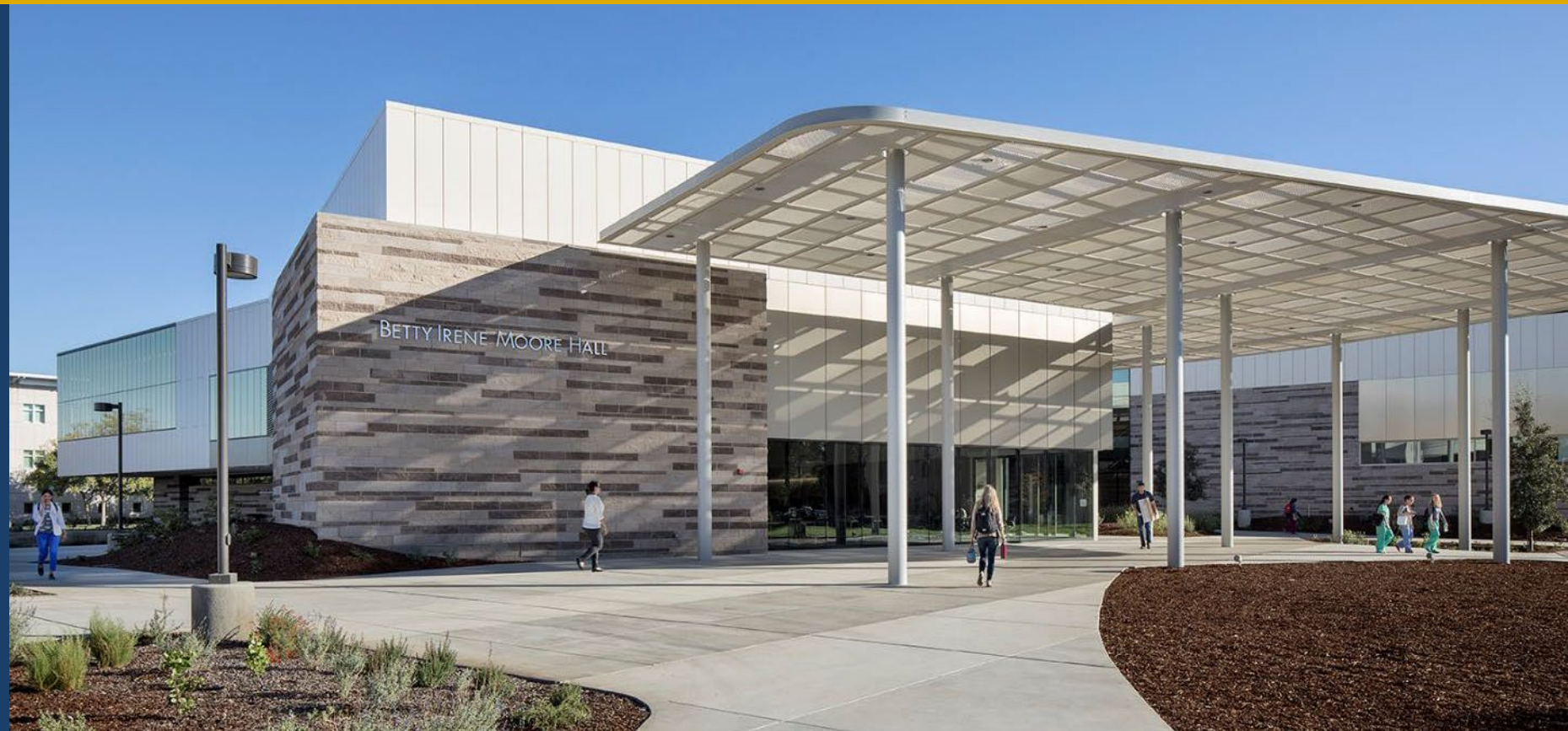
UC DAVIS HEALTH

EDUCATIONAL OFFERING ON NAVIGATING VENOUS ACCESS DEVICES FOR NURSES

BETTY IRENE MOORE SCHOOL OF NURSING



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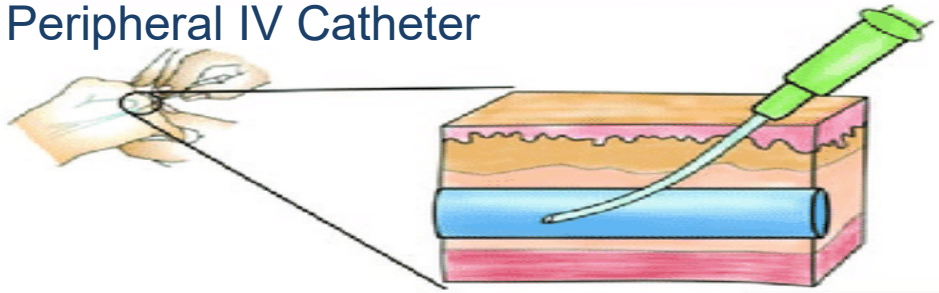
ACADEMIC SYMPOSIUM 2021

