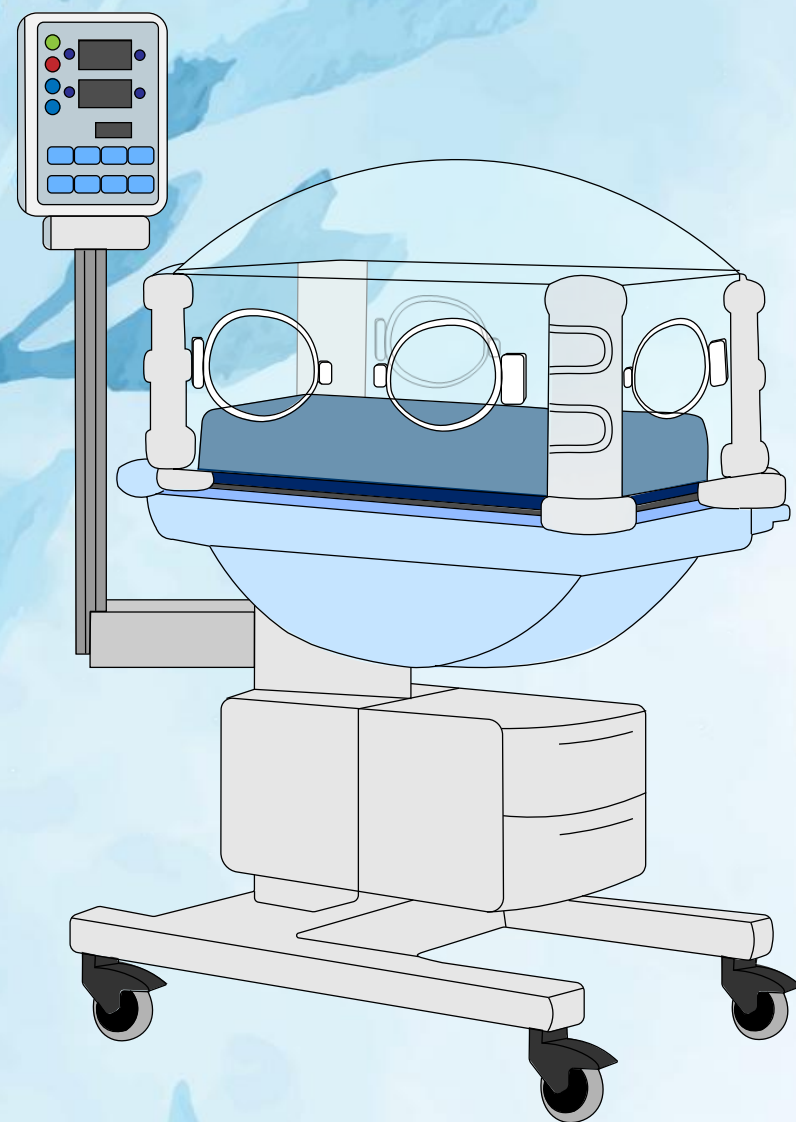


The Effect of Implementing the SENSE[®] Program on Kangaroo Care and Provision of Mother's Own Milk in a Level IV NICU



