

“Safe sleep: what do the data tell us?”

Nancy Swigonski, MD MPH MBA FAAP
nswigons@iu.edu



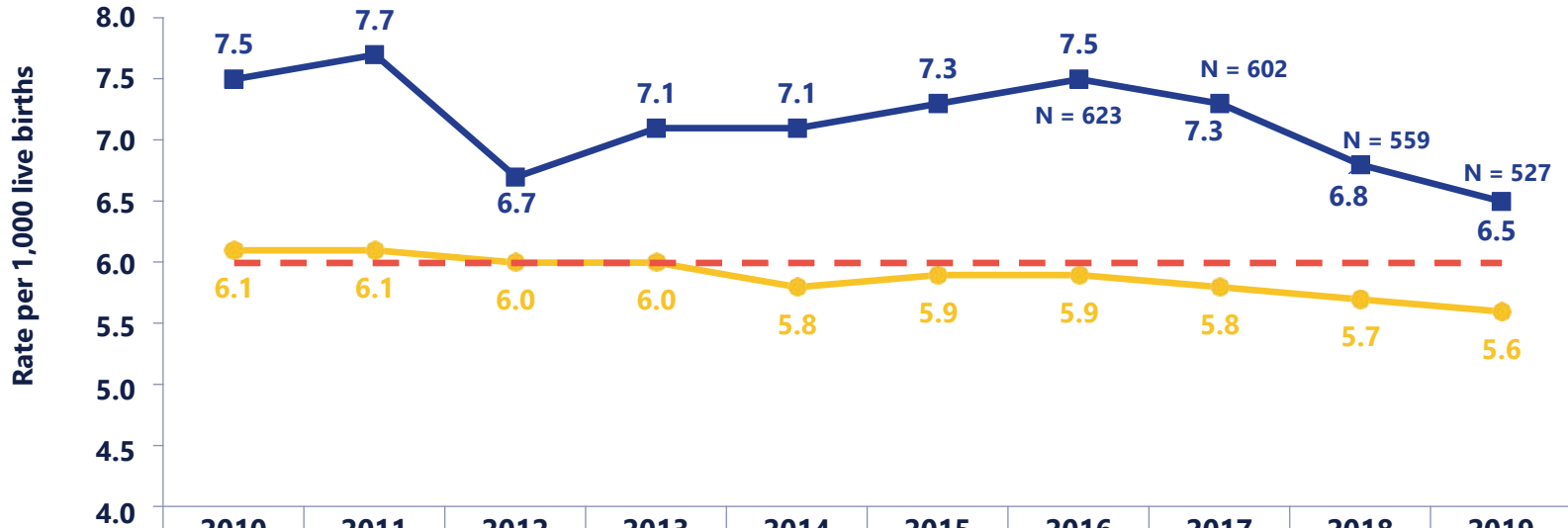
What do the data tell us?

State infant mortality rate is improving –
_ continued racial / ethnic disparities
_ still too high



Infant Mortality Rates (IMRs)

