EXPIRATION DATE: 2026-07-31

CERTI-CHEK™ FIELD VERFIFICATION TESTING						
Control	Acceptance Rate (# pass/total tested x100)	Test Value	Number of Replicates	Pass/Fail	Initials	Date
I (Positive)	100%	3 ppm	13	PASS	BL	02/09/2024



QUALITY CONTROL:

Positive Control: Feed water can be used as a positive control solution. Most municipal waters contain chlorine levels between 0.5 to 2 ppm. The strip will react to a positive color equal or darker than 0.5 ppm color on the label. Since hot water has no chlorine, tap water from the sink may test negative for chlorine with the strip. Positive control solution can also be prepared from a 5.25 % hypochlorite solution (Bleach). Dilute the Bleach solution 100 folds, then diluted further 1000 folds with deionized water. The test strip should develop a positive blue color between 0.5 and 1.0 ppm. Positive control chemical strip pad is also available. Dissolve chemical content of the control pad in 20 mLof R.O. water. The strip should develop a color close to 1 ppm and not less than 0.5 ppm color. Order additional control kit separately.

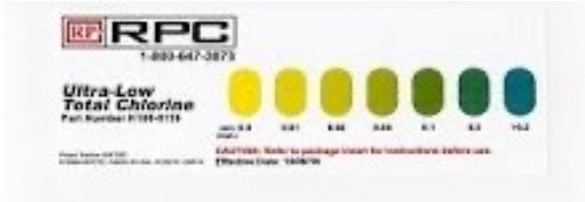
Negative Control: Chlorine free water such as deionized water, distilled water or RO water can be used for negative control. If there is any suspicion about a positive test result, always repeat the negative control test to verify the strip integrity. Since the strip will not cause false negative, a negative test result in everyday use is an assurance of the integrity of the strip.

Each batch of the strip is QA validated before distribution. The described end user QC procedure is to verify the identity and reactivity of the strip. Perform QC test on one bottle from the 6 bottles in each box of the same lot number received. More frequent if required.

LIMITATION:

WaterCheck RC Residual Chlorine Test Strip is specially designed for detection of residual chlorine in dialysis rinse water. However, the strip will also react with bromine, iodine or other oxidizing agents. Nevertheless, simultaneous presence of mixed oxidizing agents in the dialysis water is not very likely. For safety of patients, the dialysis water should always be tested negative with the strip.

STORAGE:



Semi-Quantitative Procedure for Feed Water and Rinse Water Total Chlorine Testing

1. Verify the test strips have not expired.
2. Rinse standard sample cup provided with water to be tested. Re-fill with approximately 20ml of test water.
3. Remove a test strip from container and close container immediately after removing a strip. Do not touch test pad at the end of the strip.
4. Immerse indicator pad of test strip in sample water and vigorously move back and forth for 10 seconds. See Figure 1. (Approximately 30-35 back and forth strokes in 10 seconds.) The indicator pad must be perpendicular to the direction of the strip movement.
5. Remove strip from water, do not shake. Wait a full 30 seconds. While waiting, fold the white plastic handle of the test strip under the aperture (as in Figure 2 below) so that it provides a consistent viewing background.

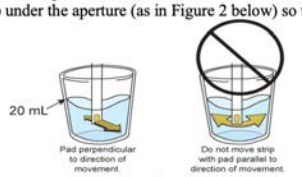


Figure 1

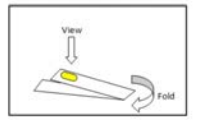


Figure 2

6. After the 30 second wait period, immediately compare the strip to the K100-0106 color chart to determine the Total Chlorine level in the sample.

Images: https://rpc-rabrenco.com/products/

Surveyor Eyes

- What type of test strips are used?
- What is expiration date? Does it require a new date once opened?
- What is dip time/swish time and when can the strip be read?
- What are the QC expectations?
  - Does staff perform a test?
  - Does the company have a download on the website?
  - Is the QC included in the package?
- How are staff trained to use the test strips?
- Where are the results documented?
- Are the results documented within the allowable parameters?

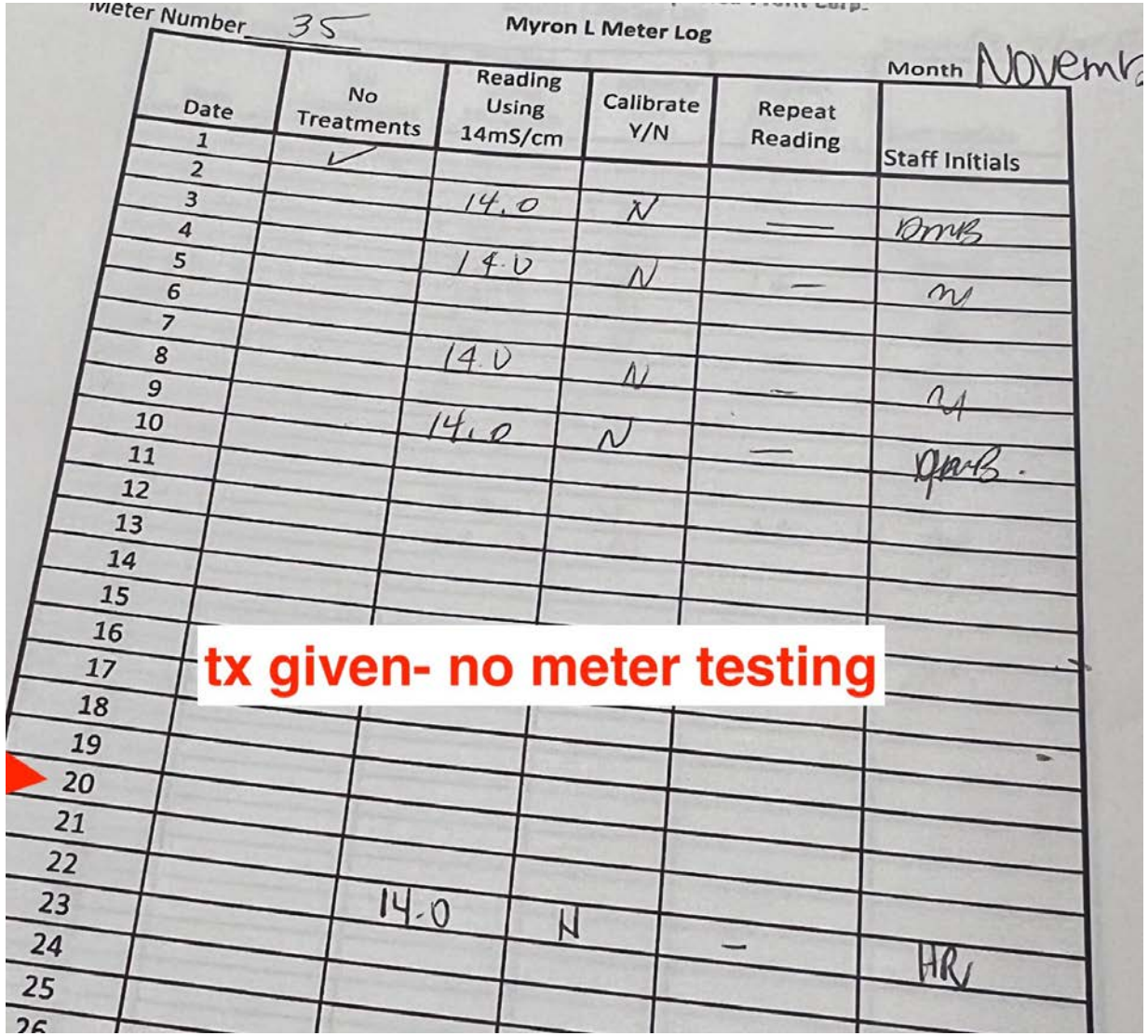
Testing Dialysate for Conductivity, pH, and Temperature

- Phoenix Meters & Myron Meters:
  - Verification of Conductivity, pH and Temperature
  - Checked prior to every treatment
  - Calibration Solutions: (Calibration Daily)
  - Each type of solution has a specific beyond use date
  - 30 days or 90 days from opening
  - Must be dated appropriately
- Even if the dialysis machine displays these readings, verification is required

IMAGES: news.thomasnet.com, wateranywhere.com, mesalabs.com

Documentation

- Unit was operational on Nov. 20
- No calibration of the Myron meter

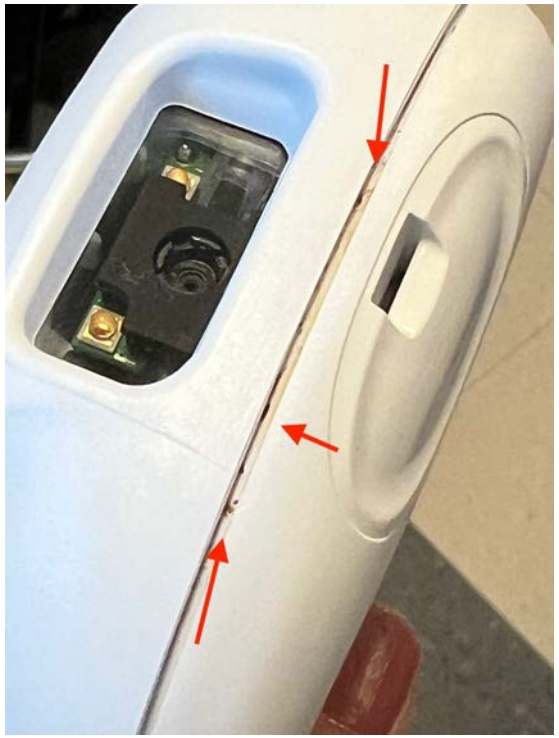


Surveyor Eyes

- How is conductivity, pH and temperature measured?
- Is the machine for testing calibrated each day used?
- Where are the results documented?
- How are the different types of conductivity solutions for calibration dated once opened?
- Are the bottles that require it, dated with 3 months or 90-day expiration per the IFU?
- Is conductivity/pH checked prior to each treatment? Where is this documented?
- What would you do if the machine result and the independent test did not match? Is there a policy for this?

