

# Pediatric Venipuncture

It's not just a stick....

# Objectives:

- Describe short and long term consequences of needle pain
- Describe benefits of decreasing needle pain:
  - Increased nursing satisfaction
  - Increased patient satisfaction
  - Increased parent satisfaction

# Why is Needle Pain Important?

**What are the consequences of  
needle pain?**

# FACTS

- Children receive 18 million needle sticks/year
- IV placement and venipuncture are some of the most frequently performed interventions by nurses, yet the most distressing for patients
- IV placement is the “tone setter” for the child’s entire hospital experience
- Success or failure of the venous access procedure can set the tone for a lifetime of interactions with the health care industry
- Premature infants average 700 painful events during hospital stay

# Needle Stick Pain

## *The Patient's Perspective*

- Children report needle pain as the worst aspect of a healthcare encounter
- Stress symptoms often occur after painful procedures: insomnia, eating problems, N/V
- Untreated pain leads to re-wiring of the pain pathways in the body and increased pain later in life
- Children avoid healthcare due to fear of pain associated with a healthcare visit (IV, immunization, etc) both as a child and later in life as an adult

# When Someone Stabs You...



- Study of children at tertiary health center 3-18 years of age (asked free text questions and drew pictures)
  - “It’s like when someone stabs you”
  - “It hurts and it is horrible”
  - “Felt like someone smashing a hammer”
  - 65% said worse than anything else they could imagine
  - Drawings emphasize the size of needle and syringe; emotional impact and physical invasiveness

# Classical Conditioning Model



- Neutral stimulus + Noxious stimulus = Neutral stimulus becomes noxious
  - Holding the infant's leg + Heel stick = Stress response
  - After time, lifting the infant's foot = Stress response
  - Stress responses lead to vasoconstriction (flight or fright) = difficult venipuncture

# Special Concerns for Infants

- **Short term consequences of mismanaged needle pain**
  - Decreased oxygen saturations
  - Increased HR
  - Increased BP
  - Increased risk of IVH
  - Depletion of glycogen stores, fat stores, etc
  - Immune system depression
- **Long-term consequences**
  - Decreased sensitivity to commonplace pain
  - Higher incidence of somatic complaints
  - Alteration in developmental growth



# Needle Stick Pain

## *The Parent Perspective*

- Parents report IV needle pain was second most distressing part of hospitalization (waiting for a child in surgery was #1)
- Parents of developmentally delayed children report their children do not receive the same pain control considerations as other children.

# Needle Stick Pain

## *The Parent Perspective*

- Parents prefer pain-free needlesticks and would:
  - Pay at least \$15 for pain-free experience (73%)
  - Pay \$100 (37%)
  - Wait an extra 1 hour (89%)
- Use of a topical lidocaine agent lets parents know everything possible was done

# Parent's Role

- **Parent procedural anxiety is highly predictive of child procedural anxiety**
- **Parent coping behavior during a procedure accounts for much of the child's coping and distress**
  - *Teach parents what to do:*
    - Comfort positioning
    - Distraction
    - Focus on the child. Do not focus on the procedure.
    - Answer questions honestly
  - *Teach them what NOT to do:*
    - Excessive reassurance (↑child's distress)
      - e.g....everything is going to be OK, you are going to be alright
    - Criticism

# Top 10 Pediatric Priorities as Determined by Patient Satisfaction:

## Top 10 Priorities

- 1 Skill in blood draw
- 2 Cheerfulness of hospital
- 3 Facilities for family info provided
- 4 Response to concerns/complaints
- 5 Staff attitude toward fam/visitors
- 6 Appearance of room
- 7 Special diet explanations
- 8 Accommodations/comfort for visitors
- 9 Skill of the IV starter
- 10 Concern for comfort during T&T

# Our Percentile Rank With other University Children's Hospitals...

Question	Mean	n	Pediatric UHC		All PG DB	
			Mean	Rank	Mean	Rank
Skill in blood draw	84.6	503	84.7	58	86.3	39
Skill of the IV starter	83.1	428	84.1	38	85.6	33
Courtesy of the IV starter †	88.9	412	(N < 7)	N/A	(N < 7)	N/A
Concern for comfort during T&T	84.8	527	86.9	16	88.7	12
ICU: child's pain controlled †	92.1	88	(N < 7)	N/A	(N < 7)	N/A
How well child's pain controlled	86.9	492	86.9	51	88.7	33