2010-2019



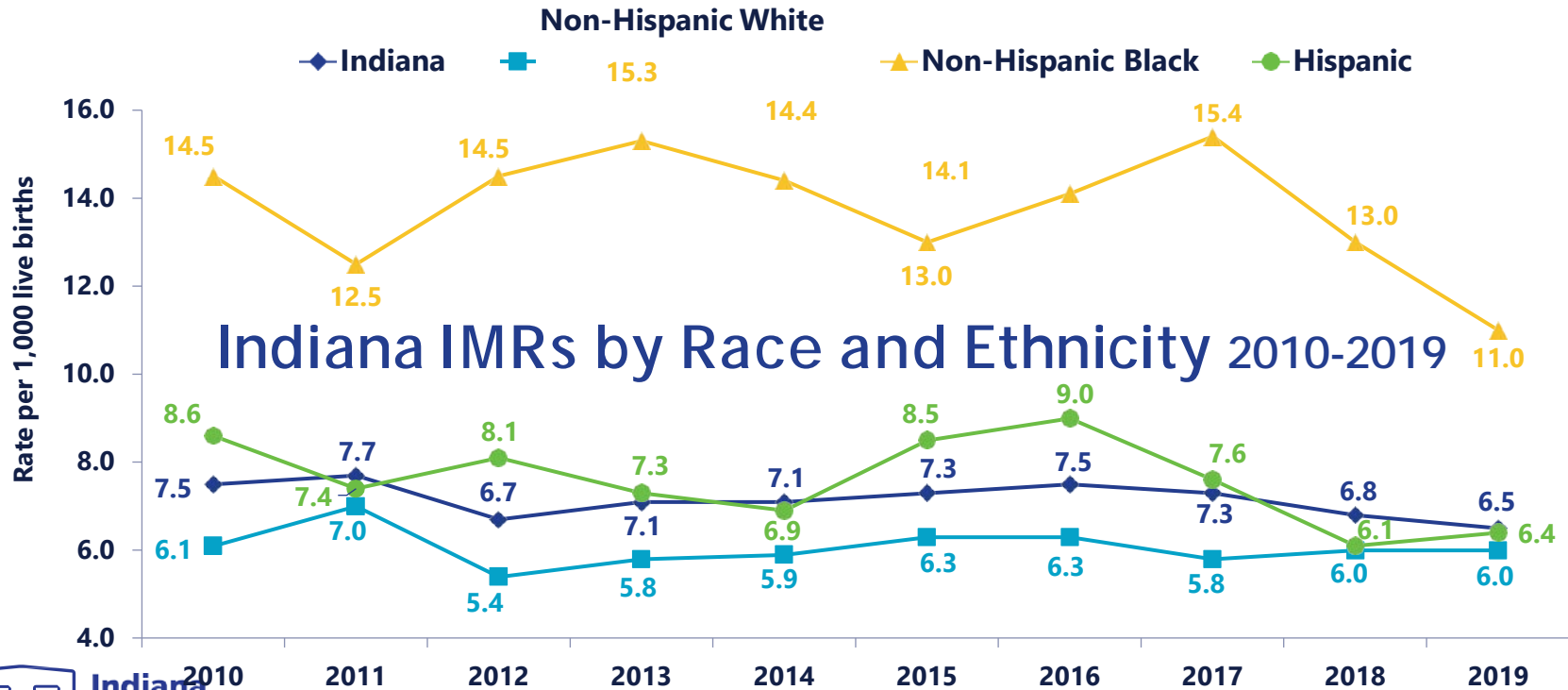
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
■ Indiana	7.5	7.7	6.7	7.1	7.1	7.3	7.5	7.3	6.8	6.5
● U.S.	6.1	6.1	6.0	6.0	5.8	5.9	5.9	5.8	5.7	5.6
- · - HP 2020 Goal	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0



Source: Indiana Department of Health, Maternal & Child Health Epidemiology Division [December 22, 2020] United States Original Source: Centers for Disease Control and Prevention National Center for Health Statistics Indiana Original Source: Indiana Department of Health, Vital Records, ODA, Data Analysis Team

What do data tell us?

We continue to see marked racial disparities.



What do the data tell us?

Infant Mortality in Indiana 2019 = 527 babies



**1-2 babies
per day**

**One baby every
16.6 hours**



What do the data tell us?
Infant Mortality in Indiana 2019 = 527 babies

80,851 live births in IN

**If IN had US IMR of 5.6,
74 more babies would live to see their first birthday**

More than 1 baby per week would be saved



What do the data tell us?

Allen County – among the highest disparities
_racial / ethnic
_zip code



What do the data tell us?

Allen County has marked racial /ethnic disparities 2015 - 2019 County-Level Rates by Race/Ethnicity

Stable NH Black Infant Mortality Rates

Elkhart, 22.8

Allen, 14.7

Lake, 13.8

St. Joseph, 15.5

Vanderburgh, 14.6

Marion, 11.9

Stable NH White Infant Mortality Rates*

Jay, 14.6

Dubois, 8.6

Grant, 8.0

Shelby, 10.7

Vigo, 8.3

Clark, 7.8

Adams, 9.9

LaPorte, 8.1

Stable Hispanic Infant Mortality Rates

Allen, 9.1

Lake, 7.4

Elkhart, 8.2

Marion, 6.6

Indiana

NH Black IMR = 11

NH White IMR = 6.0

Hispanic IMR = 6.4

What do the data tell us?

