

Exclusion Criteria

- Critical Patient (Need for access is immediate)

Escalation Levels for IV Attempts

Level 1:
Paramedic and/or PCT (in ED only), RN, Bedside Nurse, Charge Nurse

Level 2:
US RN, experienced IV RN, IV Team, House Sup, Pedi Transport

Level 3:
PICC Team, NICU transport

Level 4:
Anesthesia, IR, Surgery/OR

Difficult Intravenous Access (DIVA) Scoring Tool

Predictor	0 Points	1 Point	2 Points
Visible Vein	Visible	-	Not Visible
Palpable Vein	Palpable	-	Not Palpable
Age	≥36 months	12-35 months	<12 months

Score ≥ 4 means >50% chance of failed initial attempt

Alternatives to IV:

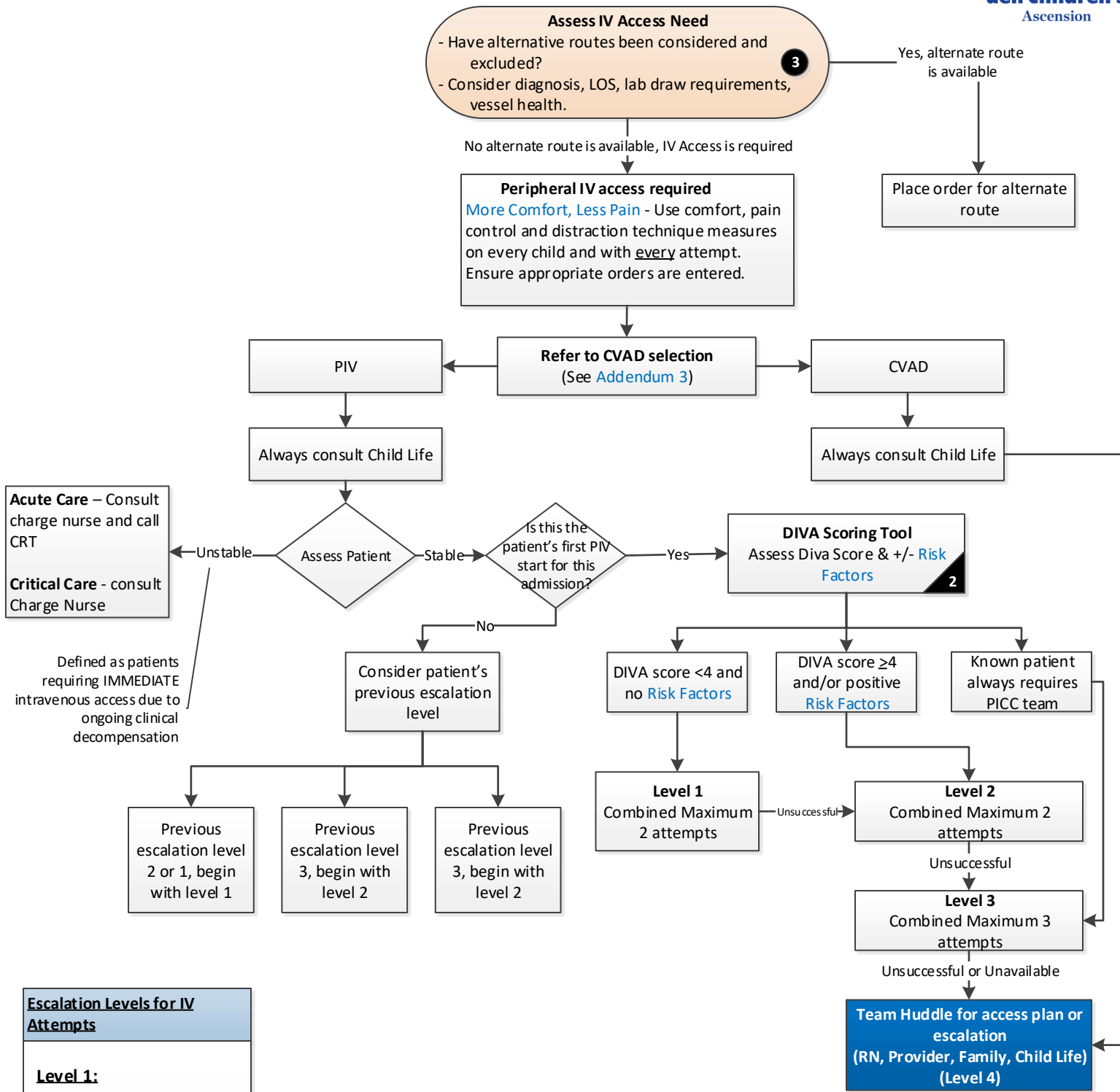
- Oral, NG, GT Route Hydration Medications
- IM Route Medications
- Central Line Placement
- Intraosseous Infusion

Pain Control

***More Comfort, Less Pain**

1. Numbing
2. Sucrose
3. Positioning
4. Distraction

Difficult Intravenous Access (DIVA) Inpatient



Acute Care – Consult charge nurse and call CRT
Critical Care - consult Charge Nurse