Authors: Destiny Preble and Dr. Kinsey Roth

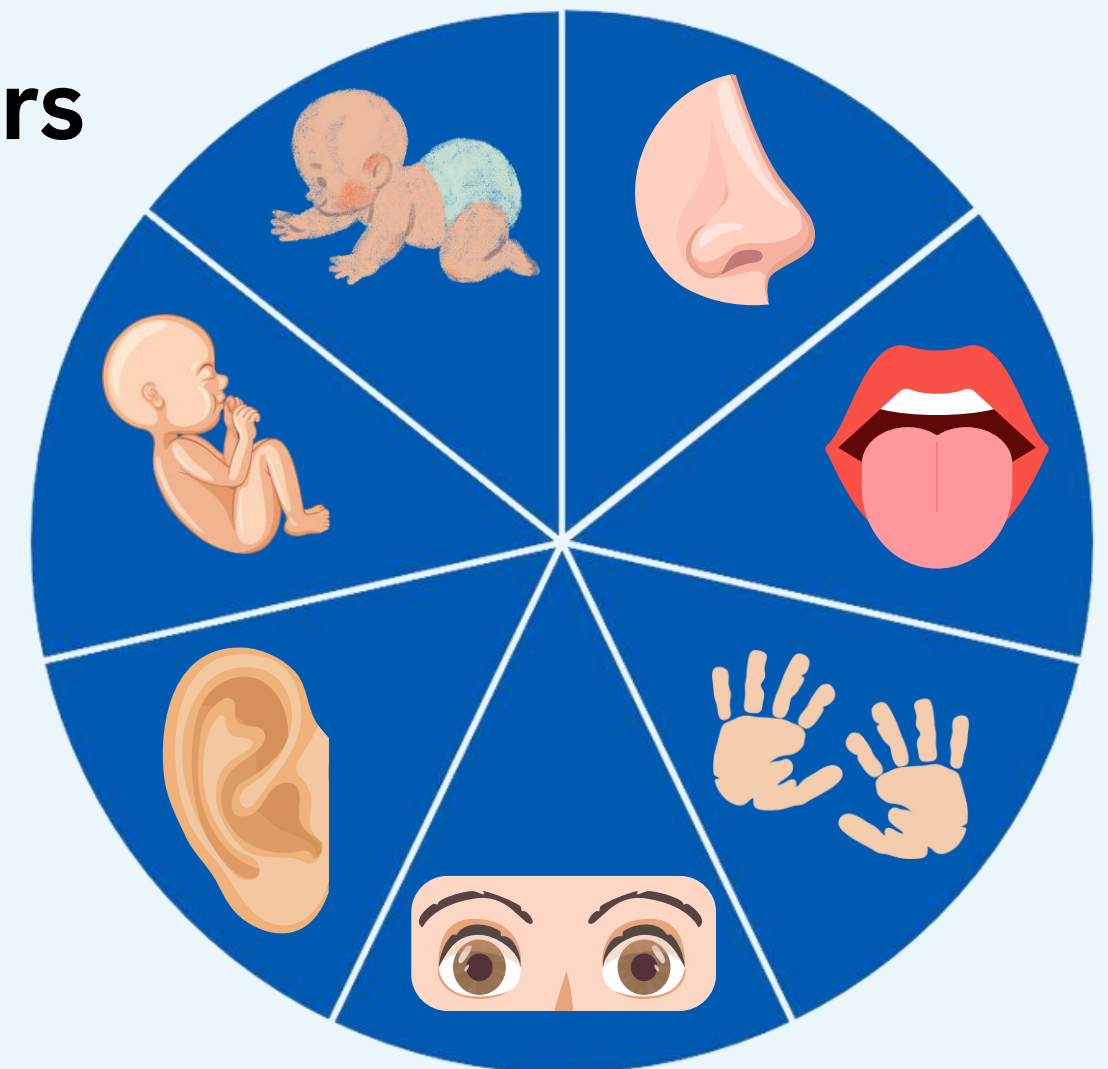


What is SENSE®?

(Supporting and Enhancing NICU Sensory Experiences)

A Neurodevelopmental Model Empowering Caregivers

- Developed by the USC Chan Division of Occupational Science and Occupational Therapy NICU Therapy Lab
- Implementation Guide for Healthcare Professionals
- Parent Education Guide and Log Sheets
- Parent Week-by-Week Booklet for Care



Approach Behaviors: “I’m Ready to Interact”



Focused
Attention

Baby will make
eye contact
with you.



Bright Eyed
& Sucking
Movements

Regular
Breathing Rate



Face, Arms, and Legs Relaxed



Good Color



Awake, Quiet, & Alert

PREVIEW

Baby nestled, relaxed, and ready for comforting touch.

Sensory Support: 32 Weeks*

*Denotes change from previous week

Here are some things to do with your baby each day this week
(as long as tolerated)



Touch

Give at least 2 hours of positive touch each day by doing one or more of these things:

- Provide a hand hug.
- Do kangaroo care (skin-to-skin) for at least 1 hour.
- Hold your baby in a blanket for 15 minutes at a time, or longer if your baby's temperature remains stable.
- Do massage for up to 15 minutes.



Hearing

Give at least 1 ½ hours of positive sound each day by doing one or more of these things:

- Read, sing, and/or speak to your baby (can be broken up into 30 minute periods several times per day).
- Play soft music or recorded voice.

*At the sound of whisper or quiet conversation.



Smell

Provide at least 1 hour per day of parent scent or the smell of breast milk.



Seeing

- Cycle light to your baby with natural light (or lights on, when there is no natural light) during the day and dim light or darkness at night.
- Avoid direct and bright lights.