*This presentation will address “Concern for Comfort during Test and Treatment”. Future presentations will address skill of the IV starter.*

*You can see that we need to make improvements in how we demonstrate to families that we are concerned for the comfort of their child.*

# 1/3 of families say their experience was “Good”. How do we achieve “Very Good”?

<i>n</i>	Question	Very Poor %	Poor %	Fair %	Good %	Very Good %	Distribution
<i>n</i>		<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	
503	Skill in blood draw	1.4%	2.4%	9.3%	30.2%	56.7%	
		7	12	47	152	285	
428	Skill of the IV starter	1.2%	4.9%	8.2%	31.8%	54.0%	
		5	21	35	136	231	
412	Courtesy of the IV starter †	0.2%	1.2%	3.6%	32.5%	62.4%	
		1	5	15	134	257	
527	Concern for comfort during T&T	0.8%	1.9%	10.8%	30.4%	56.2%	
		4	10	57	160	296	
88	ICU: child's pain controlled †	1.1%	0.0%	8.0%	11.4%	79.5%	
		1	0	7	10	70	
492	How well child's pain controlled	0.6%	1.4%	6.9%	31.9%	59.1%	
		3	7	34	157	291	

# 1/3 of families say their experience was “Good”. How do we achieve “Very Good”?

- We clearly have to think “out of the box” and look at venipuncture as an entire experience – from preparing the patient to the completion.
  - Making a procedure, which involves a lot of anxiety (by parents, children and staff), a “**very good**” experience... can be done! (See our Patient Satisfaction Peer Group Data in previous slide).



# Patient Satisfaction Comments:

- 3 IV sticks, consider topical numbing lotion.
- IV start/lab draw attempted by 2 different RN's. Both were not willing to tell my child before they stick even though both were told she needed that consideration - Neither were successful.
  - One IV was very hard to start. Very painful. Had to bring in 2ND nurse.
- On day 1 - some trainee nurses tried to take blood samples from the baby - were ill-skilled - they made multiple attempts on the baby's foot (which was) stressful & painful for the baby & family.



# Patient Satisfaction Comments:

- Had one bad experience with the 2 girls who drew her blood the day of surgery. They were rude and had NO compassion.
- Blood had to be taken twice for the same test b/c not enough blood was taken the first time –
  - I was VERY upset with the nurse's responses when I warned them that our daughter was a hard stick - it took over 30 min. to get an IV line in after they tried feet, hands, etc. I requested an anesthesiologist to do it but was ignored!!
- Nurses need to be patient w/kids when they are getting IV's. Children don't understand why so they tend to ask questions be responsive
  - It was difficult to start the IV. He was poked about 10-15 times.

## Needle Stick Pain

### Regulatory Agencies/Professional Guidelines

- Many professional and regulatory agencies have guidelines or expectations related to prevention of needle stick pain:
  - American Academy of Pediatrics/American Pain Society Joint Statement
  - Intravenous Nursing Society
  - International Association for the Study of Pain
  - The Joint Commission

# Needle Stick Pain

## *Nursing Perspective*

- Needle Stick Pain Relief Leads to:
  - Less time spent placing IVs/completing procedures
  - Increased IV placement success rate
  - Increased nursing satisfaction
- Recent nursing survey
  - 90% of respondents stated improved pain management with needle sticks would increase nursing satisfaction
  - Topical agents were used only 29% of the time



# Venipuncture is an EXPERIENCE!

- Venipuncture is not a “stick and it’s over”. It is an experience and we must manage the experience from start to finish well....for the patient AND family.



# Initiating Positions of Comfort

**Improving the Venipuncture  
Experience**

# Infant comfort positioning and support



- Containment
- Boundaries
- Swaddling
- Visual reassurance
- Calm voice
- Positive touch
- Non-nutritive suck
- Sucrose
- For neonates up to 3 months, sucrose has been shown to be as beneficial as topical numbing agents

# Is your practice based in evidence?

- Appropriate positioning improves the patient experience
- Which of the next 2 slides reflects your practice?