Glucometer

- What are the IFUs for cleaning and disinfecting?
  - Some manufacturers require a two-wipe method:
    - 1st wipe to clean the device
    - 2nd wipe to disinfect
  - What product is used for cleaning & disinfecting?
  - Are they allowed per the IFU?



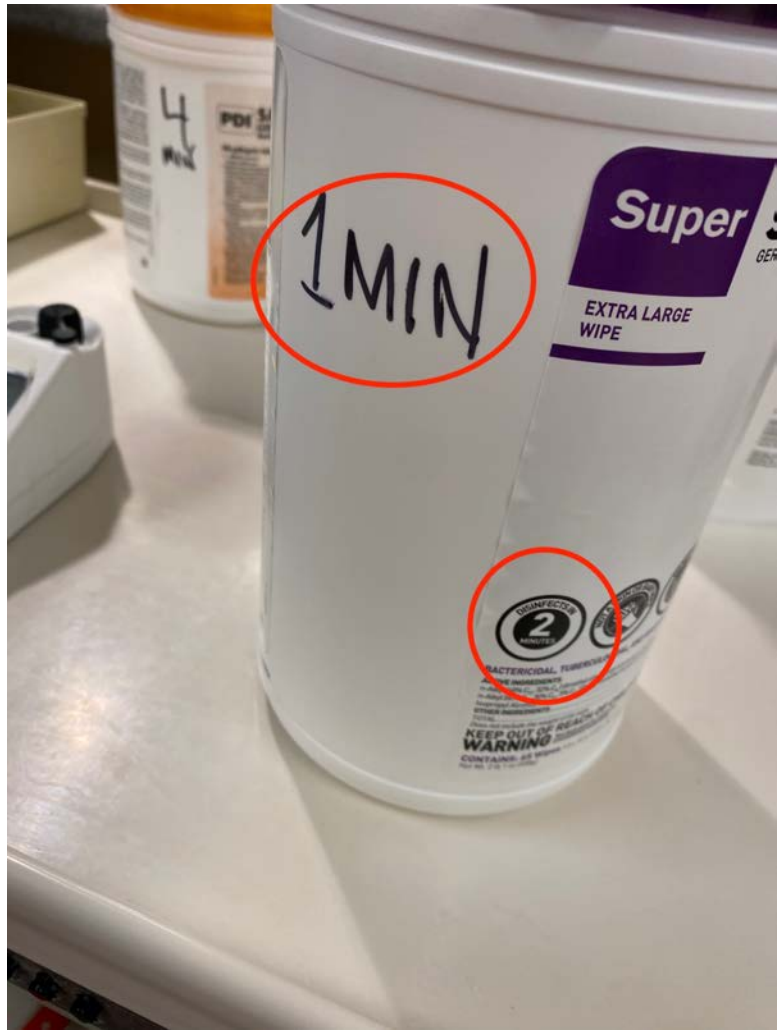
Plastic Clips

- What are the IFUs?
  - Disposable?
- How are they cleaned/disinfected?
- How is the solution made?

- Ask staff how they use them and how they clean them.
- Ask staff if they know what the instructions for use are.

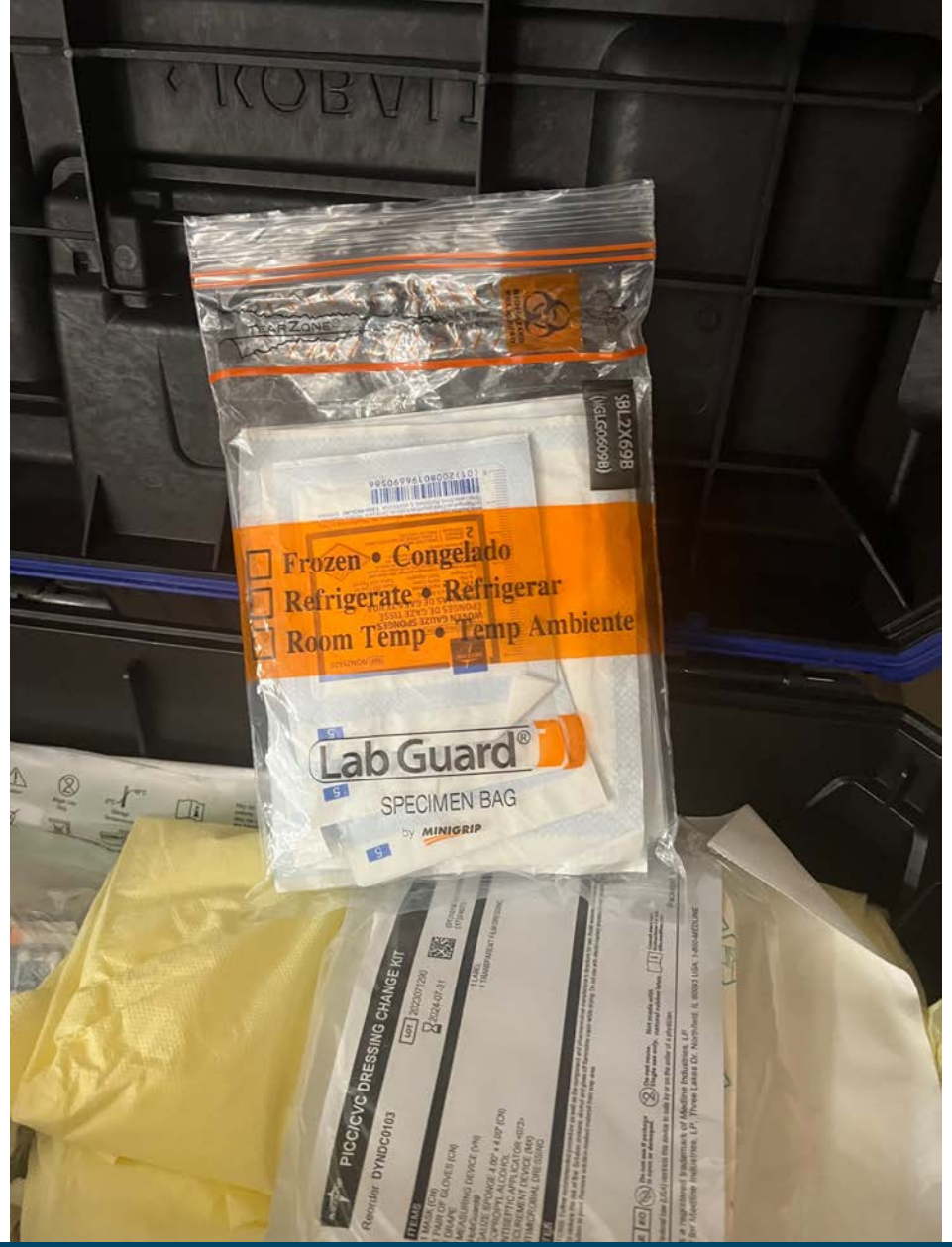
Sani-Wipes

- The IFU instructs on a wet/contact time for the product to fully kill bacteria
- Not a “dry time”