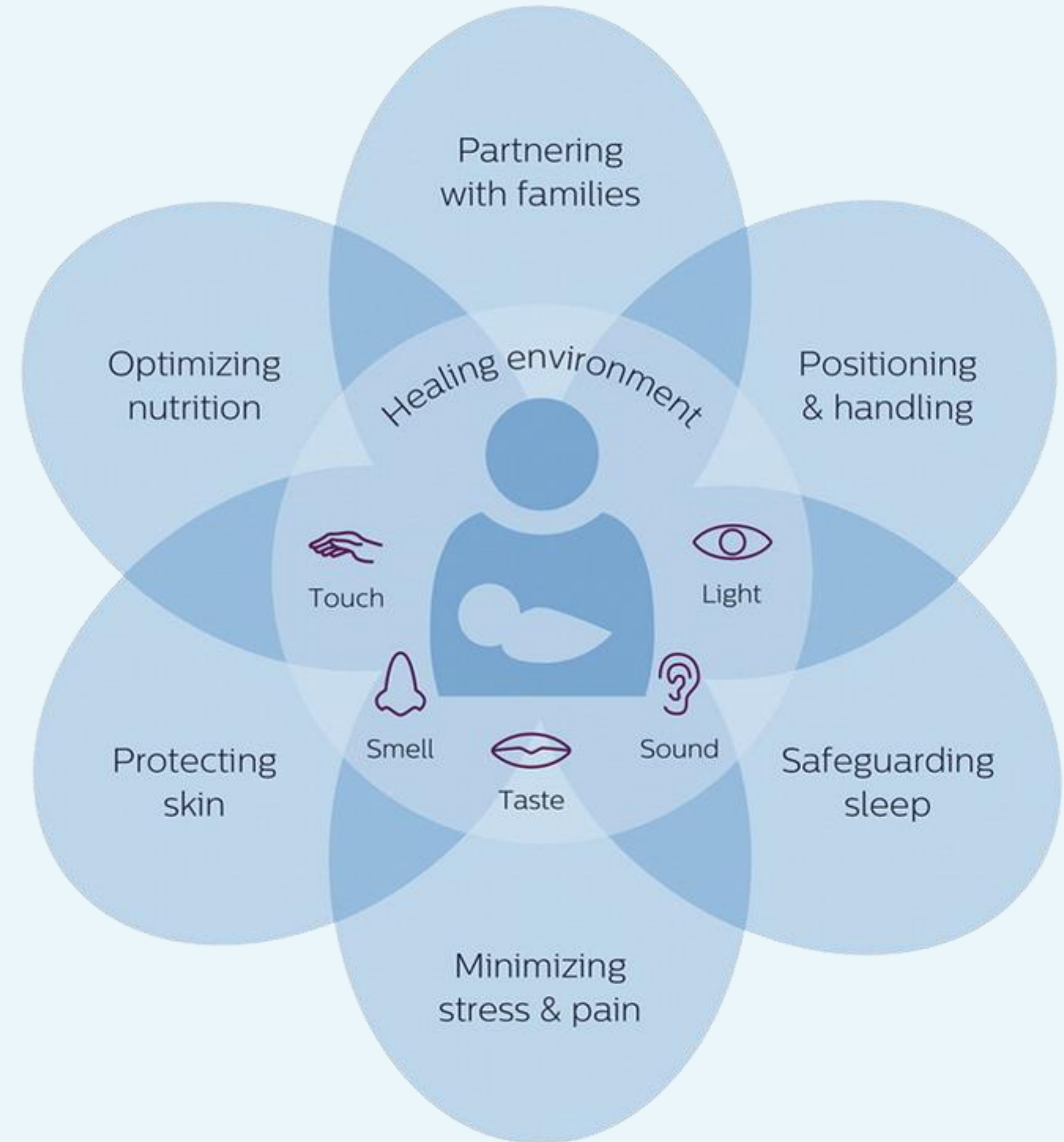
Movement & Body Awareness

- Unwrap your baby and allow stretching and free movement for at least 2 minutes prior to a diaper change at least 3 times per day.
- Allow your baby to experience being in at least 2 different positions for at least 10 minutes each.
- Rock during holding for at least 3 minutes.

Similar Programs

NIDCAP

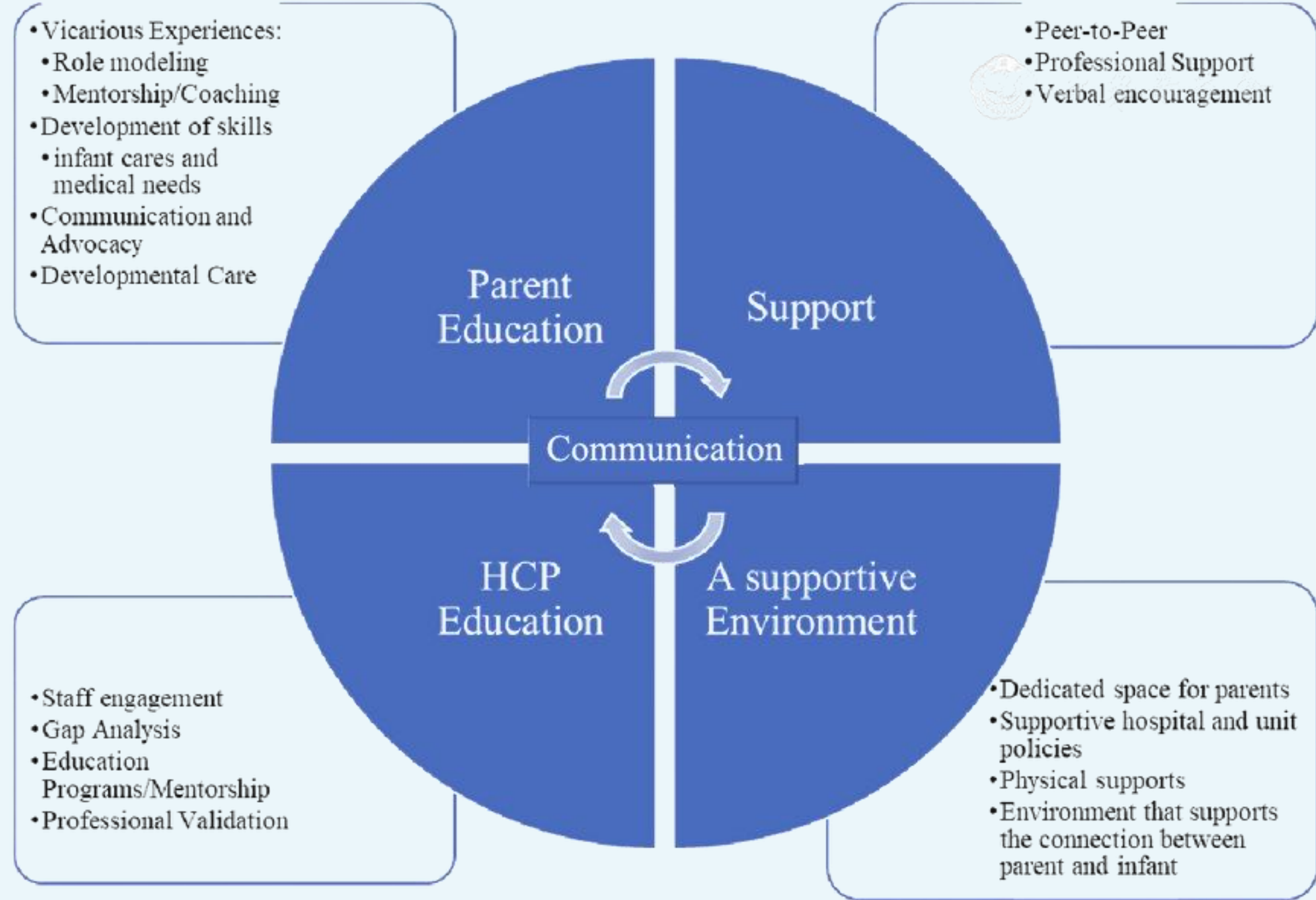
- Newborn
- Individualized
- Developmental
- Care and Assessment
- Program