46806 2nd worst IMR in state in 2012-2016

Zip Code	County	Births	Deaths	Infant Mortality Rate (IMR)	White IMR	Black IMR
46312	Lake	2,417	40	16.5	12.8*	25.8
46806	Allen	2,335	37	15.8	12.0*	24.0
46324	Lake	1,429	21	14.7	16.1*	19.6*
47302	Delaware	1,795	24	13.4	12.8	**
46619	St. Joseph	1,670	22	13.2	4.6*	21.2*
46226	Marion	3,532	46	13.0	6.0*	15.1
46205	Marion	2,394	30	12.5	10.7*	14.1*
46203	Marion	3,206	40	12.5	10.7	13.9*
46218	Marion	2,505	31	12.4	**	15.6
46229	Marion	1,978	23	11.6	**	15.3*
46947	Cass	2,000	22	11.0	8.3*	**
46201	Marion	2,872	30	10.4	5.4*	17.8*
46235	Marion	3,245	33	10.2	6.4*	11.3

*Numerator less than 20, the rate is unstable.

**Rate has been suppressed due to five or fewer outcomes.



What do the data tell us?

46806 10th worst IMR in state in 2015-2019 Highest

Zip Code	County	Births	Deaths	IMR	NH White IMR	NH Black IMR	Hispanic IMR
46404	Lake	1096	21	19.2	**	20.0	**
→ 46516	Elkhart	2952	39	13.2	5.9*	30.4*	12.8*
→ 46619	St. Joseph	1620	21	13.0	11.2*	14.8*	13.1*
→ 46218	Marion	2492	32	12.8	**	16.9	**
→ 47302	Delaware	1599	20	12.5	12.0*	**	**
46203	Marion	2856	34	11.9	9.3*	15.2*	19.4*
46628	St. Joseph	2075	24	11.6	**	16.9*	**
46176	Shelby	1734	20	11.5	12.4*	**	**
→ 46235	Marion	3308	37	11.2	9.3*	12.1	9.6*
→ 46806	Allen	2328	26	11.2	9.7*	16.3*	8.3*
→ 46312	Lake	2158	24	11.1	**	16.1*	8.4*
46947	Cass	1893	20	10.6	9.5*	**	14.6*
46260	Marion	2494	26	10.4	5.6*	17.2*	**



*Rates based on counts less than 20 are considered unstable and should be interpreted with caution.

**Rates based on counts less than 5 have been suppressed.

NH = Non-Hispanic
Added to the table this year.

→ On the list in 2013-2017, 2014-2018, and 2015-2019.