**I think it is best just to hold the kiddo down and get this over with!**

**I agree. No matter what, he isn't going to like it.**

**Wow! This kid is strong!**



**Look Familiar?**



# What do you think of this?



# Research shows...

- Being restrained by multiple people and forced to lie flat is frightening
  - Results in less control
  - Increased distress for the child

# Comfort Positioning Research Shows...

- Parental holding and upright positioning:
  - decrease IV distress in young children,
  - increase parental satisfaction, and
  - does not significantly decrease IV success.
- Is a safe, simple, cost-effective measure
  - helps children and families cope with venipuncture
- Can be used in any setting
  
- *Sparks, L.A., Setlik, J., Luhman, J. (2007). Parental Holding and Positioning to Decrease IV Distress in Young Children: A Randomized Controlled Trial Journal of Pediatric Nursing, 22 (6): 440-447*

# Comfort Positioning Research Shows...

- Several variations of the position but all have:
  - Child sitting up
  - Child being held in a comfort position by parent/designee
  - Shown beneficial for children as young as 3 months
- Children maintain a greater sense of control.
  - Stephens, M.E. Barkey and H.R. Hall, Techniques to comfort children during stressful procedures, *Advances in Mind–Body Medicine* **15** (1999), pp. 49–60

# Comfort Positioning Research Shows...

- No difference in time to start IV
- No difference in number of personnel needed for the procedure
  - “Despite nursing fears that extra help would be needed to immobilize the extremity when the child is being held upright, this was not the case”.
- Kaheer, B. M. W. (2003). *The effect of distraction and positioning for venous cannulation on pain responses in young children*. Unpublished doctoral dissertation, Kansas State University, Manhattan, KS

# Comfort Positioning Research Shows...

- **Nurses:**
  - 86% reported satisfaction with the **supine** position
  - 54% reported satisfaction with the **upright** position.
- **Parents:**
  - Greater satisfaction holding their child upright (vs. supine) ( $p = .034$ )
- Sparks, L.A., Setlik, J., Luhman, J. (2007). *Parental Holding and Positioning to Decrease IV Distress in Young Children: A Randomized Controlled Trial* *Journal of Pediatric Nursing*, 22 (6): 440-447

# Bottom line...

“It remains then, for nurses to be willing to try new methods that have been found to be beneficial. Doing so involves risk and requires stepping out of a “comfort zone,” but if it is for the benefit of the patient, then it is worth the risk.”



# Preparation



- Acknowledge

- You are aware venipuncture is difficult
- And you care about the child's anxiety and discomfort

- Reassure

- Explain all the things you will do to make this a positive experience:
  - 1 person will be present whose only job is to support the child (e.g. child life or designee)
  - Explain purpose of all equipment in relation to how that will be helpful
  - Explain the role of other nurses who will be there to hand you tape and supplies and help this go as quickly and smoothly as possible
  - Topical numbing agents
  - Sucrose, swaddling, comfort positions



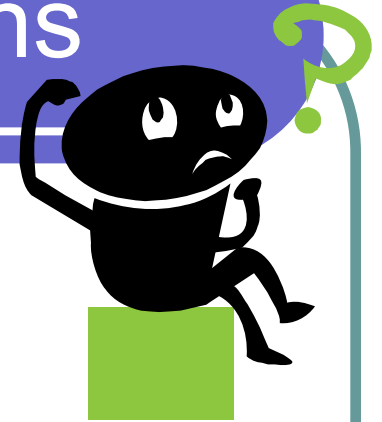
# Script: People, Equipment (Meds), Expectations

People, Equipment,  
Expectations!!!!!!!



- *“Because I know this can be painful, there are medications, equipment and staff who will help me so this can be done with the fewest number of tries possible. A child life specialist will be there solely to support your child. We will help you support your child. Another nurse will hand me items and help me tape. A transillumator will help me see the vein better. I want to do this in one try, but often, when children are ----(dehydrated, taking steroids) it takes more than one stick and sometimes several. We all want to do this with as little pain as possible”.*

# People, Equipment, Expectations



- Did you know?