Similar Programs

FIcare

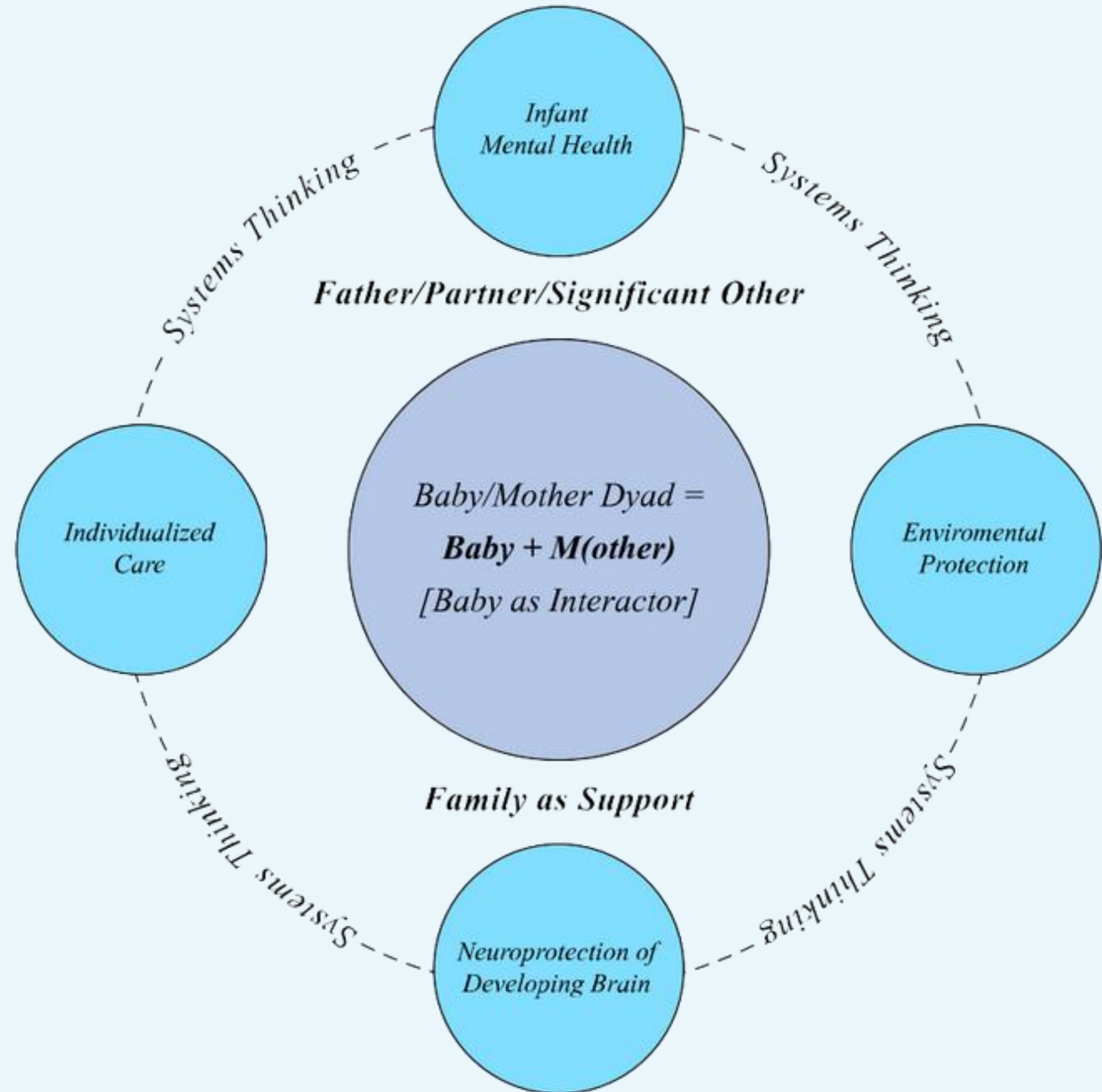
- Family
- Integrated
- Care



Similar Programs

IFCDC

- Infant- and
- Family-Centered
- Developmental
- Care



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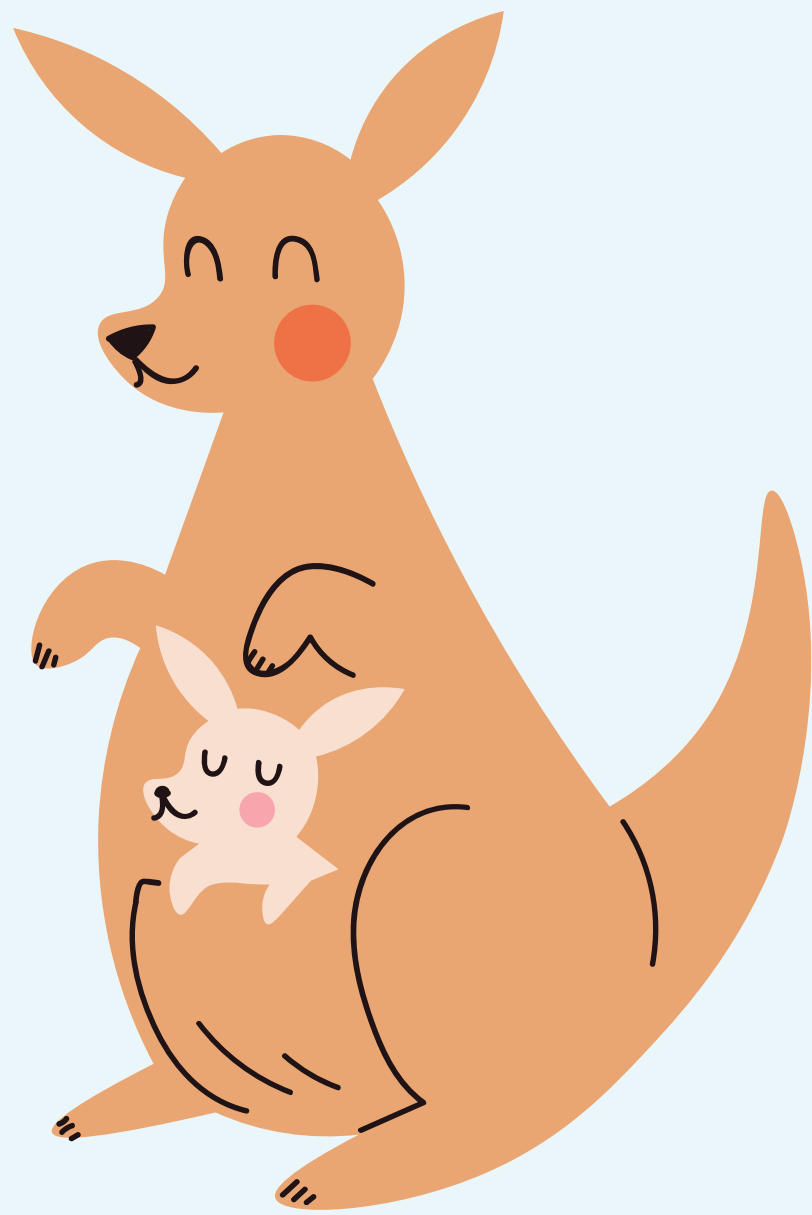
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Movement & Body Awareness