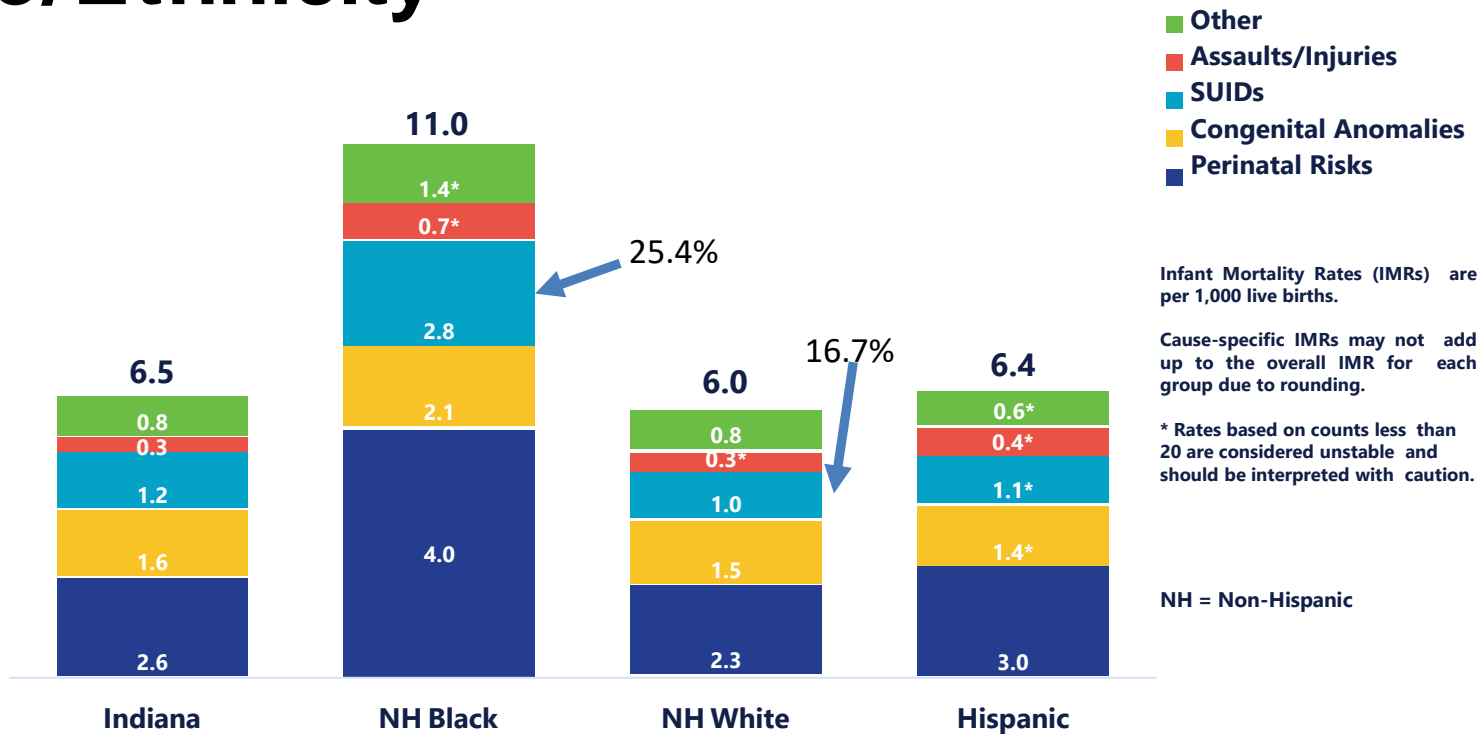
What do the data tell us?

Improvements in IMR not in SUIDs

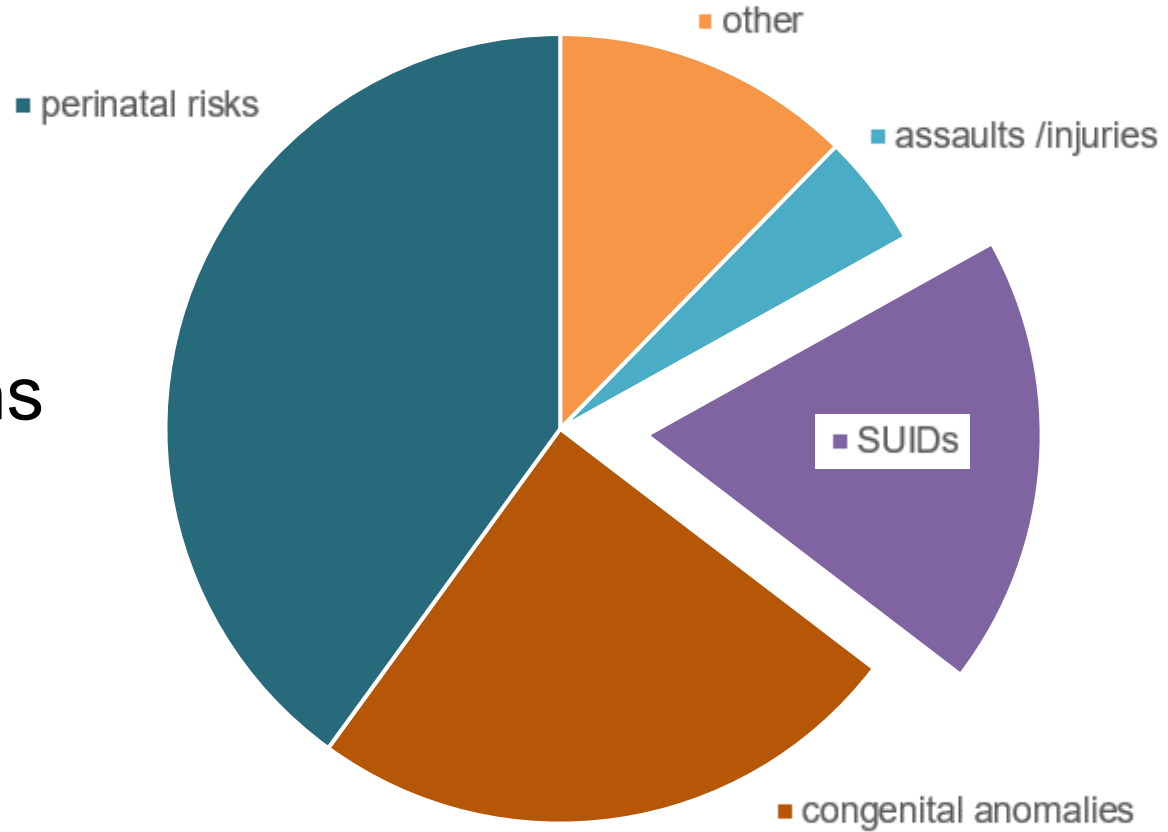
Disparities in SUIDs continued but improved