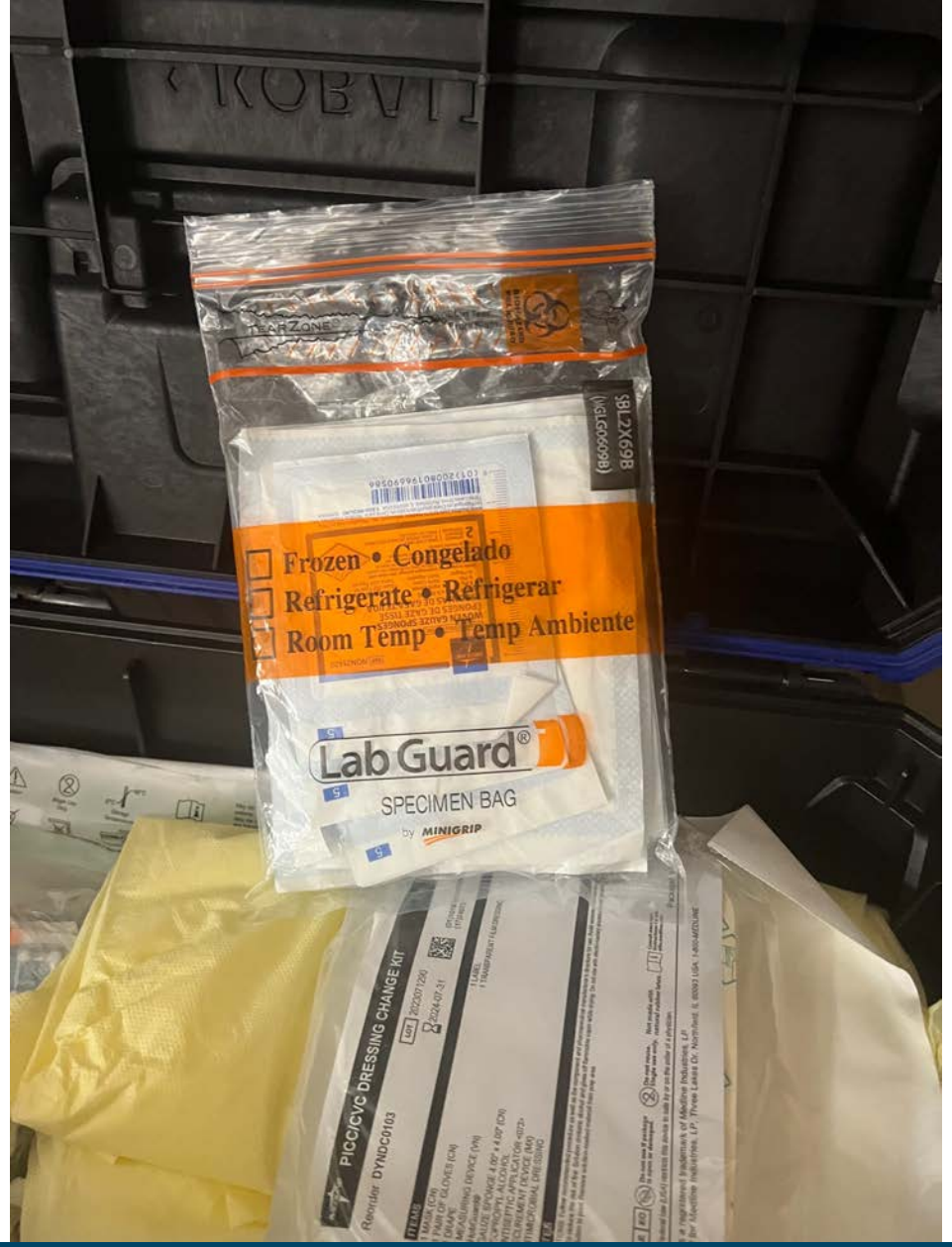
Surveyor Eyes

What do you see?



Surveyor Eyes

Clean supplies stored in a biohazard bag; indicates contents are contaminated.



Surveyor Eyes

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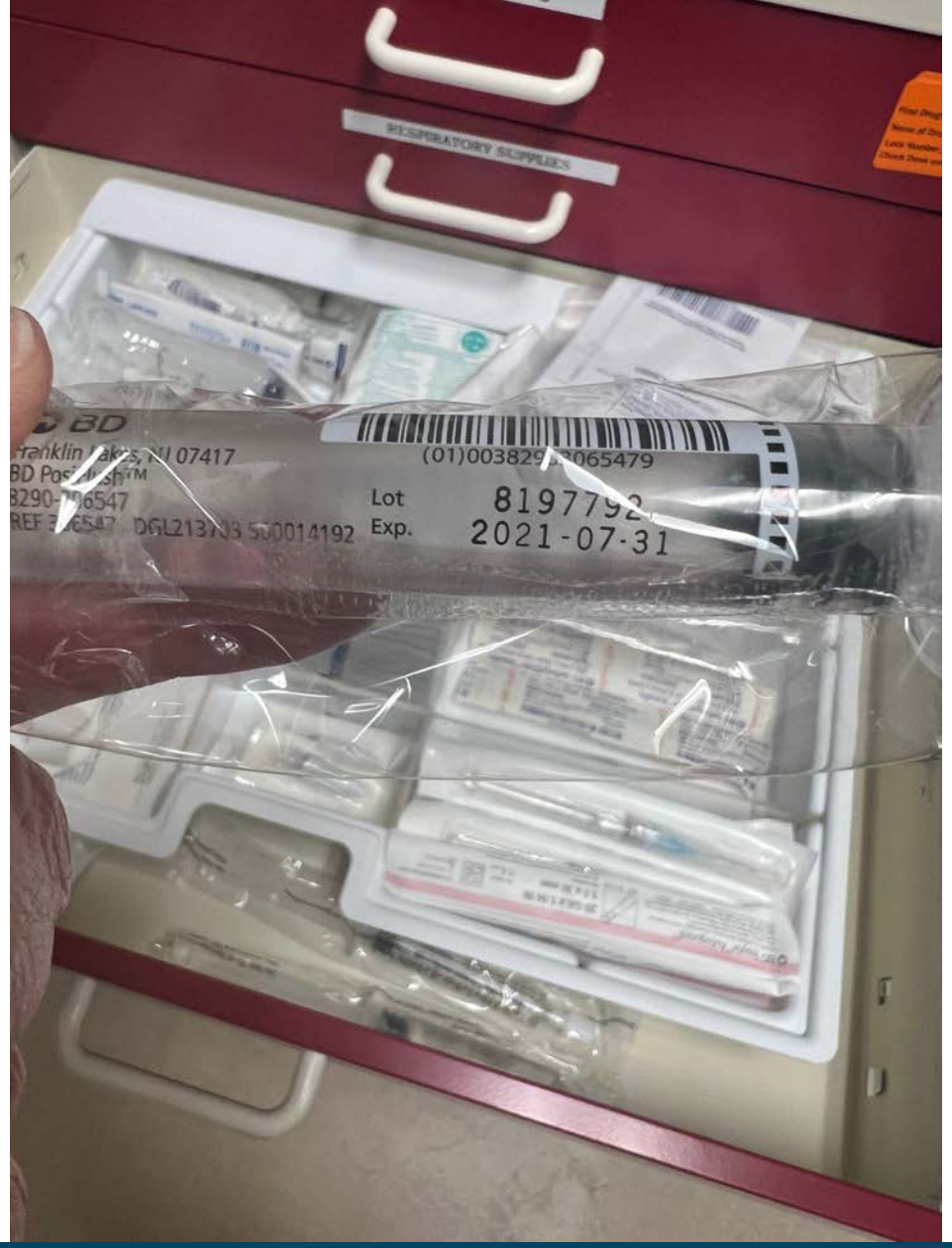
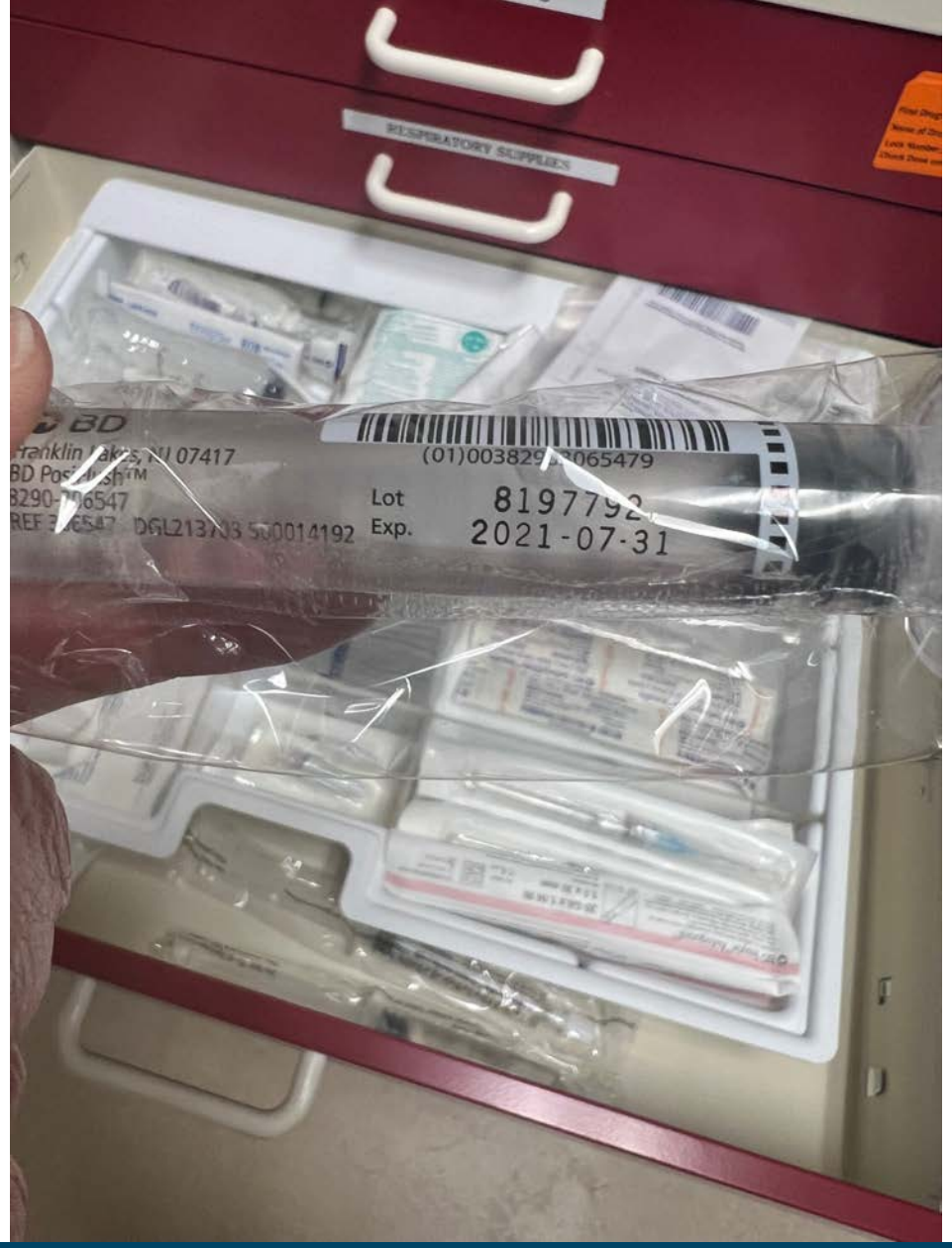