Defined as patients requiring IMMEDIATE intravenous access due to ongoing clinical decompensation

Escalation Levels for IV Attempts	
Level 1:	Paramedic and/or PCT (in ED only), RN, Bedside Nurse, Charge Nurse
Level 2:	US RN, experienced IV RN, IV Team, House Sup, Pedi Transport
Level 3:	PICC Team, NICU transport
Level 4:	Anesthesia, IR, Surgery/OR

Difficult Intravenous Access (DIVA) Scoring Tool			
Predictor	0 Points	1 Point	2 Points
Visible Vein	Visible	-	Not Visible
Palpable Vein	Palpable	-	Not Palpable
Age	≥36 months	12-35 months	<12 months

Score ≥ 4 means >50% chance of failed initial attempt

Alternatives to IV:
Oral, NG, GT Route
Hydration
Medications
IM Route
Medications
Central Line Placement
Intraosseous Infusion

Pain Control
*More Comfort, Less Pain
1. Numbing
2. Sucrose
3. Positioning
4. Distraction

Addendum 1:

Difficult Intravenous Access Definition

Difficult access is a clinical condition in which multiple attempts (> 4) and/or special interventions are anticipated or required to achieve and maintain peripheral intravenous access (Rauch, D.)

Difficult Intravenous Access (DIVA) can be further defined as acute or chronic.

Acute

- Patient is in usual state of health
- Veins are healthy, visible and palpable

Chronic

- Patient is in usual state of health
- Veins are NOT visible and/or palpable
- Vessels may be sclerosed, tortuous, and many collaterals may be present

Risk Factors for Difficult Intravenous Access

Difficult peripheral intravenous cannulation (DPIVC) is associated with serious complications related to vascular access. These complications may be avoided if the risk factors are identified early, enabling the detection of potentially difficult situations at an early stage

HISTORY	PHYSICAL	PSYCHOSOCIAL
<ul style="list-style-type: none"> -Patient's health status, diagnoses, conditions that require repeated or ongoing IV access, such as: <ul style="list-style-type: none"> Cancer Sickle cell disease Cystic fibrosis Chronic renal failure -Prematurity with prolonged NICU stay -Prolonged hospital admissions with multiple vascular access attempts <ul style="list-style-type: none"> - Prior difficult IV access history per medical record/family/VAS service - Documented vessel occlusions - Active clot (therapeutic anticoagulation) - History of infiltrations -Congenital heart disease patients 	<ul style="list-style-type: none"> Consider vein quality on assessment Burns Fractures Trauma Congenital anomalies preventing use of limbs Edema Contractures Visibility and palpability of the target vein Dehydration Obesity, extreme values of BMI (>30) Less than 3 available access sites Ultrasound guided IV Access during current admission 	<ul style="list-style-type: none"> - Developmental delay, combative, or other behavioral issues causing frequent loss of peripheral access - Anxiety due to failed catheters during current hospitalization

Adapted from: Rauch, D., Dowd, D. Eldridge, D. Mace, S. Schears, G., and Yen, K. Difficult Peripheral Venous Access in Children Clinical Pediatrics / Vol. 48, No. 9, November 2009



<https://www2.health.vic.gov.au>



<https://emedicine.medscape.com/article/2008690-technique#c2>



<https://emedicine.medscape.com/article/2008690-technique#c2>

Addendum 2:

Team Huddle for IV Escalation

In the team huddle, the clinical team should assess the patient’s vascular condition, future treatment needs, identify possible alternatives, discuss overall management and recommendation of PIVC placement and/or discuss removal of devices when they are no longer needed for care to minimize patient discomfort and risk for harm. The PIVC is an invasive device that comes with a variety of risks and it should be dependent upon a well-defined clinical rationale for insertion to proceed. The indiscriminate practice of PIVC without a clinical indication is detrimental to good clinical care. Refraining from inserting a PIVC that is not clinically indicated would avoid patient pain, and reduce costs of staff and equipment resources involved.

Clinical Decision Aid Goals:

- 1) Promote vessel health preservation
- 2) Refrain from inserting a PIVC that is not clinically indicated

The PIVC decision aid to support clinically indicated Peripheral IV catheter
Is a PIVC Indicated?
Is patient likely to require a PIVC for a clinical procedure: contrast scan, procedural sedation, procedural access, continuous fluid therapy, IV antibiotics? <input checked="" type="checkbox"/> If Yes: the indication for a PIVC is clinically indicated.
Are IV Fluids OR Medicines that can not be tolerated enterally and are suitable for dilution in peripheral veins? <input checked="" type="checkbox"/> If Yes: the indication for a PIVC is clinically justified. - Can any of these infusates convert to an enteral prescription to avoid PIVC insertion?
Is the clinical team concerned that clinical deterioration is likely and therefore the insertion risk is outweighed by the potential benefit if a clinical event occurred? <input checked="" type="checkbox"/> If Yes: The indication for a PIVC is clinically justified.
A PIVC is indicated, consider Patient Risk Factors
A PIVC is indicated, consider Clinician Factors
Clinician predicts likelihood of use is over 80%. Genuine need for IV therapy? - Prior to the insertion of a PIVC, are you able to predict the utility of the device in terms of whether definitive intravenous therapy would be infused? - Does clinician consider discharge highly likely?