2019 Cause-Specific IMR by Race/Ethnicity

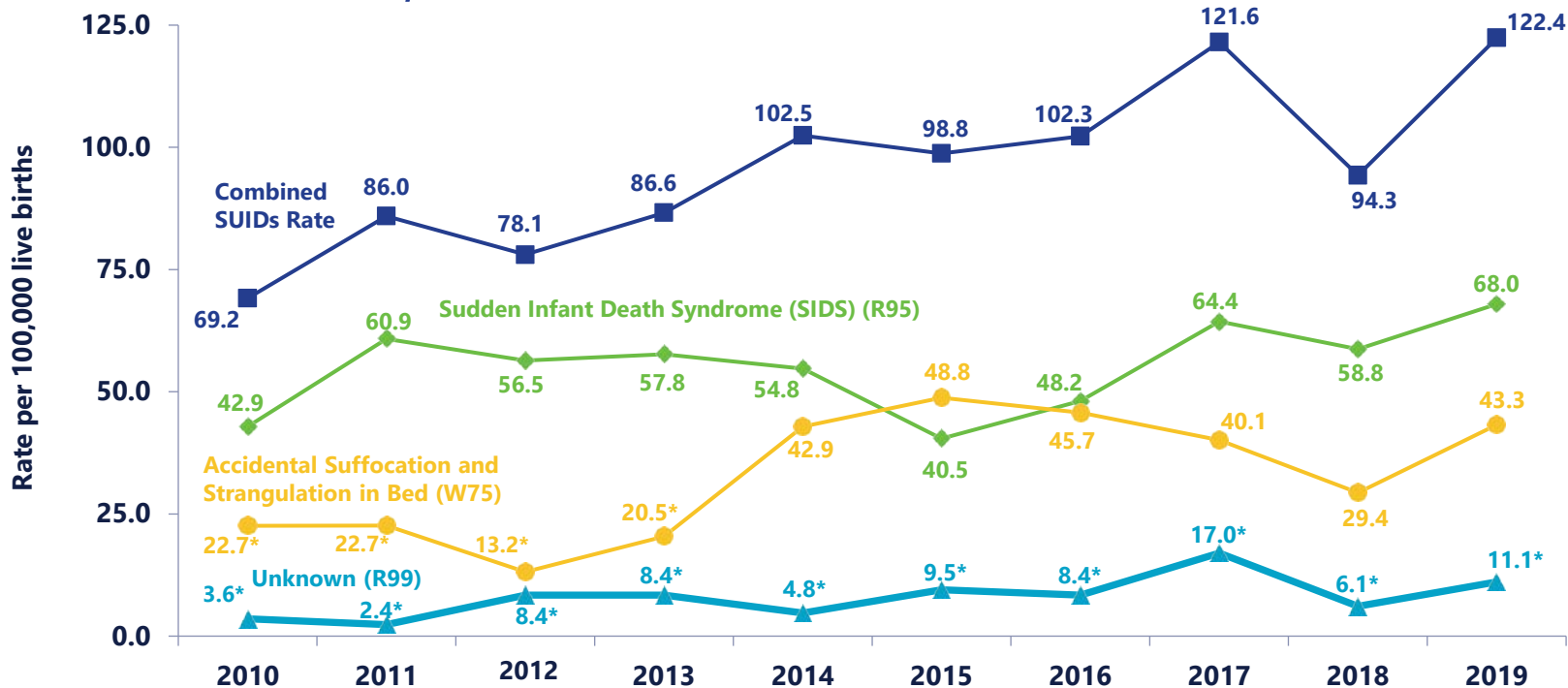


SUIDS
~1 out of 5 deaths



SUIDs Rates by Cause

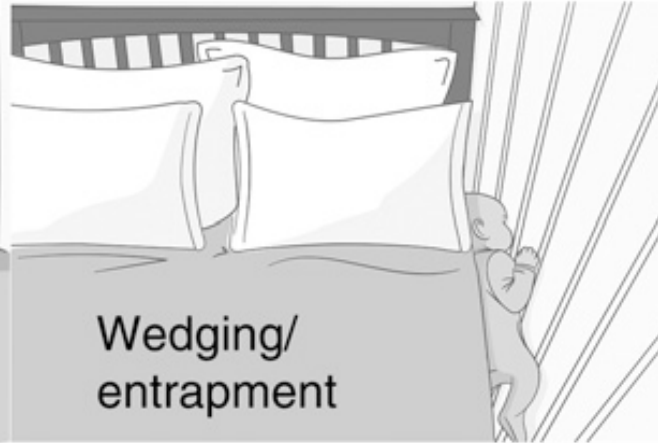
Indiana, 2010-2019



* Rates based on counts less than 20 are considered unstable and should be interpreted with caution.
SUIDS = W75, R95, R99

Accidental Suffocation and Strangulation in Bed (W75)