Surveyor Eyes

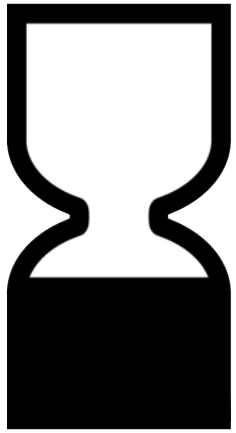
Expired supplies



Surveyor Eyes

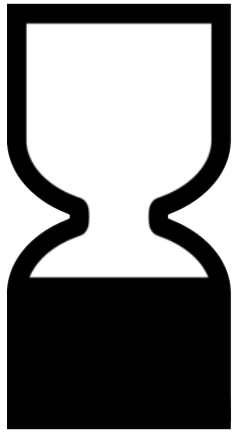
- Can staff speak to how the glucometer is cleaned per the IFU?
- Can staff speak to the wet/contact time for the Sani-wipes?
- Are clean dialysis supplies protected from potential contamination?
- Are supplies taken to patient treatment station not disposed of after use, disinfected after use or dedicated to single patient use?
- Are disposable (single-use) supplies discarded after use?
- Are clean items identified as biohazard?

What do these symbols mean?



What do these symbols mean?

Single Use:
Disposable Item



Expiration
Date

Water Quality

https://www.ameriwater.com/products/sample-port-wall-box/

Water Treatment

- Most important piece of the dialysis process
- Can’t use tap water straight from the faucet

- Three Steps to Water Treatment Process:
  1. Pre-Treatment
  2. Purification
  3. Distribution Loop

Step 1: Pre-Treatment

- Public supply of Water:
  - Has additives/preservatives/chlorine added
- Requires purification prior to use for dialysis
- Filters:
  - 1. Softener: removal of minerals, etc.
  - 2. Carbon tanks: removal of chlorine/chloramine

Step 2: Purification

- Accomplished by the RO
  - (Reverse Osmosis) Machine
- Everything before RO is the pre-treatment
- RO is the purification step: Removes inorganic and organic material
- Bacteria and Endotoxins

Step 3: Distribution

- **Distribution Loop:**
  - Brings the purified water to the dialysis treatment area

- All the pipes/tubing the purified water travels through to reach the dialysis machine and ultimately the patient

Water Testing

- Annually:
  - AAMI Water Analysis: (some organizations test every 6 months)
- Monthly:
  - Water Cultures & Endotoxin Testing
- Total Chlorine:
  - Central Water: Beginning of day and every 4 hours (every machine)
  - RO: After machine has run for 15 minutes:
    - Prior to treatment
    - Every 4 hours (if treatment reaches 4 hours)
    - Testing location: post carbon tank but pre-RO
- Residual Bleach:
  - After disinfection of machine
  - Daily (as a double check prior to first treatment)

Culture & Endotoxins: Testing Parameters

- Cultures: Water & Dialysate
  - Acceptable: > 50 CFU/ml
  - Action level 50-199 CFU/ml (continue but plan)
  - Unacceptable 200+ CFU/ml (stop dialysis)

- Endotoxins:
  - Acceptable: below 1
  - Action Level: 1-2
  - Unacceptable. 2+

Water Treatment Disinfection

- Water Treatment System:
  - Disinfection at least monthly or per IFU
  - Some ROs have heat disinfection: if so, may be required weekly or per IFU
- RO loops (plumbing): monthly
- If the culture/endotoxin results are elevated, is the water treatment system disinfected more frequently?
- Storage Tanks: per the IFU

Dialysis Wall Boxes and Drains

CDC Centers for Disease Control and Prevention

Dialysis Safety

Dialysis Wall Boxes and Drains

Dialysis wall boxes are frames recessed into the wall at each hemodialysis station that contain connections for the dialysis machine to receive acid and base concentrates and treated water, and dispose of waste products.

There are several infection prevention and control issues unique to wall boxes. They can become easily contaminated with microorganisms, which can subsequently be transferred to dialysis patients, a vulnerable group at high risk of infection.

Thus, wall boxes need to be cleaned, disinfected, and properly maintained to decrease risk of patient infections.

Wall boxes contributed to a large number of infections in patients on dialysis in this outbreak: Multicenter Outbreak of Gram-Negative Bloodstream Infections in Hemodialysis Patients [PDF – 10 pages] . Summarized in the table below are infection prevention and control issues identified during the outbreak investigation, and recommended strategies for infection prevention.

https://www.cdc.gov/dialysis/guidelines/wall-boxes.html

Dialysis Wall Boxes

- Patient Rooms/Dialysis Unit:
  - Water Supply and Drain
- Typically connected to regular water supply and then connected to the dialysis machine through a portable reverse osmosis (RO) system. This fixture is essentially a faucet with a dead leg.
- The risk of not periodically flushing this fixture could result in stagnate water. Wall boxes need to be cleaned, disinfected, and properly maintained to decrease risk of patient infections.
- Can be easily contaminated with microorganisms, which can subsequently be transferred to dialysis patients, a vulnerable group at high risk of infection.
- These water box fixtures should be included in your Utilities Maintenance Program and Water Management Program and maintained in accordance with manufacturer requirements.

Surveyor Eyes

- **Water Treatment Process:**
  - What is the type of water treatment system used?
  - Is there a flow chart for the system?
- **What is each component of the Water Treatment Process?**
  - What does it do and how do you know it's working properly?
  - What tests are performed? (Total chlorine)
- **Water Testing:**
  - How often is testing performed for Water Quality?
  - What is the policy for allowable parameters?
  - Logs? Are there daily and monthly logs required? What is documented?
- **What happens when testing results are actionable:**
  - What actions are taken? What types of disinfection are completed?
  - Is the machine taken out of service?
  - Is there retesting?
  - Does the documentation tell the story of the actions taken?

Surveyor Eyes

- How often are cultures and endotoxin tests performed?
- When are the samples collected; before or after disinfection?
- Who collects the samples?
- How are staff trained on appropriate methods for obtaining samples?
- Can you explain the culture/endotoxin report? Are there any values out of range?
- What happens if a test is out of range?
  - Bacterial counts should be less than 50CFU/ml (what is exact number for trending)
  - What are the acceptable endotoxin levels?
- What actions were taken and documented when tests were out of range?

Machines


13,5
Dialysate
13
Menu
UF
Menu
4
5
6
+
1
2
3
–
C
Start
Stop
Volume
Bolus
Enter

Machines

- Dialysis Machine
- RO (Reverse Osmosis)
  - Primary method for purifying water for dialysis