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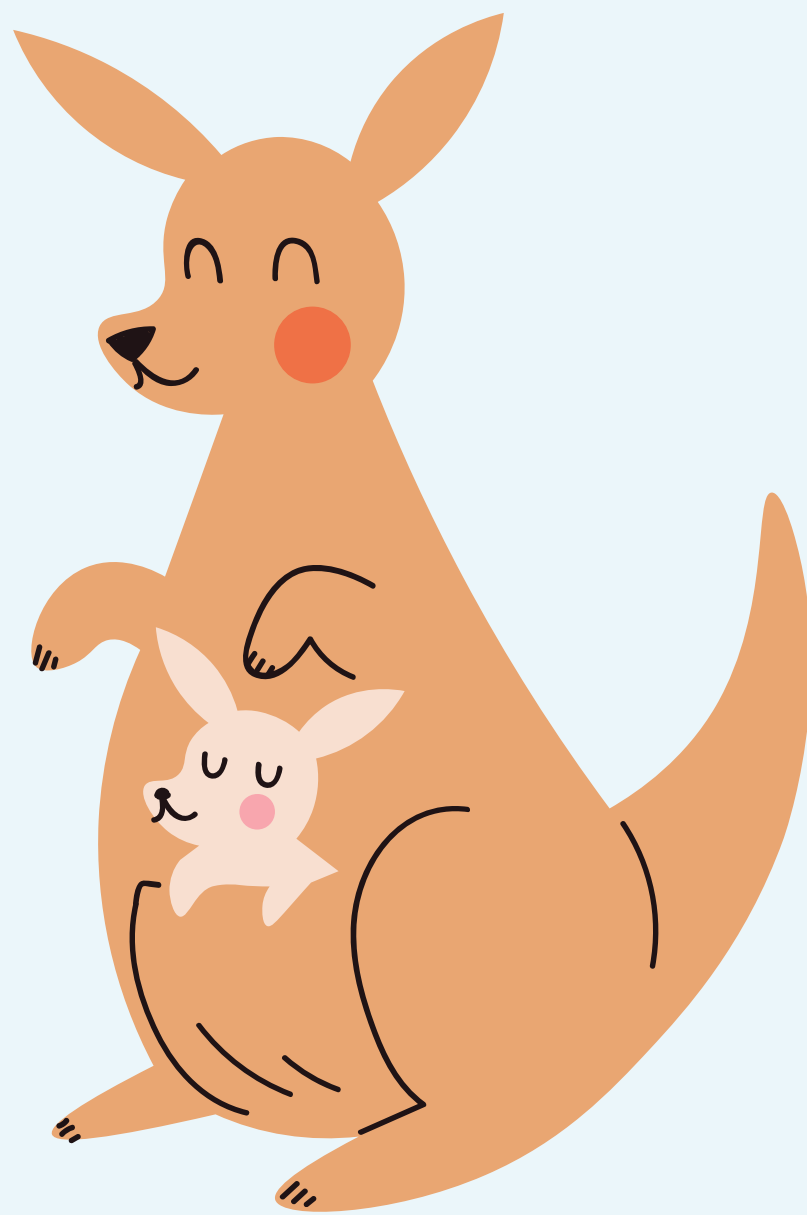


Why do kangaroo care?

- Improved Homeostasis
- Improved Growth
- Improved Neurodevelopment
- Improved Parent-Infant Attachment
- Improved Pain Responses
- And...



Why do kangaroo care?



- **Improved Breastfeeding Rates**
 - **Initiation**
 - **Duration**
 - **Exclusivity**
- **Which leads to...**
- Fewer Infections (esp. NEC)
- Less Retinopathy of Prematurity (ROP)
- Less Bronchopulmonary Dysplasia (BPD)
- And more!





Terminology

**Bottle
Feeding**

At the Breast

**Fortified
Milk**

**Syringe
Feeding**

**Provision of
Mother's Own
Milk**

**Expressed
Milk**

**NG/OG Tube
Feeding**

- Breastfeeding in the context of this presentation refers to the provision of mother's own milk.
- An exclusively breastfed baby might have had donor milk in addition to its mother's own milk.