- If you don't explain the purpose of all equipment and people, families make their own assumptions
  - An extra person is in the room because you don't have adequate skills
  - Extra equipment is being used because you lack skills
  - EXPLAIN even what seems obvious!
  - What you do every day is not common to our families!

# Preparation



- Identify what has worked well in the past
  - Numbing cream,
  - Position of choice (sitting chest to chest, sitting in the lap)
  - Does child desire to watch?
  - Role of the parent
  - Distraction method/items
  - Allow child to manipulate and play with items

# Patient Preparation



- I know it hurts and seems scary for your child and I'm sorry
- Here is what we can do together to support your child
- This is the purpose of the equipment and extra staff who will be present
- It may take more than one try but we will do everything we can to get it the first time

# Allow time to become engaged and explain child's role...



**Your job is:** to hold as still as you can and take big breaths and make lots of bubbles in room.

She was getting bored with the bubbles. We have to try new things to keep her attention



# Prefers not to watch



Mom is giving her a nice hug and holding her legs for me

This is teamwork! Everyone is making this the best EXPERIENCE possible, not just a poke.



I used LMX4 and she isn't feeling pain



# Child who would prefer to watch..

I am focused solely on supporting the child thru this experience

I am a partner in my child's healthcare; able to help in a positive way

The mom has this arm nicely restrained for me

I feel safe, supported, in control

TEAMWORK!!!!



Child who may want to watch should always have the option to look away.....



I'm glad I had this book ready just in case he wanted to look away...



# Position supports watching or turning away – What could be improved here?

**I am verbally distracting this child talking about Disney, but am getting a visual book to use if the child decides to turn away**



**The mom has this arm nicely restrained for me but next time I may ask another nurse to help support elbow/use pillows. If everything isn't in place, I may not be as successful.**

# What could be improved?

I wish I could sit up! I feel forced to lie down!

I'm glad I can sit up, *but I wish the nurse behind me would have her arm around my shoulder-giving me a hug -I'd feel more supported.*



I could have used the book again to block more of the procedure if he didn't want to see

# What could be improved in this situation?



nurse

parent

- Nice support of the child
  - parent arm around the back and on the leg hugging the child
- Missing support person for distraction
- The focus here is on “the stick” vs. the experience and teamwork!



# Preparation – Nicely Engaged!



If the parent is the distracter, be ready to assist with distraction as their attention will naturally drift to concern over the poke



Next time we should try allowing mom to sit with child over her shoulder!

Thanks for the LMX4!  
I didn't even feel this!

No gloves? This was a mocked up picture vs. real practice... sorry!

**Please take your time! Remember this is more than just a “quick poke” for me... You are shaping my response to pain for the future. Please make this a positive “experience”**



Sit up if 3 months?

Pacifier, sucrose, breastfeed, LMX4?

Old enough for distraction?

Music, mobile, puppet, bubbles



# What about adolescents?

I am trying not to look, but it would sure help if there was someone here paying attention to my needs.

“I sure hope they get this in” (note where her eyes are focused... not on distracting the patient).

**Adolescents consider needles the worst part of being in the hospital!**



# Comfort Positions For Other Than Venipuncture



- Procedural Nurse
- Parent or other to hold in comfort position
- Support person



# Future Education:

- Venipuncture Policy Revisions: Matching the expert to the IV
- Numbing agents: Facts and Myths
- Pointers from the experts... what helps you be successful?
- The experience from the child's perspective
- One Voice

# Questions, Concerns, Ideas...

- Please contact a member of our Children's Hospital Vascular Access Task Force:
  - Kathy Bainbridge, Tami Barrett, Deb Bruene, Darla Carter, Tracy Clapp, Mary Davis, Mardeana DeRoo, Janet Geyer, Mandi Houston, Amy Johnson, Ann Miller, Sharon Olson, Donna Rasley, Gwen Senio, Angie Shalla, Stephanie Stewart

# Review Test

Click the ICON link below and answer the questions to record your participation.  
Passing score is 3.

[ICON](#)