Mechanisms of explained or possible suffocation occurring in an unsafe sleep environment specified in the CDC SUID Case Registry classification system.



Parks SE, Erck Lambert AB, Hauck FR, et al. Explaining Sudden Unexpected Infant Deaths, 2011–2017. *Pediatrics*. 2021;147(5):e2020035873



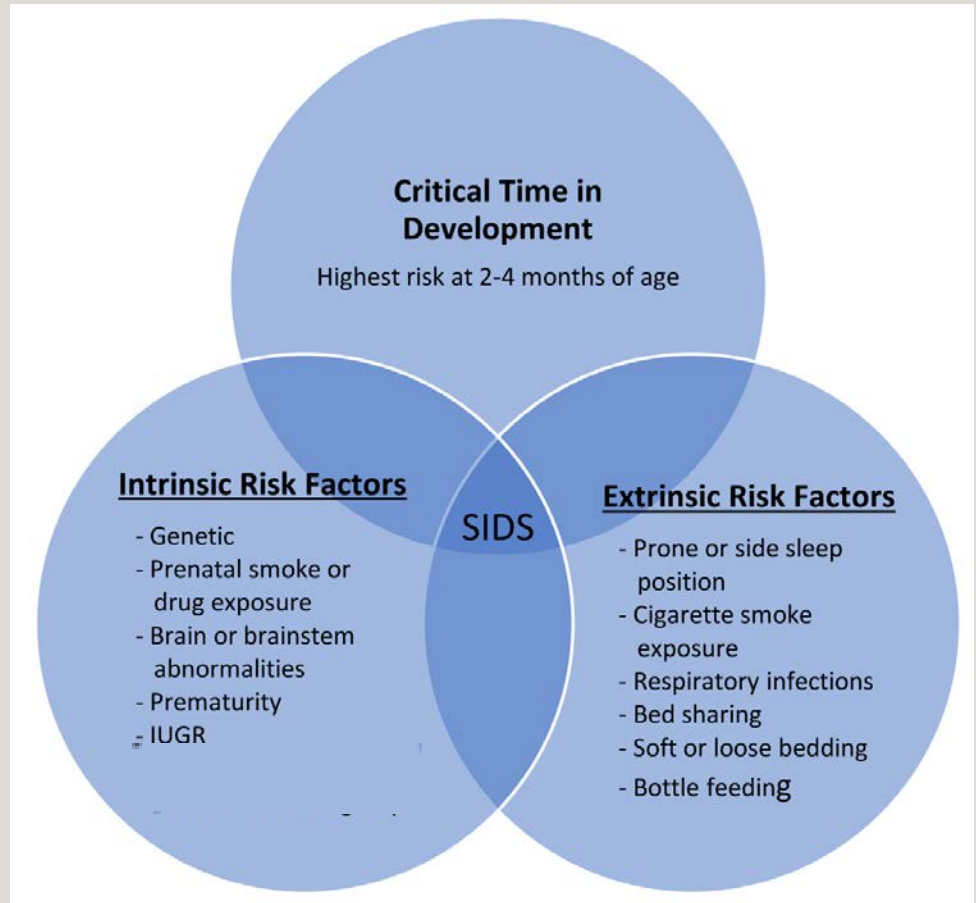
What do the data tell us?

