

# Johns Hopkins Bayview Medical Center

## GENERAL CLINICAL RESEARCH CENTER

Venous Blood Sampling using a Venous/Arterial Blood Management Protection (VAMP) system

Policy No: 148

Original Date: 08/08/2002

Previous Date: None

Reviewed Date: 4/07

**Purpose:** To outline the procedure for blood sampling using a venous/arterial blood management protection (VAMP) system.

### Policy:

1. The VAMP is used when there is a need for frequent blood sampling for a research protocol.
2. The VAMP may be used during sleep protocols to reduce intravenous line manipulation and the possibility of awakening subjects.

### Procedure (s)

#### Setting up the VAMP:

1. Using aseptic technique, remove the VAMP from the sterile package
2. Attach the distal end with the luer-lock connector to the IV line.
3. Ensure that the connections are secure.
4. Open reservoir plunger to ½ cc on the VAMP Jr. and 12ccs on the VAMP Plus.
5. To fill the VAMP ensure that the shut off valves are in the open position indicated by the handle being parallel to the tubing.
6. Hold the VAMP kit vertically and deliver flush solution slowly to fill the reservoir
7. Push reservoir plunger and fill the remainder of the kit.
8. Remove all air bubbles to reduce the risk of air emboli
9. Securely connect the proximal end with the male luer lock connector to the IV extension set and prime the tubing.

#### Blood drawing

1. Use aseptic technique
2. Close the distal shut off valve by turning the handle perpendicular to the tubing
3. Smoothly and evenly pull on the reservoir plunger to draw the required amount of clearing volume,
  - a. The minimal clearing volume for the VAMP Jr. is 1 cc. The minimal clearing volume for the VAMP Plus is 6 cc.
  - b. Recommended rate to pull the reservoir plunger up to the fully open position is approximately 1 cc every 10 to 15 seconds (approximately 30-45 seconds to fill the reservoir to capacity)
  - c. Note: if difficulties are experienced or bubbles are observed when drawing the clearing volume, check IV catheter and VAMP for possible loose connectors, occlusions, or restrictions (e.g. positional lines).
4. To remove bubbles in line between the patient connection and the proximal sampling site while drawing clearing volume:
  - a. Close the proximal shut off valve by turning the handle perpendicular to the line.
  - b. Insert syringe/cannula into the proximal sampling site
  - c. Invert the VAMP
  - d. Aspirate bubbles from the sampling site into the syringe

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- e. Turn kit upright
  - f. Reinfuse blood from syringe
  - g. Open proximal shut-off valve by turning the handle parallel to the line
  - h. Continue drawing clearing volume
5. Once the clearing volume has been drawn, close the proximal shut off valve by turning the handle perpendicular to the tubing. This will ensure that the sample is drawn from the patient and not the reservoir.

### Drawing Blood Samples from the VAMP Needle-less System

- Once clearing volume has been drawn, two methods may be used to draw blood samples from the proximal VAMP Needle-less sampling site.
- Method one uses a sampling syringe with the VAMP.
- Method two direct line sampling.

#### **Method One:** Drawing Blood Samples using a syringe

1. Swab the VAMP sampling site with alcohol or betadine depending on the research protocol. Do not use acetone.
2. Using the adaptor/cannula (Edward Lifesciences) and a syringe draw blood in the following manner. **DO NOT USE A NEEDLE AT THE SAMPLING SITE.**
  - i. Use aseptic technique
  - ii. Attach the adaptor/cannula onto a selected luer-tip syringe (size per research protocol) by aligning the adaptor/cannula luer lock to the luer tip on the syringe and twisting until secure. Use a new adaptor/cannula for each blood draw.
  - iii. Ensure that the syringe plunger is depressed to the bottom of the syringe barrel
  - iv. Push the adaptor/cannula into the proximal VAMP sampling site.
  - v. Draw the required volume of blood into the syringe.
  - vi. When the blood draw is complete, remove the syringe/cannula from the sampling site by pulling straight out. Caution: Do not twist the syringe out of the sampling site.
  - vii. Once the last sample has been drawn, swab the sampling site to ensure removal of any residual blood remaining on the sampling site. Do not use acetone.
3. The VAMP needless adaptor is not compatible with blood tubes. If you are transferring the blood from the syringe into blood tubes, you must remove the adaptor and use a blood transfer device.

#### **Method Two:** Drawing blood samples using direct draw method

1. Swab the VAMP sampling site with alcohol or betadine depending on the research protocol. Do not use acetone.
2. To draw blood sample, using the Direct Draw unit
  - a. Use aseptic technique.
  - b. Ensure that the adaptor/cannula is securely tightened to the VAMP Direct Draw housing

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- c. Position the sample site so that it faces upward.
- d. Push the cannula into the sampling site
- e. Insert the selected vacuum tube into the open end of the VAMP direct draw and push until the internal needle of the VAMP draw unit has punctured the rubber disk on the vacuum tube.
- f. Begin to fill vacuum tube. Remove the vacuum tube prior to it reaching full capacity
- g. Repeats steps e and f according to the requirements of the patient's blood sampling needs
- h. When the last sample has been drawn, remove the vacuum tube first and then grasp the VAMP direct draw unit by the cannula and pull it straight out. Caution: Do not twist it out of the sampling site or remove it with the vacuum tube still attached.
- i. Discard the VAMP direct draw unit.
- j. Once the last sample has been drawn, swab the site to ensure the removal of any excess blood remaining on the sampling port. Do not use acetone.

### Reinfusing Clearing Volume from the VAMP reservoir

Note: The clearing sample should not remain in the reservoir for longer than 3 minutes. It is recommended that the VAMP kit be changed or evacuated if the clearing volume remains in the reservoir for longer than 2 minutes.

1. Open the proximal shut-off valve by turning the handle parallel to the tubing.
2. Slowly, smoothly and evenly push down on the plunger until it is in the fully closed position and all fluid is reinfused in to the line. Recommended rate to pull the reservoir plunger up to the fully open position is approximately 1 cc every 10 to 15 seconds (approximately 30-45 seconds to fill the reservoir to capacity)
3. If bubbles are observed in the VAMP reservoir as a result of loose catheter connections, catheter occlusion or restrictions
  - a. Open the reservoir to approximately ½ cc
  - b. Invert kit
  - c. Insert syringe/cannula into distal access/flush site
  - d. Open distal shut off valve
  - e. Aspirate bubbles from distal access/flush site
  - f. Close distal shut off valve and close reservoir
  - g. Flush the line

### Flushing the line using a syringe

1. Fill syringe with flush solution
2. Attach a VAMP adaptor to the prefilled syringe by aligning the cannula luer lock to the luer-tip on the syringe and twist until secure
3. Ensure that the syringe and cannula are free of bubbles and air
4. Insert the syringe/cannula into the distal access/flush site

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5. Flush the line. Approximately 1-1.5 cc is needed to flush the line

6. Open IV stopcock to patient

### Equipment:

Intravenous fluid and tubing

Needle-less VAMP Jr blood sampling system with one 3 ml reservoir or the Needle-less

VAMP Plus blood sampling system with one 12ml reservoir

Blood draw equipment

Edwards Lifesciences adaptor or an Edward Lifesciences vacutainer

Syringes

Alcohol wipes

Blood tubes per protocol

### Reference:

Edward Lifesciences VAMP Jr & VAMP Plus Closed Blood Sampling Systems product procedure instructions

### Reviewers:

GCRC Patient Care Manager

GCRC Nursing Staff

Infection Control Nurse

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Pamela Ouyang MD  
Program Director

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Cynthia Walters, MSN, RN  
Senior Director of Nursing