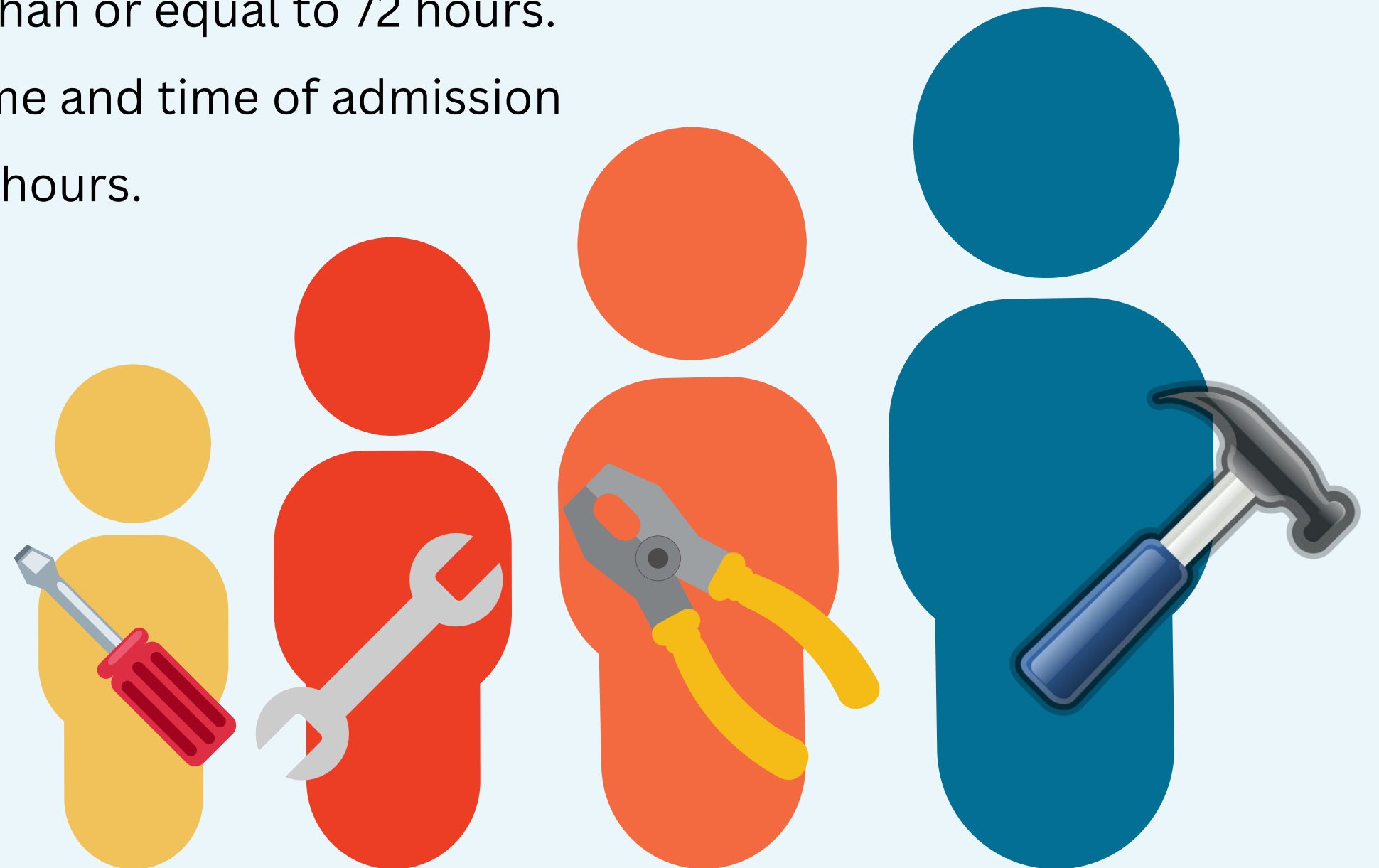
What is our population and tools used?

Criteria:

- Admitted to the WVU Children's Hospital NICU between 06/01/2024 - 12/01/2024.
- Length of Stay was greater than or equal to 72 hours.
- Difference between birth time and time of admission was less than or equal to 24 hours.

Tools:

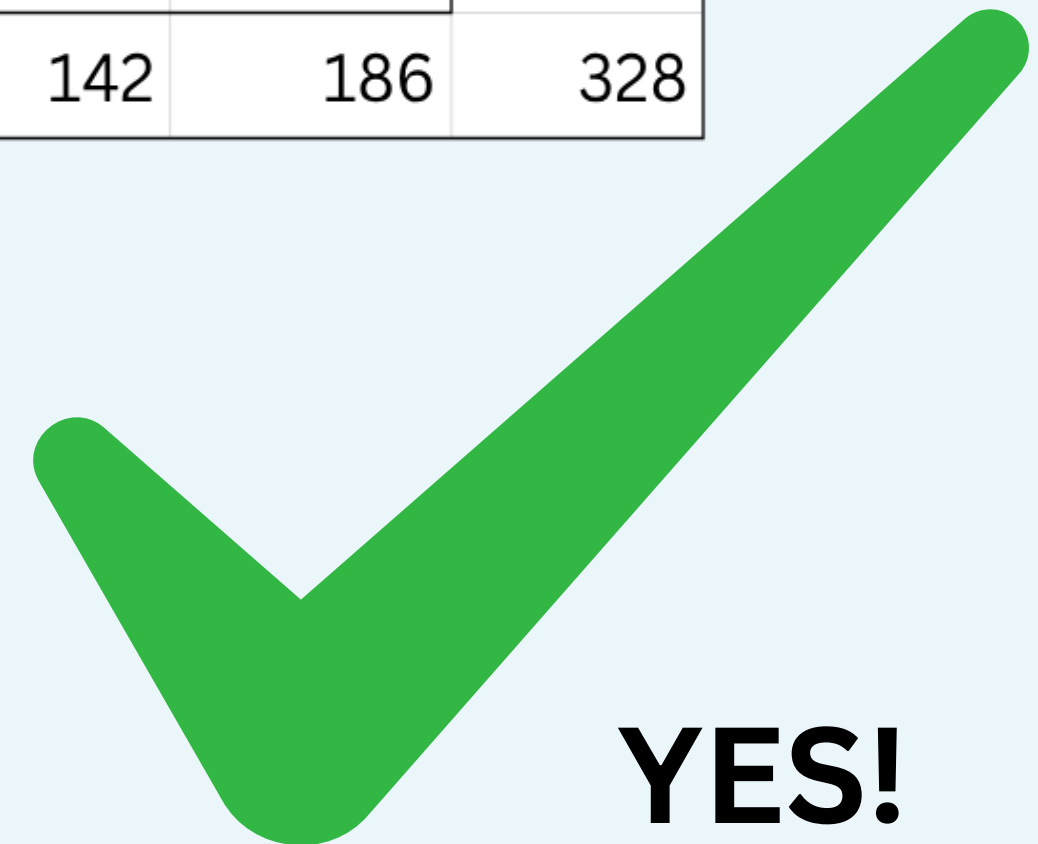
- Excel, Real Statistics
- WVU EPIC
- WVU Tableau



Does SENSE® Education Increase Kangaroo Care Initiation?