BACKGROUND

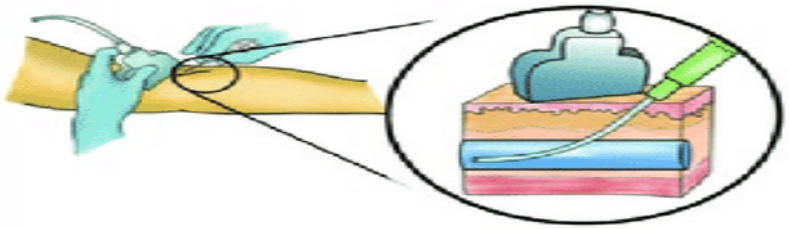
- Reliable venous access device (VAD) is vital in modern day medical care across different settings.
- Ninety percent of all patients will receive at least one VAD, making venous access device insertion, the most common invasive procedure patients experience during a hospital stay.
- Clinical indications should be the reason for VAD choice and not triggered simply by failure to establish venous access to avoid potential VAD-related hospital acquired adverse outcomes.

PERIPHERAL VERSUS CENTRAL VENOUS ACCESS?

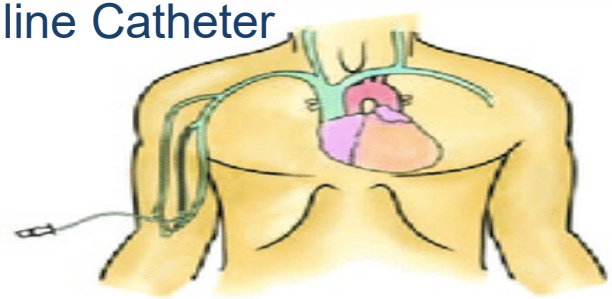
a Peripheral IV Catheter