Machine Disinfection

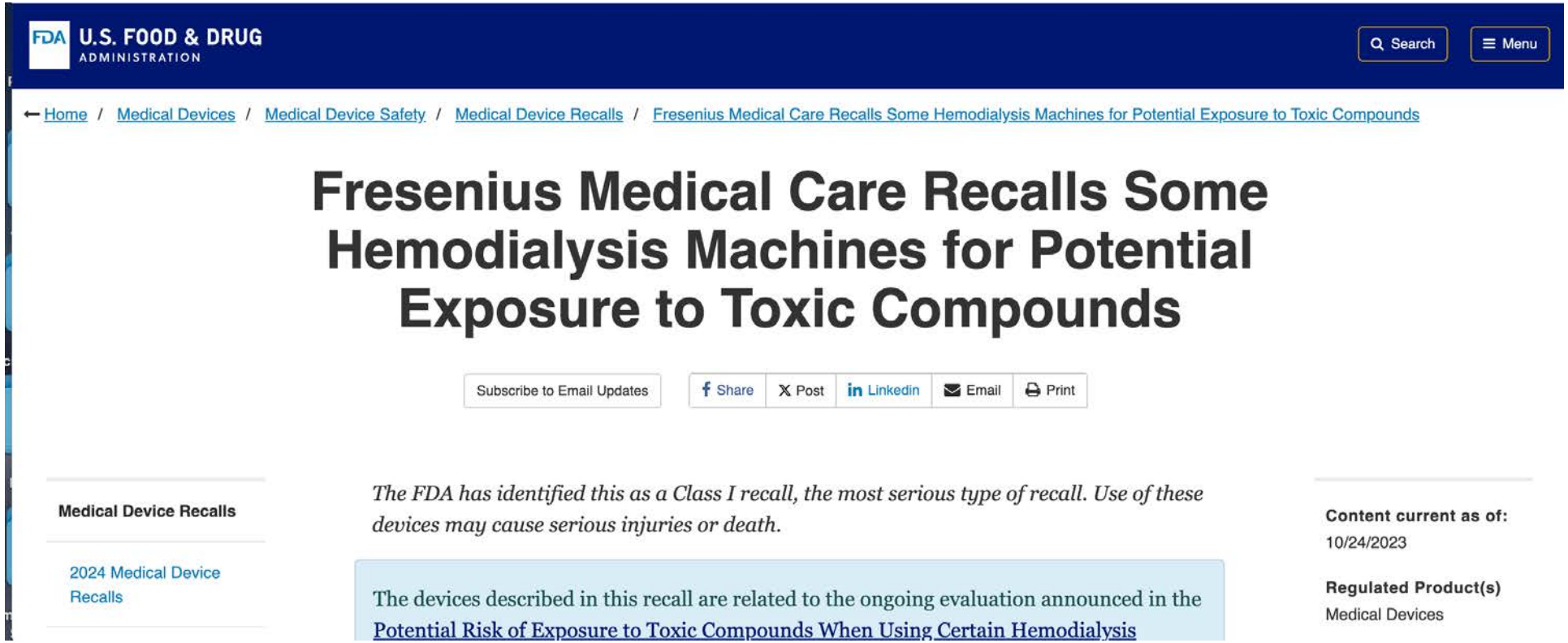
- How often are the machines disinfected
  - Heat disinfected daily/after use
  - Per IFU
- IFU: if not used for 48hours+ must be disinfected prior to use
- Chemical Disinfection: (Bleach)
  - At least weekly
  - After treatment to HBV or unknown status
- Acid Clean: (Acetic or Citric Acid) (not disinfection)
  - Prevents build-up of bicarbonate

Inspection

- Connection hoses: how are they maintained?
- Line supplying water from the water: not disinfected when the machine is. The line should be replaced annually.

Inspection

FDA Recall



FDA U.S. FOOD & DRUG ADMINISTRATION

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Fresenius Medical Care Recalls Some Hemodialysis Machines for Potential Exposure to Toxic Compounds

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Medical Device Recalls

2024 Medical Device Recalls

The FDA has identified this as a Class I recall, the most serious type of recall. Use of these devices may cause serious injuries or death.

The devices described in this recall are related to the ongoing evaluation announced in the Potential Risk of Exposure to Toxic Compounds When Using Certain Hemodialysis

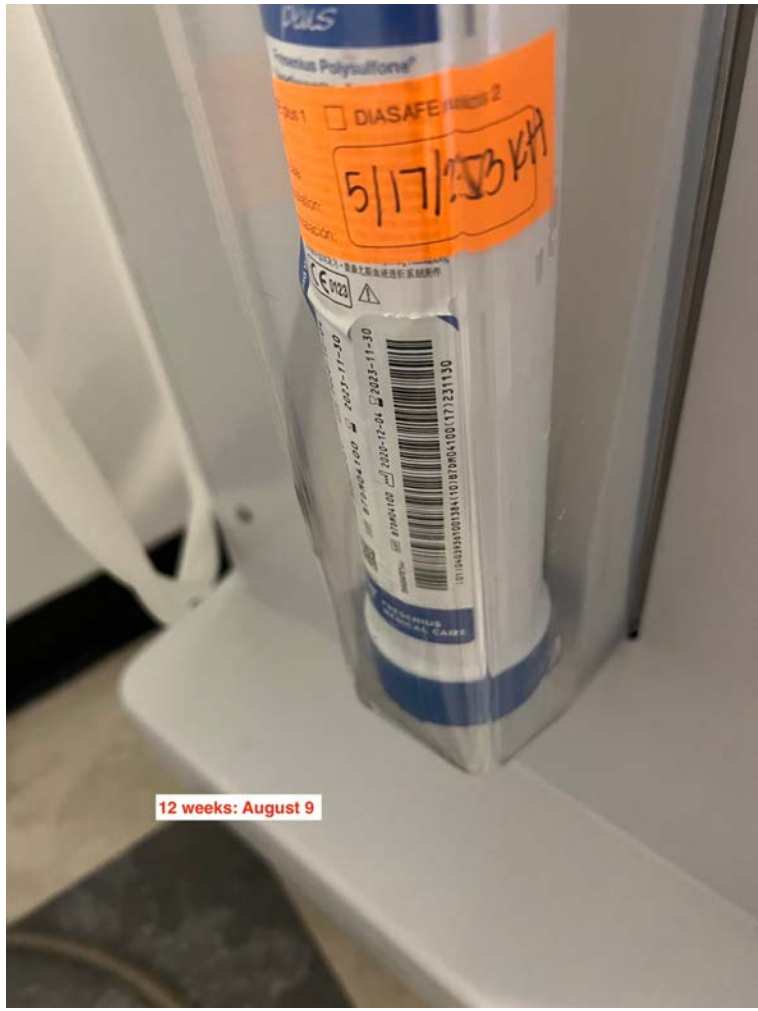
Content current as of:
10/24/2023

Regulated Product(s)
Medical Devices

https://www.fda.gov/medical-devices/medical-device-recalls/fresenius-medical-care-recalls-some-hemodialysis-machines-potential-exposure-toxic-compounds

Inspection: Filters

- How often are they changed?
  - 3 months
  - Manufacturer's expiration
  - Change in pressure-alarm
- How can staff tell if the filter needs changing?



Dialysis Machines: Emergency Process

- If dialysis is being given on the patient unit:
  - Is there a process to follow if the dialysis nurse becomes incapacitated?
  - Do the dialysis machines have an emergency shut down laminated guidance poster?

Wand Disinfection

- Per the IFUs:
  - Bicarb wands are to be disinfected weekly.

https://www.ebay.com/itm/166604018613

Surveyor Eyes

- What is the policy for frequency of disinfection of the dialysis machine?
- What do the IFUs for the dialysis machine require for disinfection?
- Is each disinfection cycle documented for each machine?
- Does the log align with the policy/IFU requirements?
- How often are the wands disinfected?

Patient

Surveyor Eyes: Consent

- Consent Policy for Dialysis
  - Not covered with the general consent to treatment
- How often is a consent needed?
- Dated/timed
- Who had informed consent discussion:
  - Risks/benefits/alternatives
- What if patient speaks a language other than English?
- Contracted Staff: how do they know there is a consent: do they have EMR access if consent is scanned

Surveyor Eyes: HBV Status

- How often is the testing required?
- Can results come from outside facility or ESRD center?
- What happens if status is not known at the time of treatment?
- How does the machine log reflect this information?
- If results are from outside, can they be recorded by nurse or is a faxed copy of the results needed?
- How does staff know of Isolation precautions?
- Is there dedicated personnel with immune status?
- How is machine disinfected after care of patient with HBV+ or unknown status?

Surveyor Eyes: Assessment

- Hand off
- Pre-treatment assessment:
  - Policy?
  - What elements are included: vitals, pain, lung sounds, etc.?
- What does vascular site look like?
  - red, warm, tender? Is the port assessment completed?
- During treatment assessment:
  - Policy?
  - What elements are monitored and recorded? Does this follow the policy?
- Education
- Allergies
- Once connected to the machine: is the connection visible?

Orders

- Orders for Dialysis:
  - Are all the components included in the order?
- Is there an order to notify provider: volume ordered cannot be removed, blood pressure actionable parameters
- Protocol for K+ bath?
- Does contracted staff have access to EHR?
- Texting?
- Verbal /Telephone orders?
- Documented VO prior to treatment?
- Hypotension protocol?
- Does the treatment follow the orders?

