

Increasing Vein Preservation in the NICU using Extended Dwell Peripheral IVs

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Vascular Access Limitations

- PIV
- High risk of infiltration, average dwell time is less than 2 days
 - Inability to infuse vital vesicant nutrition and/or medications

UVC

- Unable to insert catheter to proper position
- Open insertion site increasing risk of infection
- Potential of migration in or out
- Can only remain indwelling for a brief period

PICC

- Inability to insert catheter due to vascular depletion or vascular size
- Risk of central line infection
- Potential for mechanical phlebitis that does not resolve

Neonatal PIV Access

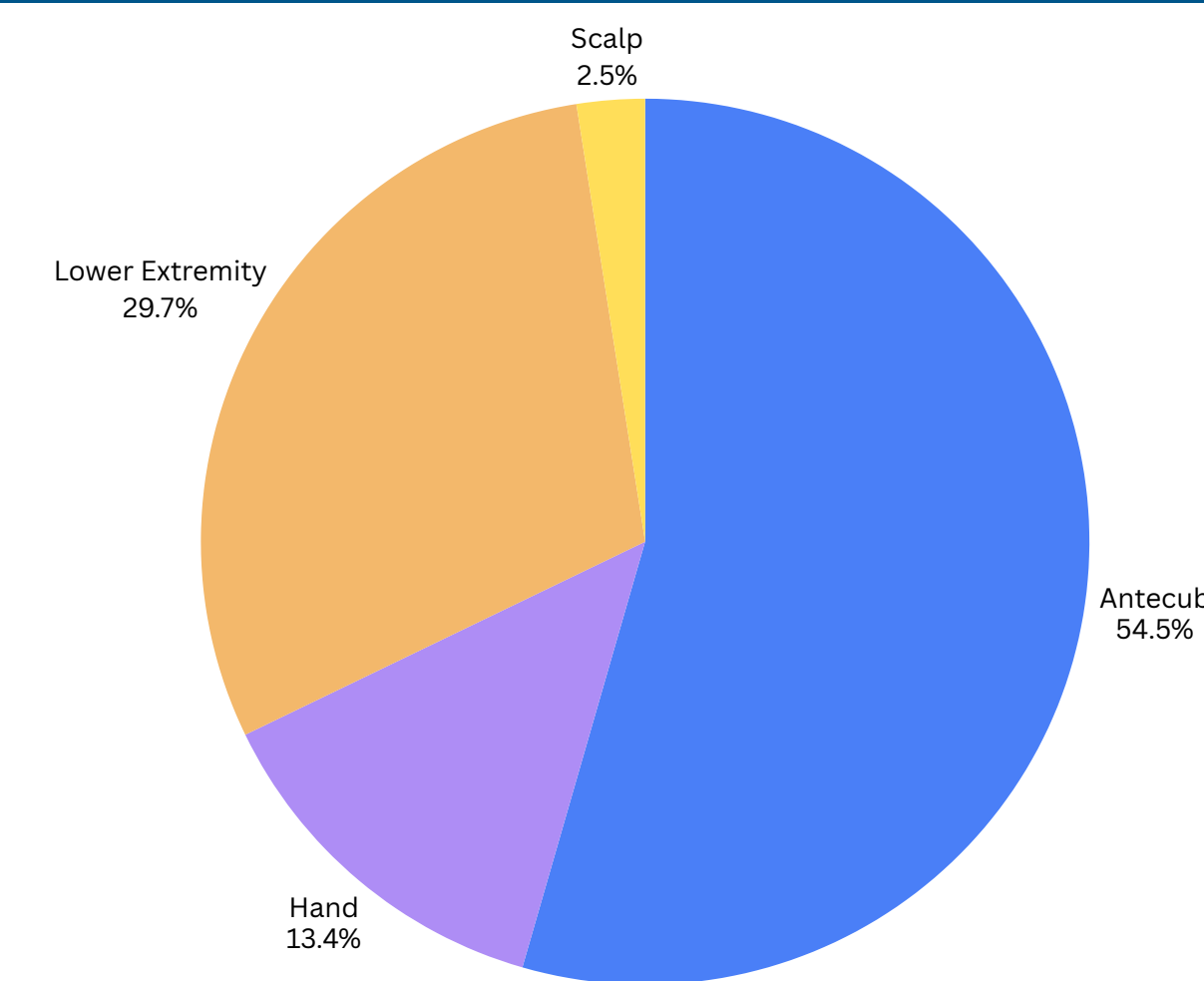
- Average dwell time of a PIV catheter before complications is 30-37 hours
- 95% of PIV catheters are removed before the completion of therapy, requiring multiple PIVs
- PIV complications include
- Infiltration (57-70%)
- Infection
- clotting

EPIV Insertion Criteria

- Infants considered a DIVA (Difficult IV Access)
- Birth Weight 1500-1800 grams
- Infants undergoing Therapeutic Hypothermia treatment and are unable to obtain UVC access
- Infants with Transient Hypoglycemia
- ELBW infants requiring frequent blood transfusions or temporary incompatible medications
- Infants undergoing antibiotic treatment while awaiting blood cx results
- Infants with concern for CLABSI but require continuous medication/nutrition
- Infants requiring Omegaven (incompatible with most medications)