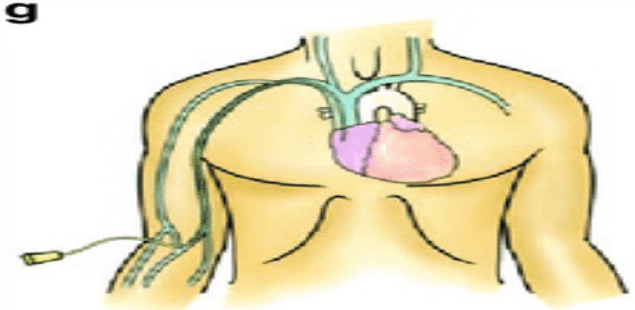
b Ultrasound Guided PIV Catheter



c Midline Catheter

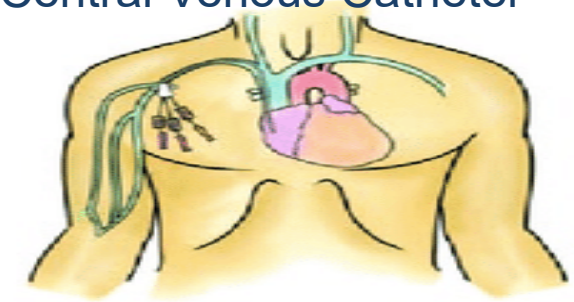


g

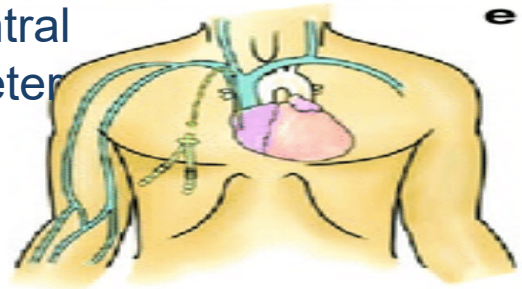


Peripherally Inserted Central Catheter

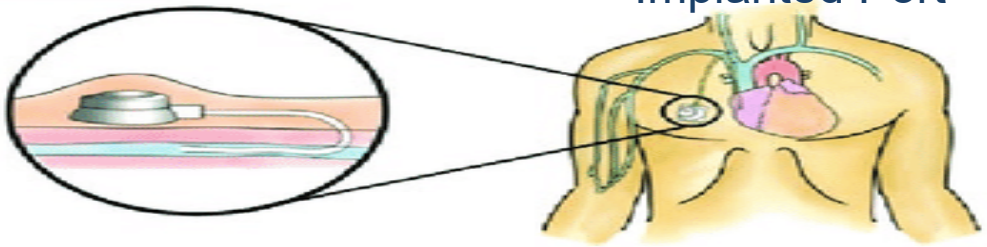
d Non-tunneled Central Venous Catheter

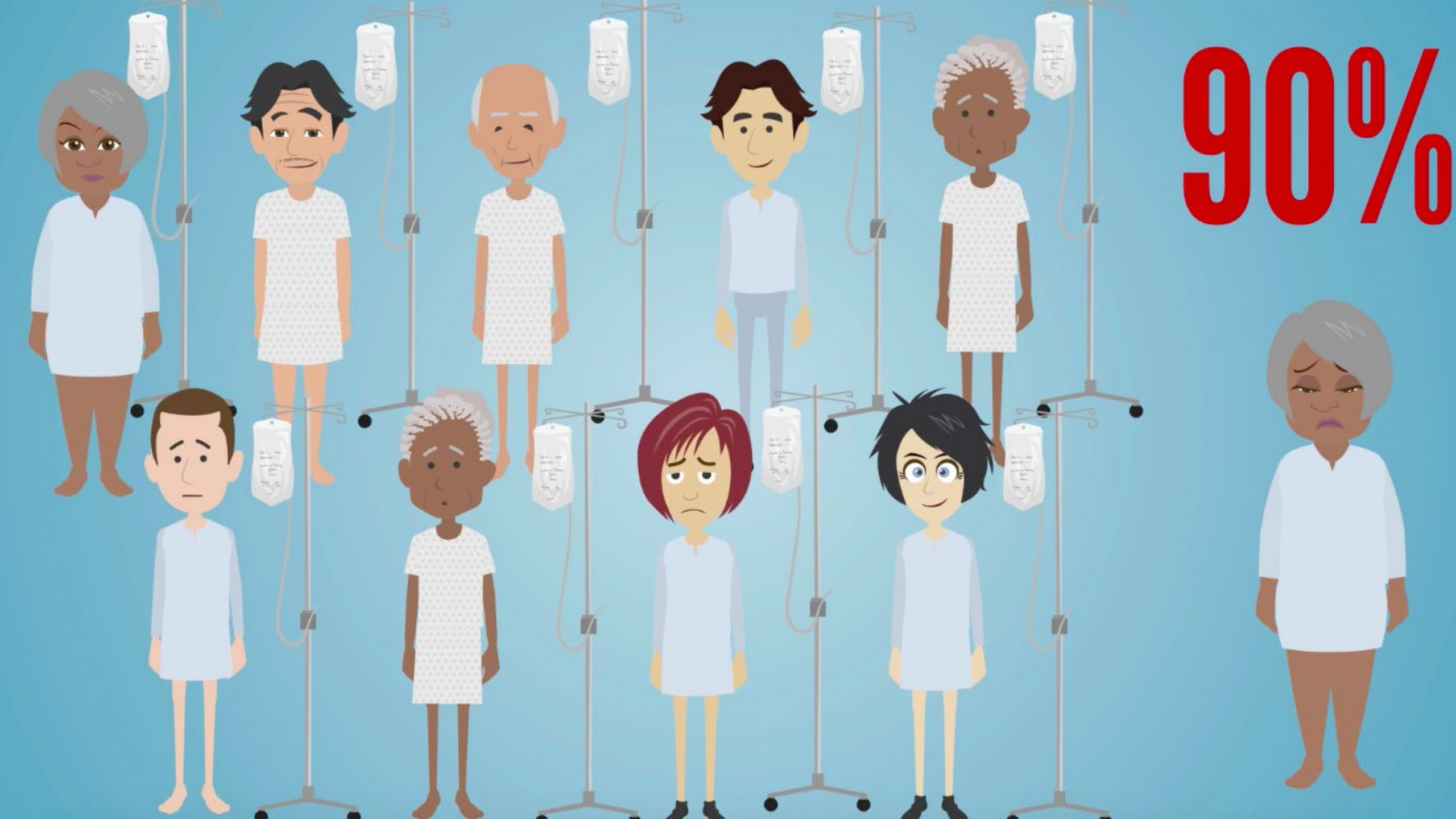


Tunneled Central Venous Catheter e



f Implanted Port

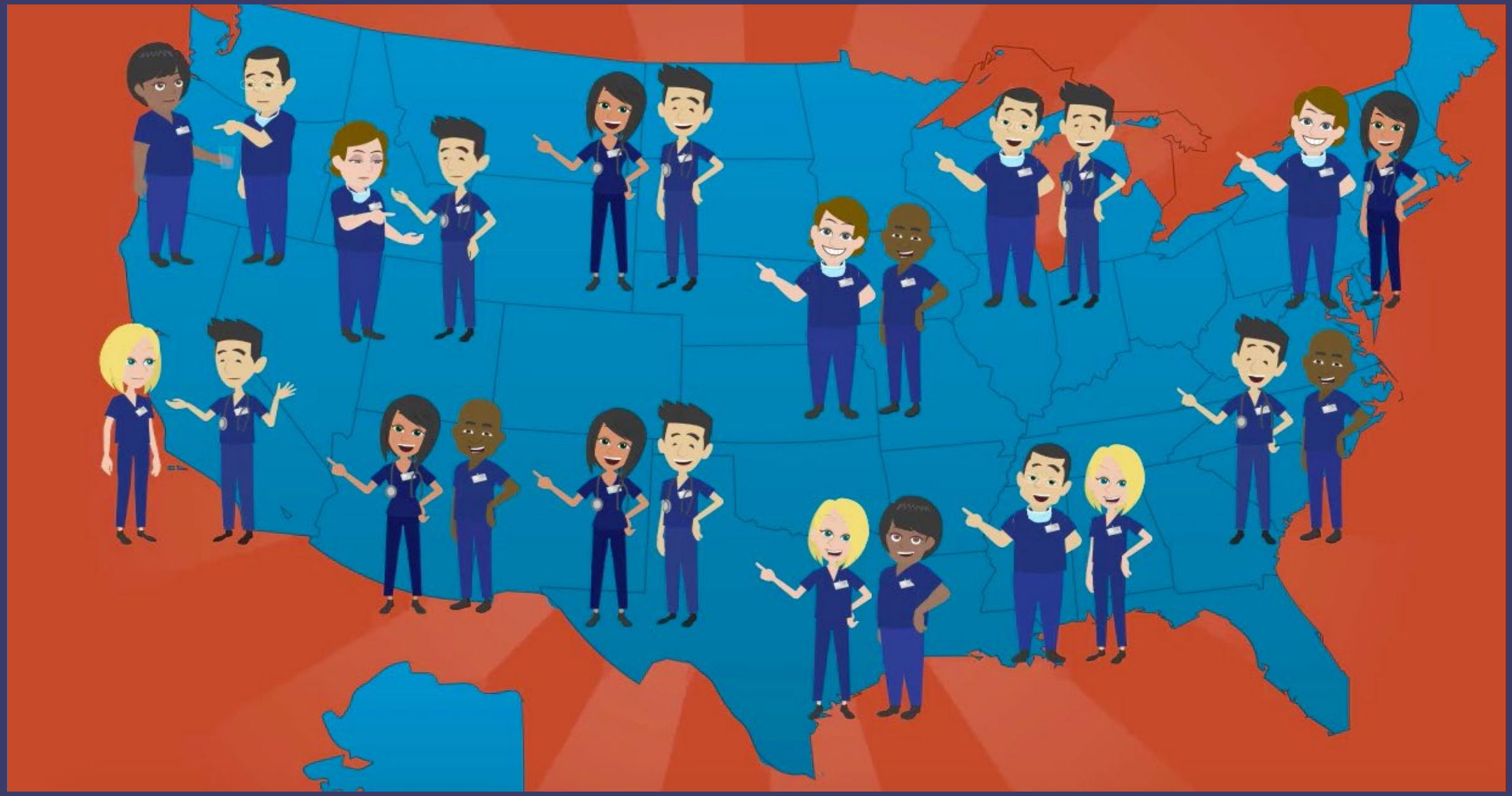



90%


Mindful and
Intentional

PROBLEM STATEMENT

- There is a knowledge gap that exists about VAD selection factors, indications and contraindications for use leading to inappropriate VAD requests/orders that require alternative VAD placement.
- Educational in-services to nurses are focused on task-oriented activities such as PIV insertion, dressing changes, tubing labeling, VAD removal etc.
- However, the institution does not provide in-services related to critical thinking and best practices of device selection factors, indications and contraindications for use resulting in high prevalence of nurse-driven inappropriate VAD requests and orders.
- A productivity report revealed that 27% (855) out of the 3,165 VADs ordered where deemed inappropriate. Half of these occurrences (428) were nurse-driven.