<u>Actual</u>					<u>Expected</u>			
	SENSE+	SENSE-				SENSE+	SENSE-	
KC+	65	35	100		KC+	43.293	56.707	100
KC-	77	151	228		KC-	98.707	129.293	228
	142	186	328			142	186	328

Chi-Square Test
 $P = 1.48 \times 10^{-7}$



YES!

Does SENSE® Education Increase Kangaroo Care Rate?

Mean Rate of KC in SENSE+	0.066566461
Mean Rate of KC in SENSE-	0.016107582

- Units are in instances per day!
- Neither group was normally distributed, per Shapiro-Wilks tests.
- Data was skewed due to the large number of children that never received KC.

Mann-Whitney U Test
P = 0.004



YES!

Does SENSE® Education Decrease the Time to First KC?

Mean Day of Life for 1st KC in SENSE+	6.2 days
Mean Day of Life for 1st KC in SENSE-	5.3 days

- This data included only babies that received any KC at all.
- Neither group was normally distributed, per Shapiro-Wilks tests.
- Data was skewed toward the right, as some families received SENSE education far into their stay.
- Note:
 - Median = ~3.4d (SENSE+); ~3.6d (SENSE-)
 - STD = ~9.4d (SENSE+); ~11.4d (SENSE-)

Mann-Whitney U Test
P = 0.503



Inconclusive...

Does SENSE® Education Increase the Number of Babies Given Breastmilk Just Prior to Discharge?

<u>Actual</u>					<u>Expected</u>			
	SENSE+	SENSE-				SENSE+	SENSE-	
Breast Milk	63	59	122		Breast Milk	53.093	68.907	122
Formula	78	124	202		Formula	87.907	114.093	202
	141	183	324			141	183	324

Chi-Square Test
P = 0.022



YES!

Sanity Check: Is that also true for KC?

<u>Actual</u>					<u>Expected</u>			
	Breast Milk	Formula				Breast Milk	Formula	
KC+	51	48	99		KC+	37.278	61.722	99
KC-	71	154	225		KC-	84.722	140.278	225
	122	202	324			122	202	324

Chi-Square Test

$$P = 6.36 * 10^{-4}$$



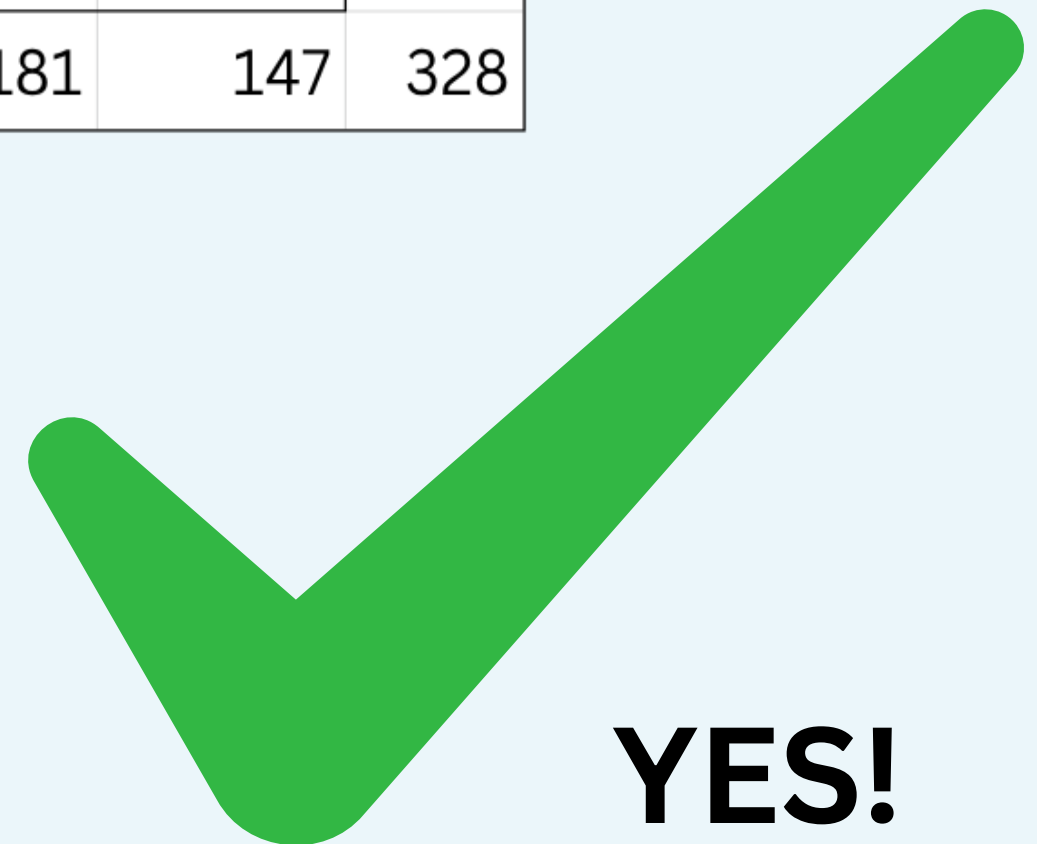
YES!

Does SENSE® Education Increase the Number of Babies Given Any Breast Milk?

<u>Actual</u>					<u>Expected</u>			
	Any BF	No BF				Any BF	No BF	
SENSE+	100	42	142		SENSE+	78.360	63.640	142
SENSE-	81	105	186		SENSE-	102.640	83.360	186
	181	147	328			181	147	328

Chi-Square Test

$$P = 1.24 * 10^{-6}$$



YES!

Sanity Check: Is this also true for KC?