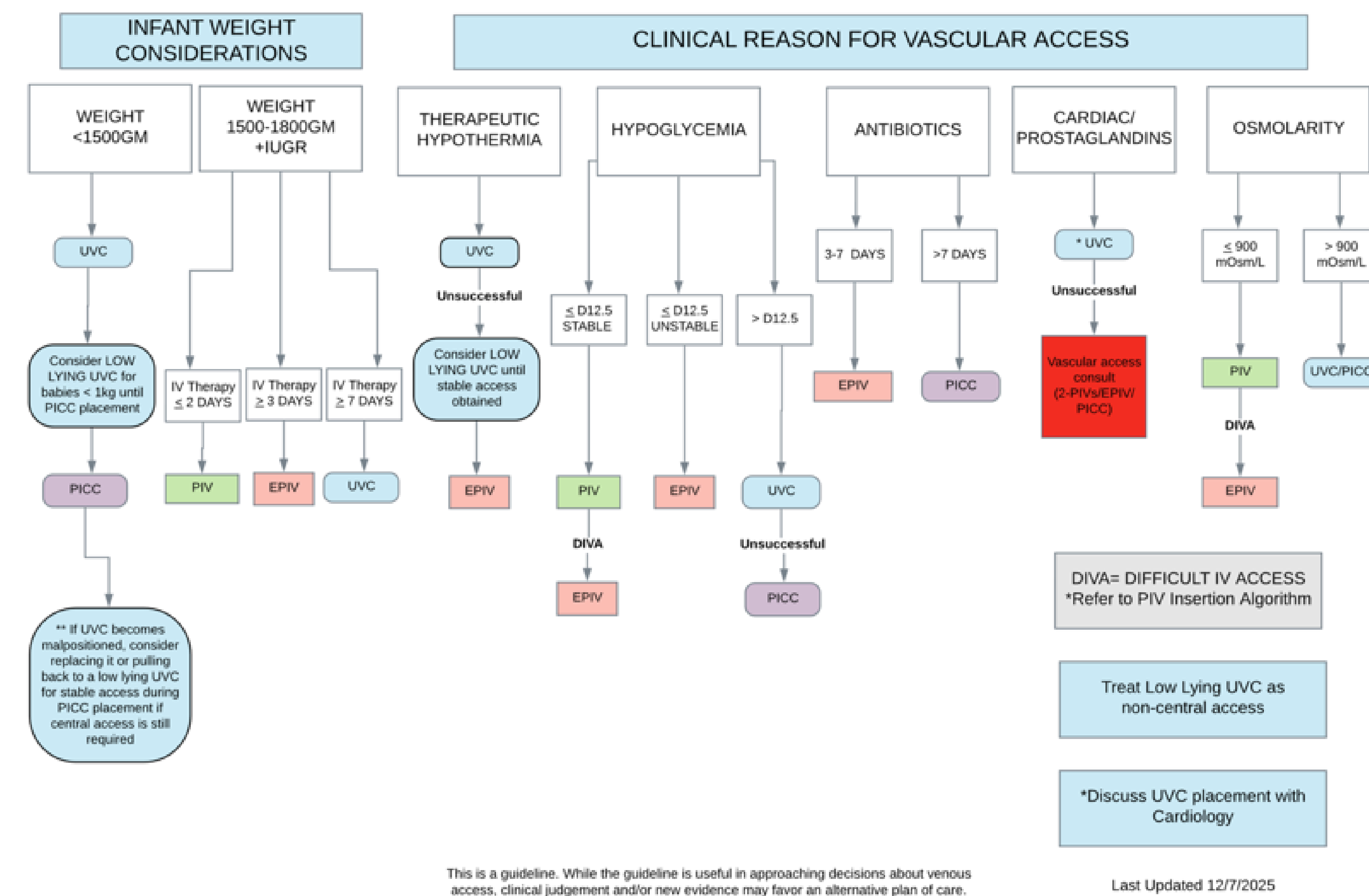
BWH NICU EPIV Data

638 EPIV catheters placed
366 males, 272 females
Gestational age at insertion: 23 5/7-48 6/7
Weight at insertion: 400g-4790g



- 563 (88%) EPIV catheters placed have been successful
- What is considered a SUCCESS:
 - Patient did not need an additional EPIV catheter or PICC to complete treatment
 - Some patients did require additional PIV use, however that indicated the patient only needed < 2 more days of IV therapy
- 421 lasted until end of therapy (3-29 days)
- 74 catheters were removed for leaking or occlusion but were not replaced: these catheters remained indwelling for DIVA patients/ELBW

NICU VASCULAR ACCESS DECISION TREE



EPIV Challenges

- Leaking was the biggest obstacle (50% of the unsuccessful)
- Use a securement device to decrease pistoning at the insertion site
- Use Secureport IV glue at the insertion site
- At insertion a hemostatic disc is used to help facilitate a clot to prevent migration
- 13 % of the EPIV Catheters failed due to Infiltration
- 57-70% of PIV catheters fail due to infiltration
- EPIV patency management
- If there are continuous IV fluids infusing for nutrition and hydration purposes, the addition of heparin is not needed
- Only a KVO rate of 1.0 ml/hr requires the addition of heparinized fluid

References

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