PROJECT AIM

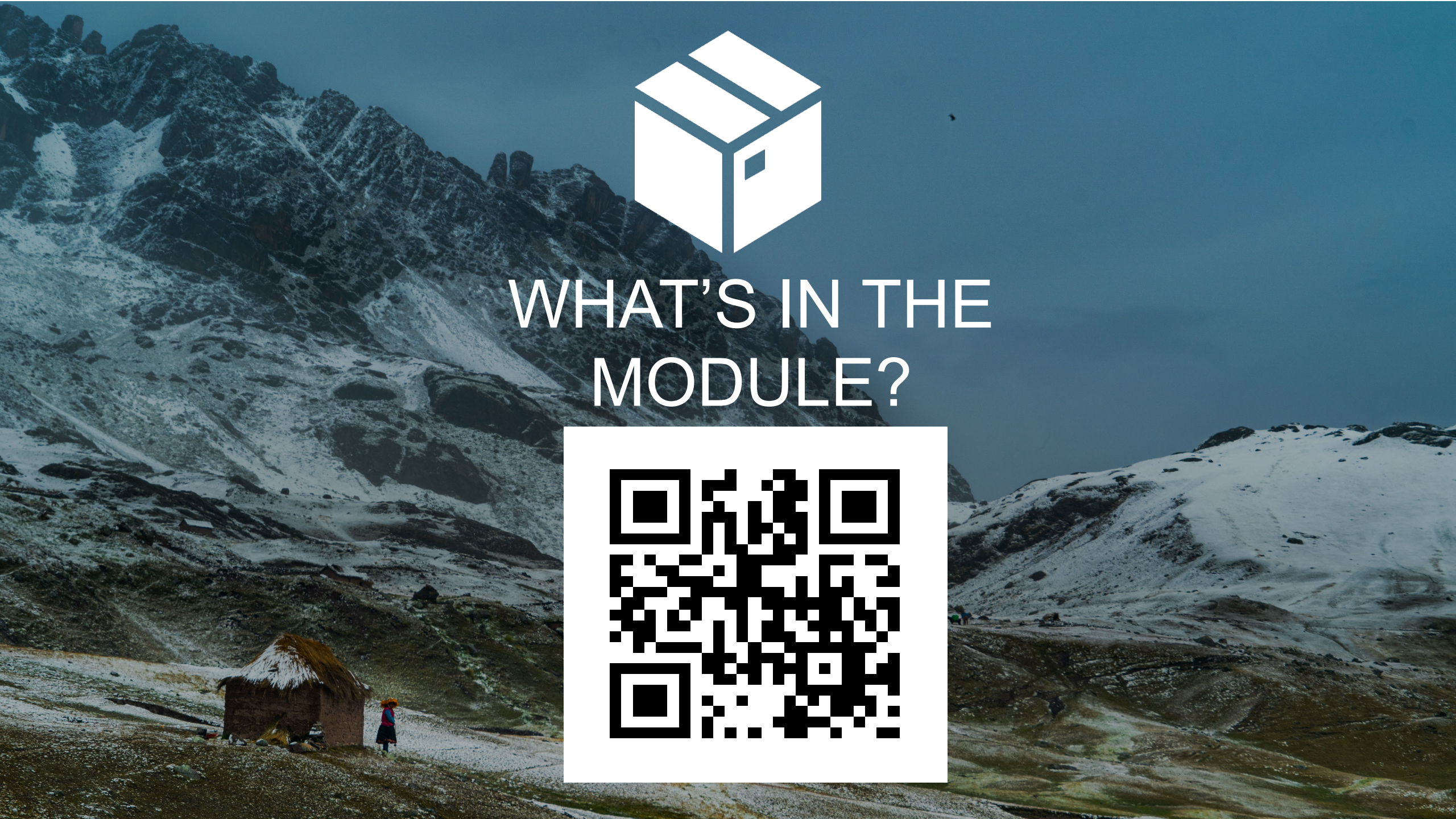
- To create and pilot test the acceptability of an education module aimed at enhancing the nurses' knowledge about best practices in managing VADs, including device selection factors, indications and contraindications for use in a multimedia format.

METHODS

- A 21 minute multimedia module focused on VADs, selection factors, indications and contraindications for use using practice guidelines from the Vessel Health and Preservation (VHP) and the Michigan Appropriateness Guide for Intravenous Catheter (MAGIC).
- The module interface was designed and developed using an animated video creation platform called Vyond.
- The module was made accessible to participants via shared google drive or WeTransfer.