Treatment Date: _____ Today _____ Monday _____ Tuesday _____ Wednesday _____ Thursday _____ Friday _____ Saturday _____ Sunday
Treatment Shift: _____ First Shift _____ Second Shift
Frequency: once
Length of Treatment: ____2.5hr ____3hr, ____ 3.25hr, ____ 3.5hr ____3.75hr ____ 4hr Other____hr.
Blood Flow Rate (mL/min): _____250 ____300 ____350 ____400 ____450 ____500, Other:_____
Dialysate Flow Rate (mL/min): ____500 ____800 _____1.5x Blood Flow Rate Other:_____
Dialyzer: ___Optiflux 180, Other _____
Dialysate Bath: __ 2K 2.5CA __ 3K 2.5CA __ 4K 2.25Ca ___1K 2.5CA ___ 3K 3CA ___ 2K 2CA ___ Citrate 1K 2.5CA ___ Citrate 2K 2.5CA ___ Citrate 3K 3CA Other:_____
Ultra Filtration: ____1 L/tx, ____1.5 L/tx, _____2 L/tx, ____2.5 L/tx, ____ 3 L/tx, _____3.5 L/tx ____4.5 L/tx other:_____
Use Heparin: Yes or No
Access Type/Location: (check appropriate blank)
AV Fistula: ____Brachial R ____Brachial L ____Forearm R ____Forearm L
AV Graft: ____Brachial R ____Brachial L ____Forearm R ____Forearm L
Chest Left Chest Right
Femoral Graft: _____ Right _____ Left
Tunneled Cath: ____ IJ Right _____ IJ Left ____ Femoral R ____Femoral L
Temporary Catheter: _____ Femoral R ____Femoral L
Other Dialysis Access:
Patient has new Access site: _____No _____ Yes
Access Needle Size: _____ 15g _____ 16g _____17g, Other:_____
Isolation Status: _____ Droplet Precautions _____ Contact Precautions _____ Airborne Precautions _____ Special Organisms, Other _____
Order Comment: Hold ultrafiltration if SBP less than _____.

https://www.*methodistmd*.org

Checklist for Dialysis Start

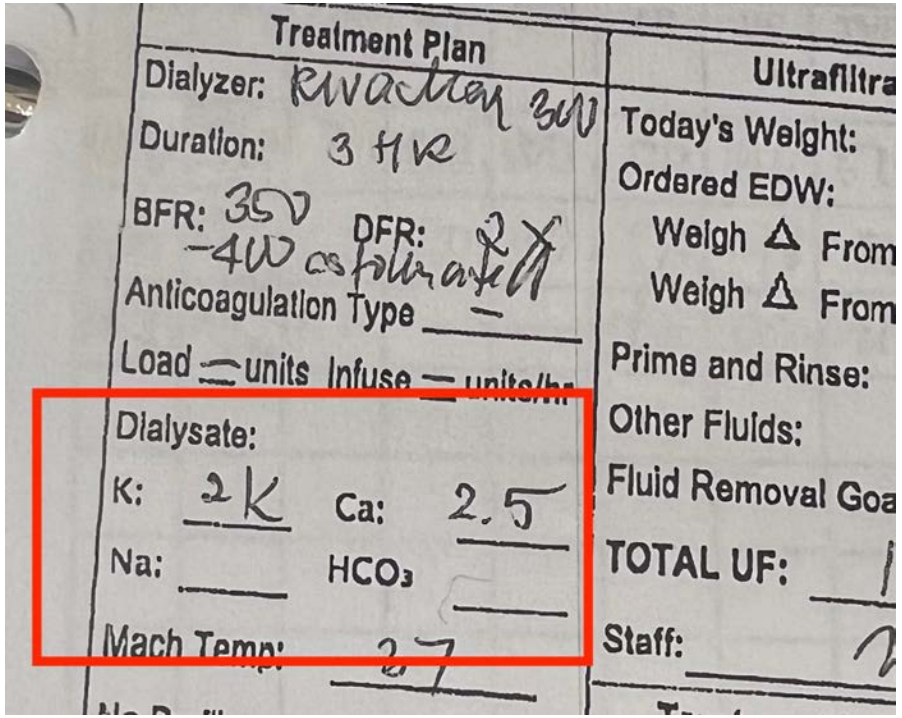
- Start of treatment:
  - Two patient identifiers
  - Patient consent
  - Correct equipment
  - Provider orders
  - Hep B status
  - Vascular access verified and secured
  - Time of treatment
  - Any questions or concerns

Surveyor Eyes: Policies

- Do the contracted staff follow hospital policies or dialysis company policies?
- Have the policies been adopted/approved by hospital?
- Are policies available to the dialysis nursing staff?

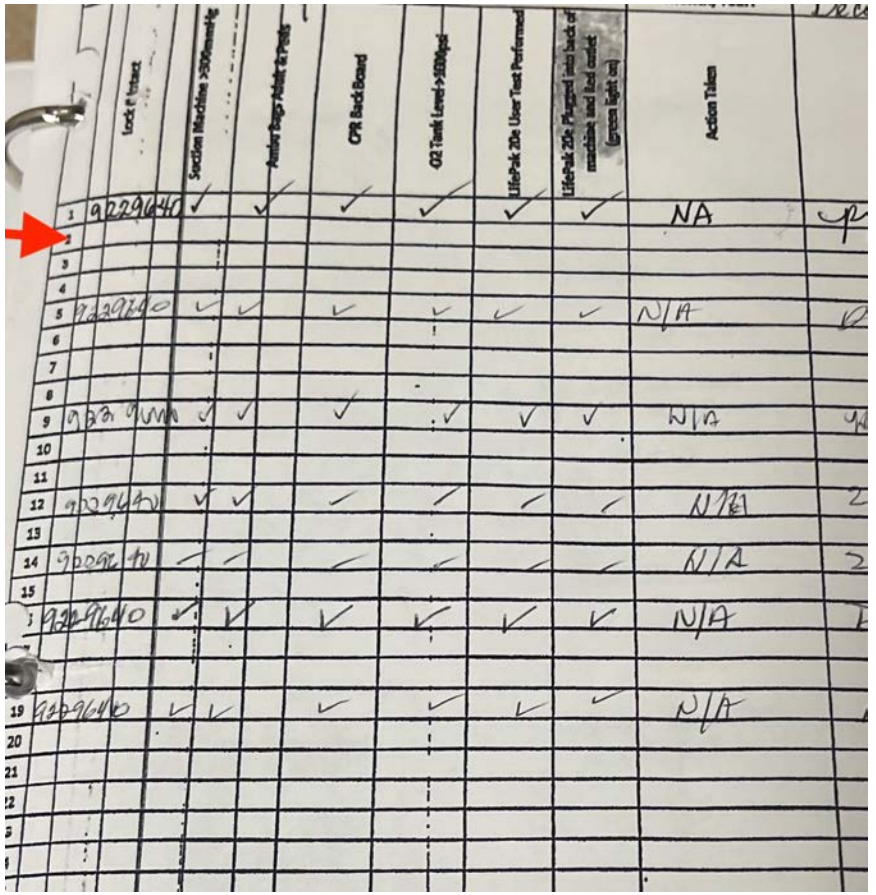
Surveyor Eyes: Documentation

- Is the treatment documented?
- Does it follow the order?
- Are all the assessment elements documented?
- How is the patient assessed for pain?
  - What if they are non-communicative:
  - What scale is used
- Care plan updated?
- Is the contracted dialysis documentation available in the record? All information about the patient's care must be accessible to all care givers.



Surveyor Eyes: Code Cart

- Is there a Code Cart?
- How and when is it checked?
- How are contracted staff oriented to the cart and equipment?
- Do Staff know how to :
  - Call Rapid Response?
  - Call Code?



CDC Tools

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

4. 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).
7. 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.
2. Clamp the catheter (*Note:* **Always** clamp the catheter before disconnecting. Never leave an uncapped catheter unattended).
3. 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.

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

CDC Tools

CDC Dialysis Collaborative *Facility Name:_____ Date:_____ Start time:_____AM / PM*

Day: M W F Tu Th Sa Shift: 1st 2nd 3rd 4th Observer:_____ Location within unit:_____

Audit Tool: Arteriovenous fistula/graft cannulation observations

(Use a "√" if action performed correctly, a "Φ" if not performed. If not observed, leave blank)

Discipline	Site cleaned with soap and water	Hand hygiene performed (staff)	New, clean gloves worn	Skin antiseptic applied appropriately	Skin antiseptic allowed to dry	No contact with fistula/ graft site (after antisepsis)	Cannulation performed aseptically	Connect to blood lines aseptically	Gloves removed	Hand hygiene performed	Comments

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

Duration of observation period = _____minutes Number of procedures performed correctly = _____

https://www.cdc.gov/dialysis/patient/index.html

CDC Tools

Checklist: Arteriovenous fistula/ graft cannulation

- [ ] Clean site with soap and water
- [ ] Perform hand hygiene (staff)
- [ ] Put on new, clean gloves
- [ ] Apply skin antiseptic and allow it to dry
- [ ] Do not contact site (after antisepsis)
- [ ] Insert needles aseptically
- [ ] Connect to blood lines aseptically
- [ ] Remove gloves
- [ ] Perform hand hygiene

Checklist: Arteriovenous fistula/ graft decannulation

- [ ] Perform hand hygiene (staff)
- [ ] Put on new, clean gloves
- [ ] Disconnect from blood lines aseptically
- [ ] Remove needles aseptically and activate needle retraction device
- [ ] Clean gloves worn (patient and/or staff) to compress site
- [ ] Apply clean gauze/bandage to site
- [ ] Remove gloves (staff and/or patient)
- [ ] Perform hand hygiene (staff and/or patient)

https://www.cdc.gov/dialysis/patient/index.html

Medications

Medication Orders

- Does contracted staff have EMR access: Who pulls mediations from Auto-dispenser?
  - How do they verify the medications?
  - How do they verify the dialysis orders?
  - How are additional orders placed?
  - How do they document medication administration in MAR?
- Is a Heparin bolus or flush ordered?
- Are other medications ordered?
- Are there orders to hold medications until after dialysis?
- Are medications ordered prn? is there a clear indication for administration
  - If given hourly, can't be ordered as prn