<u>Actual</u>					<u>Expected</u>			
	Any BF	No BF				Any BF	No BF	
KC+	73	27	100		KC+	55.183	44.817	100
KC-	108	120	228		KC-	125.817	102.183	228
	181	147	328			181	147	328

Chi-Square Test

$$P = 1.73 * 10^{-5}$$



YES!

Does SENSE® Education Increase the Number of Exclusively Breastfed Babies?

<u>Actual</u>				<u>Expected</u>			
	EBF	Not EBF			EBF	Not EBF	
SENSE+	18	124	142	SENSE+	14.287	127.713	142
SENSE-	15	171	186	SENSE-	18.713	167.287	186
	33	295	328		33	295	328

Chi-Square Test
P = 0.169



Inconclusive...

Sanity Check: What about for KC?

<u>Actual</u>				<u>Expected</u>			
	EBF	Not EBF			EBF	Not EBF	
KC+	16	84	100	KC+	10.061	89.939	100
KC-	17	211	228	KC-	22.939	205.061	228
	33	295	328		33	295	328

Chi-Square Test

P = 0.018



YES!

Discussion

SENSE® education increased

- KC Initiation
- KC Rate
- Any Breastfeeding
- Breastfeeding at Discharge

KC increased

- Any Breastfeeding
- Breastfeeding at Discharge
- Exclusive Breastfeeding

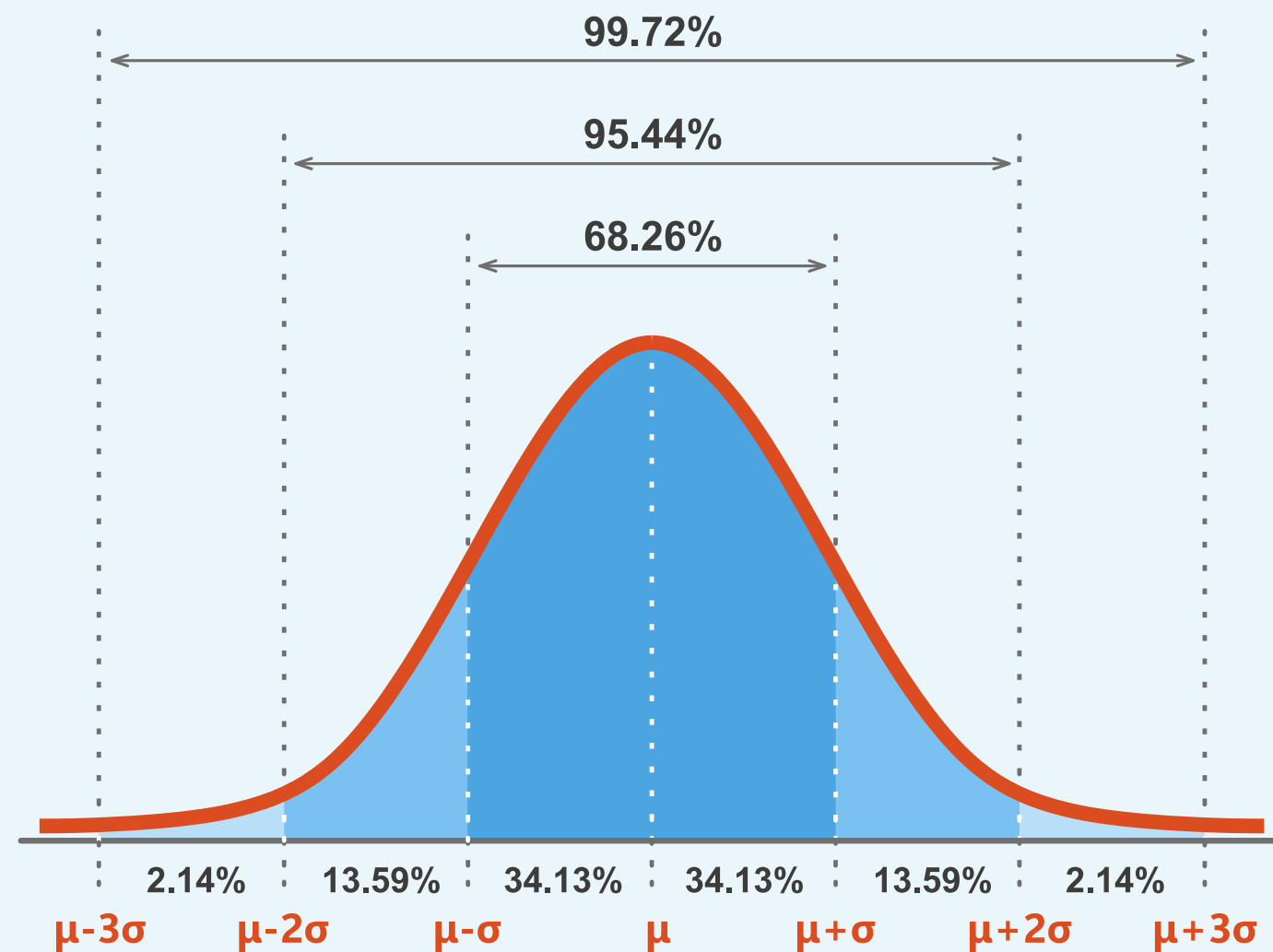


**ONLY YOU
CAN ADOPT A PROGRAM**

Discussion

Limitations

- Retrospective Study
- Variable Education Time
- Effect & Sample Size



Sample size: Chi-square tests

Input	
Effect Size	0.1
df	1
Statistical Power	0.8
Alpha	0.05
# of Iterations	1000

Output	
Noncentrality	7.85
Critical value	3.841458820694
Sample Size	785
Actual Power	0.800056926886

Discussion

Future Outlook

- Larger Sample Sizes
- Other Metrics
 - Mortality
 - Growth
 - Infections
- Incentive Systems



A special thank you to you all!



Michelle Large

Sue Morrison

Information and Technology Services