METHODS

- A 19-item survey was self-administered. It assessed the participants characteristics, knowledge, and satisfaction with the module.
- All survey data were downloaded from the Qualtrics server and stored on the investigator's password-protected computer, accessible only to the investigator.
- All data analysis was conducted using Microsoft Excel.
- Descriptive statistics was used to summarize participants' characteristics, knowledge, and satisfaction.



WHAT'S IN THE MODULE?

Module Content Outline

I. Describe national and local adoption rates of VADs along with prevalence of VAD complications and associated costs.
   a. VADs in numbers
      i. Annual use of different VADs in the U.S.
      ii. VAD related complications
      iii. Bay Area hospital VAD numbers in focus

II. Examine central versus peripheral VAD pathways, corresponding complications, the difference between a peripheral versus central venous access, importance to know the distinction.
   a. Anatomy of a VAD
   b. Peripheral versus central line – entry point and tip location explained
   c. Identify which VAD is peripheral and central explained
   d. Central tip location and clinical importance – CAJ explained

III. Discuss factors associated with the device selection
   a. Characteristics of medication or infusate
   b. Estimated duration of therapy
   c. Indications for VAD
   d. Device and treatment risk factors
   e. Patient treatment plan
   f. Patient condition – chronic versus acute renal status
   g. Vein characteristics
   h. Patient risk factors

IV. Apply critical thinking using the device selection factors to scenarios presented in the video.
   a. Scenario 1 – Where's my line? I can't see it on CXR.
   b. Scenario 2 – What kind of line is this? Peripheral or central?
   c. Scenario 3 – Mrs. Smith Case
   d. Scenario 4 – Mr. Jones Case
   e. Scenario 5 – Mr. Cruz Case
   f. Scenario 6 – Mr. Black Case

V. Conclusion

DECISION FACTORS FOR APPROPRIATE DEVICE SELECTION

- Characteristics of Medication or Infusate
- Estimated duration of therapy
- Indications for VAD
- Device and Treatment Risk Factors
- Patient Treatment Plan
- Patient Condition
- Vein Characteristics
- Patient Risk Factors

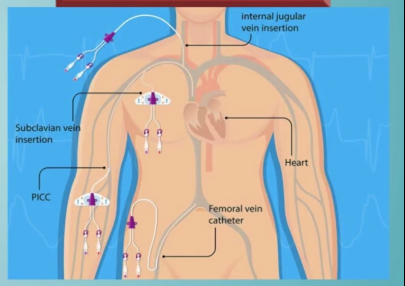
Characteristics of Medication or Infusate

- Vesicants
- Irritants
- pH of less than 5
- pH of more than 9
- Osmolality of more than 600 milliosmoles per liter

TPN solutions with:

- Greater than 10% Dextrose
- Greater than 5% Protein

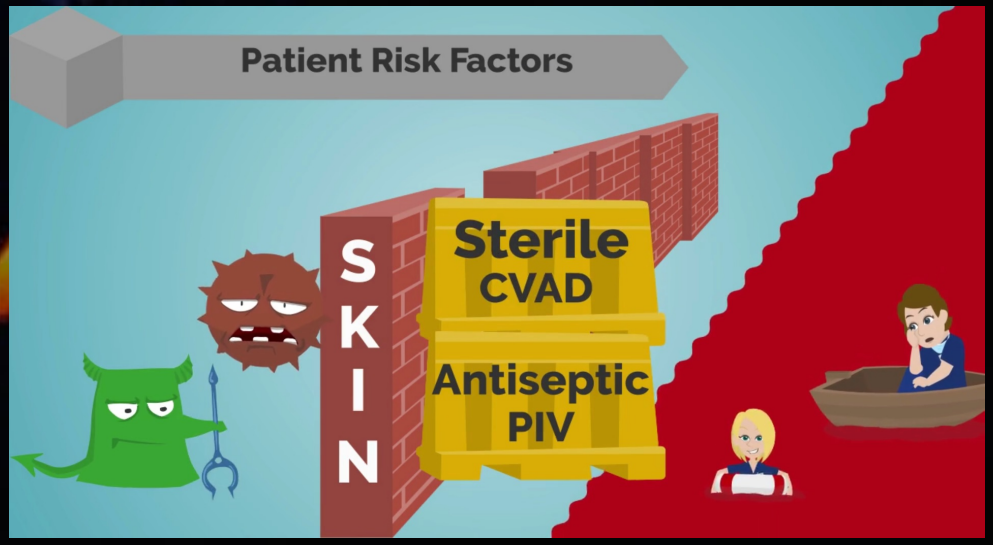
Central lines



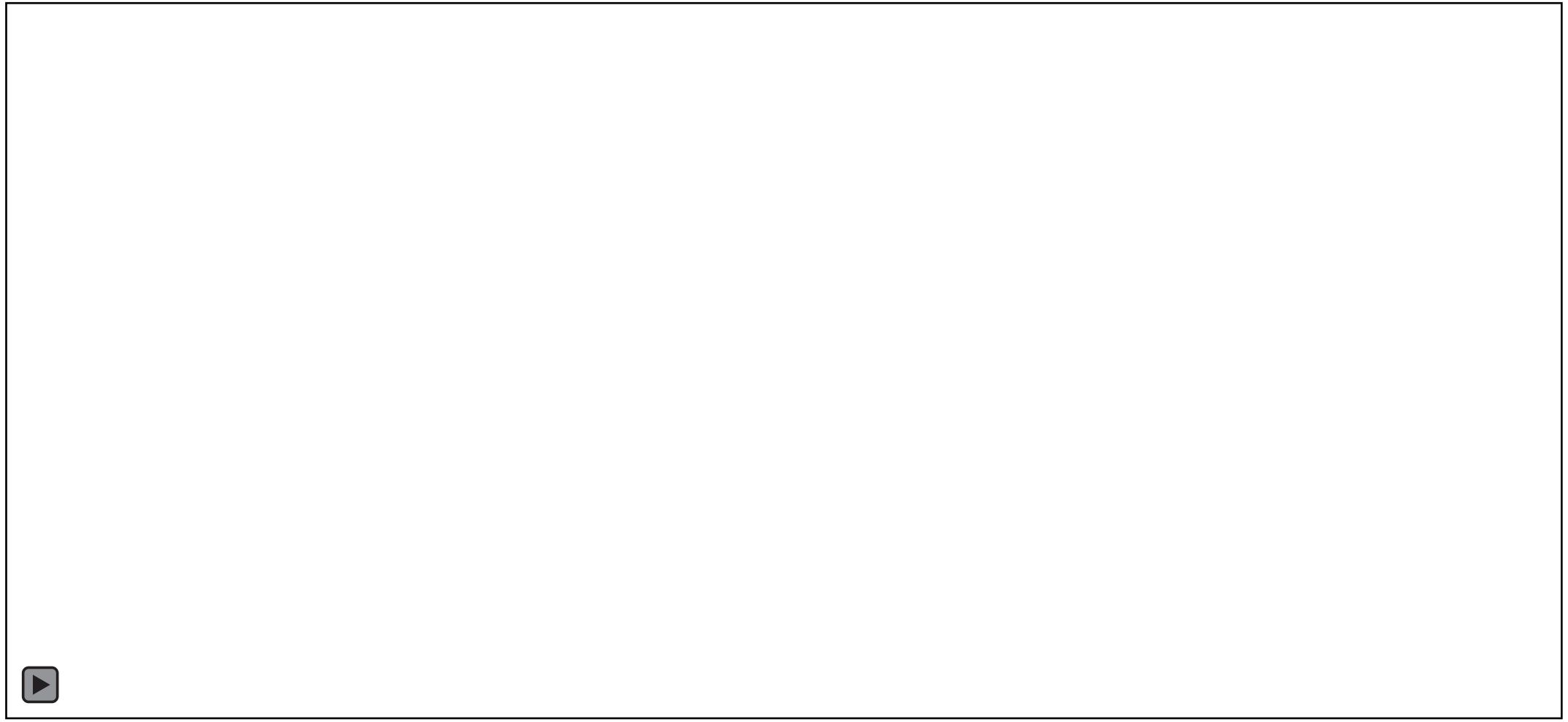
Vein Characteristics

Difficult
Intra
Venous
Access

Patient Risk Factors



VIDEO PRESENTATION



RESULTS

- Seventy-seven percent of the 26 potential participants watched the video and responded to the survey.
- The final analysis included 20 nurses. All participants were practicing and experienced adult medical-surgical registered nurses, of which 55% completed previous training related to the topic.
- Overall, all participants achieved 100% correct responses to the post-assessment quiz, and favorably rated their satisfaction with the module in the multimedia format.