Heparin Orders

- Is heparin a high alert medications: does it require double check per hospital policy?
- Anticoagulant dose administered must match the order

Medications		
[ ]	Saline Flush	10 mL, Injection, IV Push, PRN, Other, specify in comment, Routine, T;N, Comment: GIVE IN DIALYSIS Flush dialysis line with TEGO connector
	NOTE: If ordering citrasate dialysis bath DO NOT order heparin.	
	NOTE: if heparin desired, please order below	
[ ]	heparin	2,000 units,injection, Device, Routine, T;N, N/A, Comment: GIVE IN DIALYSIS to prime extracorpal circuit and discard.
[ ]	heparin	2,000 units, Injection, Device, Routine, T;N, once, Comment: GIVE IN DIALYSIS at
[ ]	heparin	1,000 units, Injection, Device, Routine, T;N, q1hr, PRN: GIVE IN DIALYSIS, discontinue order at last hour of dialysis

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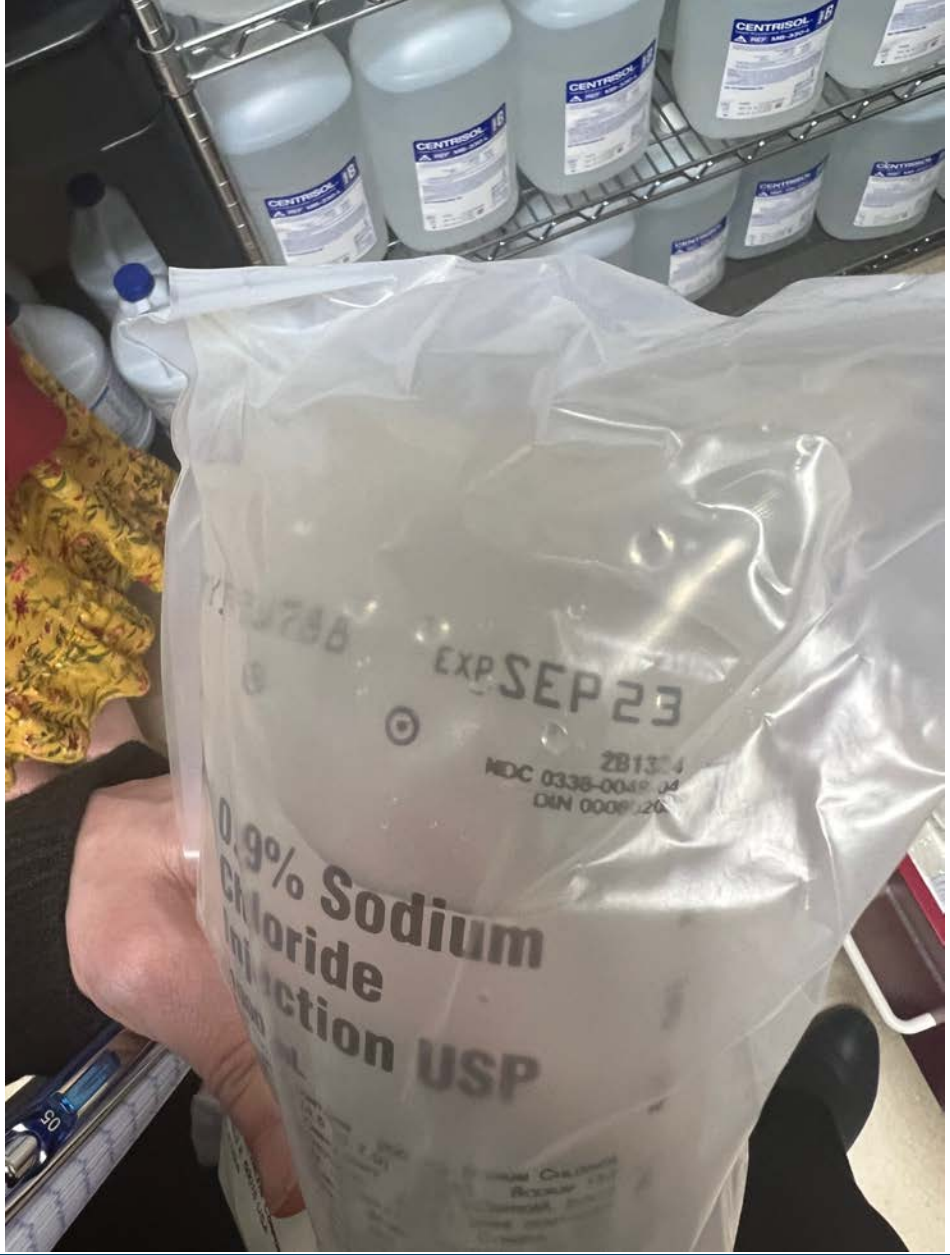
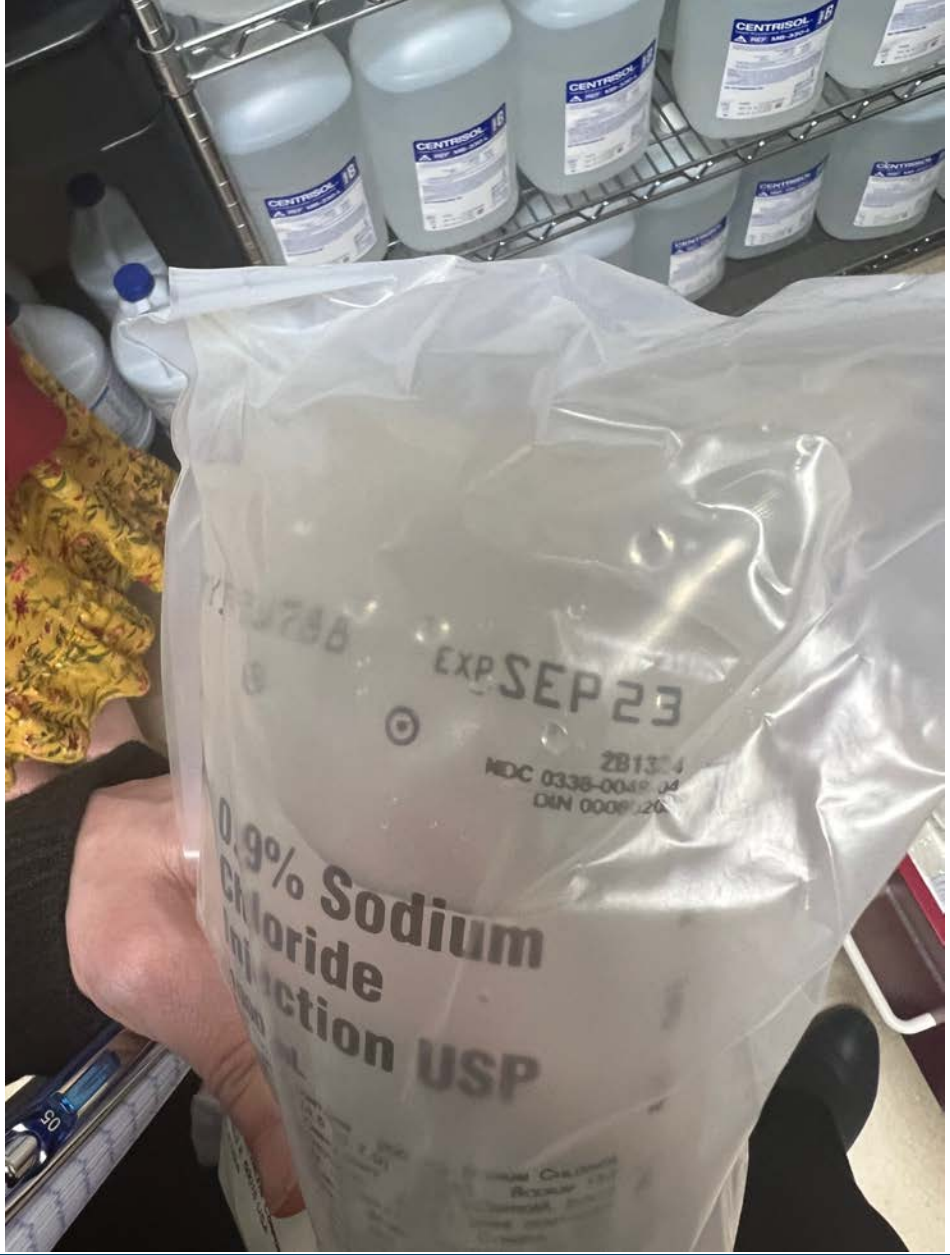
Surveyor Eyes

What do you see?



Surveyor Eyes

Expired Medications



Surveyor Eyes

Can this vial be used for multiple patients?