DIVA Scoring Tool

Visibility - Defined as the nurse’s ability to see the vein after tourniquet placement.

Palpability - Defined as the nurse’s ability to feel the vein after tourniquet placement.

A DIVA score of 4 was determined to provide the optimal (maximizing sensitivity and specificity) threshold to identify subjects in whom IV access would likely fail on first attempt. The DIVA scoring tool can be used to guide the implementation of adjunctive modalities (i.e. trans illuminator, escalation before attempting vascular access, ultrasound guided) to obtain vascular access, especially in those patients for whom traditional techniques might contribute to increased patient pain and anxiety.

For more information see: *Validation and Refinement of the Difficult Intravenous Access Score*
<https://onlinelibrary.wiley.com/doi/full/10.1111/j.1553-2712.2011.01205.x>

Addendum 3:

CVAD Selection

Guidelines for When to Consider Central Venous Access. Patient having 1 or more of the following.	
Therapy/Indication	Anticipated Duration
Non-irritating Medication/Fluids	>72 hours
Irritants/Vesicants	>48 hours
PPN/TPN	>72 hours
Calcium	>1 dose
Transfusions	>48 hours
Multiple Medications and/or Compatibility Issues	Always Consider
Frequent Venous Blood Sampling	>48 hours
Concern for renal failure or Venous Preservation	>24 hours
Difficult peripheral venous access	All

MORE comfort, LESS pain

Age	Pain Management	Comfort Positions with Example Procedures	
Infant 0-12 months	<p>Breastfeeding 2-5 minutes prior to procedure</p> 	 <p>IV/blood draw, heel stick, NG tube placement/removal</p>	 <p>vitals, IM injection, IV/blood draw</p>
Toddler 1-3 years	 <p>use ice if \geq 18 months</p>	 <p>IV/blood draw, catheter placement/removal, NG tube placement/removal</p>	 <p>head laceration repair, C-collar care</p>
Preschool 3-5 years		 <p>IV/blood draw, IM injection, epidural removal</p>	 <p>IV/blood draw, port access, PICC dressing change</p>
Schoolage 6-11 years		 <p>IV/blood draw, IM injection, epidural removal</p>	 <p>IV/blood draw, dressing change, NG tube placement</p>
Adolescent 12-18 years		 <p>all procedures</p>	 <p>distraction kits available on all units</p>



Apply at least 30 minutes prior to procedure.



Administer 2 minutes prior to, and during, procedure.



Place on site for 30-60 seconds prior to procedure. Move above site, between the pain and brain, during procedure.



Spray site continuously 4-10 seconds immediately before procedure.

Difficult Intravenous Access (DIVA)

Evidence-Based Outcomes Center

EBOC Project Owner: Dr. Jorge Ganem



Approved by the Difficult Intravenous Access (DIVA)
Workgroup Team

Revision History

Date Approved: March 2021

Next Review Date: March 2025

VA Project Team:

Jorge Ganem, MD

Angela Englert, RN

Andrew Brooks, RN

Angela Pacatte, RN

Francis Onyebuchi, MD

Becky Toth, RN

Jennifer Chamness, RN

My Le, MD

Victoria Klabunde, RN

Shanira Hightower, CCLS

Karina La Berge, RN

Jebb Baker, MD

Genevieve Mounce, MD

Vanessa Voce Strackbein, RN

Carmen Garudo, PM

EBOC Leadership Team:

Lynn Thoreson, DO

Sarmistha Hauger, MD

Terry Stanley, DNP

Sujit Iyer, MD

Tory Meyer, MD

Nilda Garcia, MD

Meena Iyer, MD

Amanda Puro, MD

LEGAL DISCLAIMER: The information provided by Dell Children's Medical Center (DCMC), including but not limited to Clinical Pathways and Guidelines, protocols and outcome data, (collectively the "Information") is presented for the purpose of educating patients and providers on various medical treatment and management. The Information should not be relied upon as complete or accurate; nor should it be relied on to suggest a course of treatment for a particular patient. The Clinical Pathways and Guidelines are intended to assist physicians and other health care providers in clinical decision-making by describing a range of generally acceptable approaches for the diagnosis, management, or prevention of specific diseases or conditions. These guidelines should not be considered inclusive of all proper methods of care or exclusive of other methods of care reasonably directed at obtaining the same results. The ultimate judgment regarding care of a particular patient must be made by the physician in light of the individual circumstances presented by the patient. DCMC shall not be liable for direct, indirect, special, incidental or consequential damages related to the user's decision to use this information contained herein.