DISCUSSION / FUTURE PROJECT

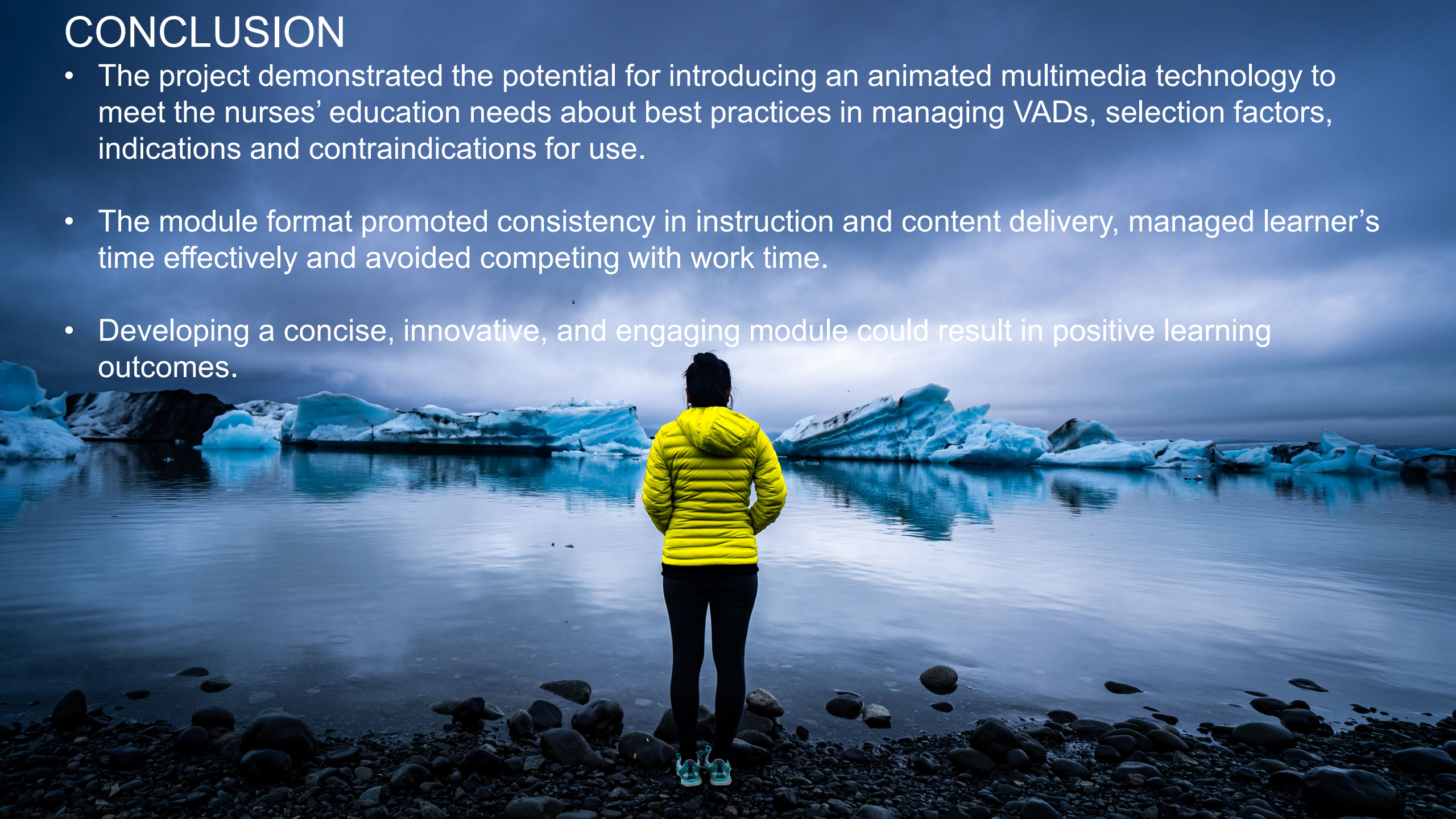
- The interpretation of this pilot project needs caution due to the limitation of the design.
- Future project may focus on tracking improvement in practice as evidenced by a decrease in nurse-driven inappropriate VAD orders/requests.
- Other patient care areas like the pediatric, critical or emergency care settings may benefit from a similar learning module.
- Other clinician groups like the ordering providers who do not have formal curricula about venous access devices may benefit from a similar learning module.
- Maybe beneficial for pre-licensure nursing students and emerging clinicians to have early exposure to concepts pertaining to VADs.

CONCLUSION

- The project demonstrated the potential for introducing an animated multimedia technology to meet the nurses' education needs about best practices in managing VADs, selection factors, indications and contraindications for use.

- The module format promoted consistency in instruction and content delivery, managed learner's time effectively and avoided competing with work time.

- Developing a concise, innovative, and engaging module could result in positive learning outcomes.



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THANK YOU!