Surveyor Eyes

Vials:

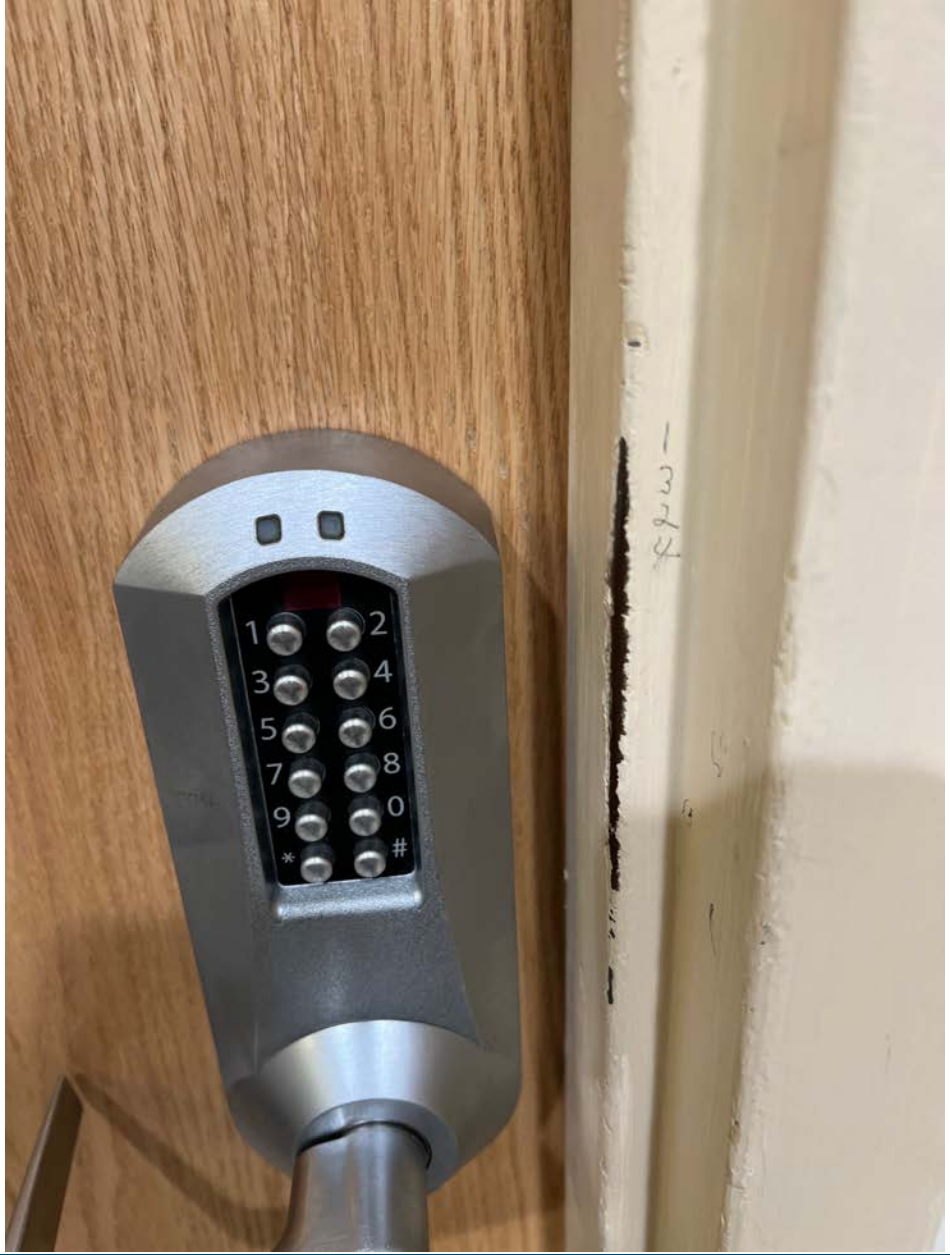
- Single dose vial: Single patient use
- Multi-dose vial; if entering the patient area, must be used as single-dose vial per CDC

Surveyor Eyes: Blood Administration

- Does contracted staff follow the hospital policy for blood administration or do they follow the contracted dialysis company policy?
- Are vitals recorded per the policy of the hospital?
- Consent for blood obtained?
- How does the two-person verification occur? What is the hospital policy?

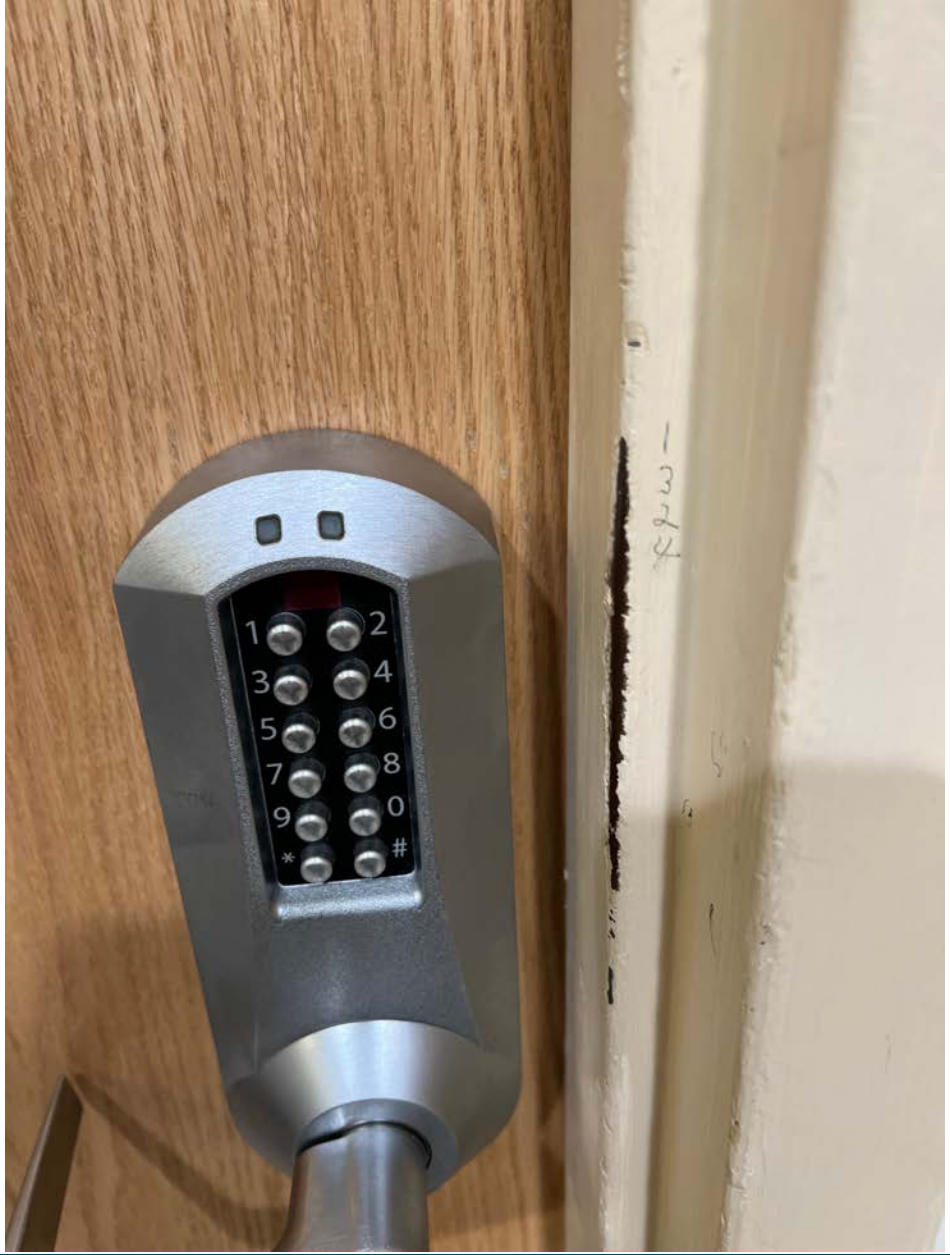
Surveyor Eyes

What do you see?



Surveyor Eyes

- Secure Medication Room: door code is written on the door frame



Infection Prevention

- **Hand Hygiene:**
  - Anytime equipment, patient or machine in the treatment area are touched: appropriate hand hygiene is needed
- **PPE:**
  - Accessing and discontinuation of access.
  - When are gown and gloves required? What is the policy?

Staff

Surveyor Eyes: Dialysis Staff

- Sufficient number
- Competency: Qualified to perform duties/responsibilities assigned
  - Employed staff vs Contracted staff?
  - Who is assessing competency?
- Techs:
  - Job description: Are they acting within scope and job description?
- Waived testing competency: glucometer, pregnancy testing etc.
- BLS/ACLS
- Primary Source Verification of License

Surveyor Eyes: Dialysis Contracts

- Quality performance indicators
- Annual review
- Hospital nursing oversight
- Staff Orientation to hospital
- Staff Orientation to unit:
  - Code carts
  - How to call a code or call rapid response or fire
  - Verbal/telephone process: VORB
  - Do they have access to EMR: Who pulls the meds, who documents administration
  - Reporting adverse events

Questions?

Additional Sources

- Acute Dialysis: Survey Readiness Handbook 2nd Edition, AAMI
- Free CDC webinars for Dialysis Best Practice: https://www.cdc.gov/infectioncontrol/training/safe-healthcare-webinars.html

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EDUCATIONAL RESOURCES

Thank you

For questions contact:
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