**Triple Risk Model of SIDs is still
leading explanatory model**



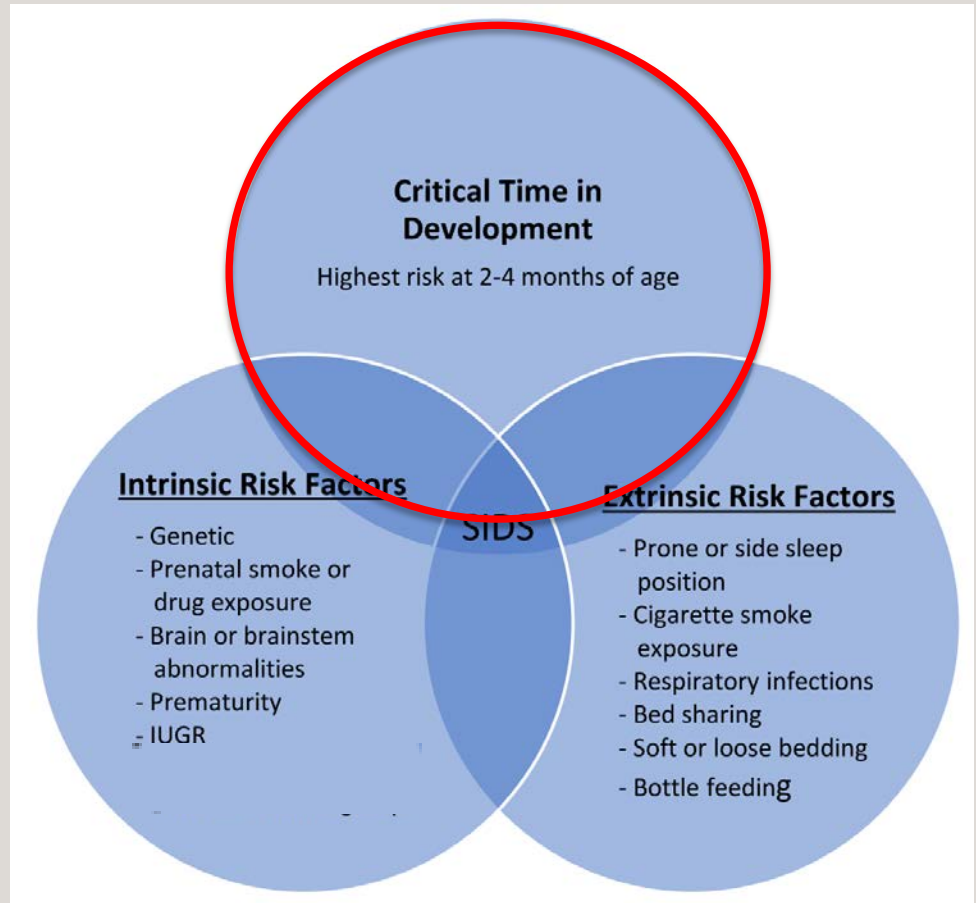
Triple Risk Model

Filiano JJ, Kinney HC. A perspective on neuropathologic findings in victims of the sudden infant death syndrome: the triple-risk model. *Biol Neonate*. 1994;65(3-4):194-197. doi:10.1159/000244052.



Triple Risk Model

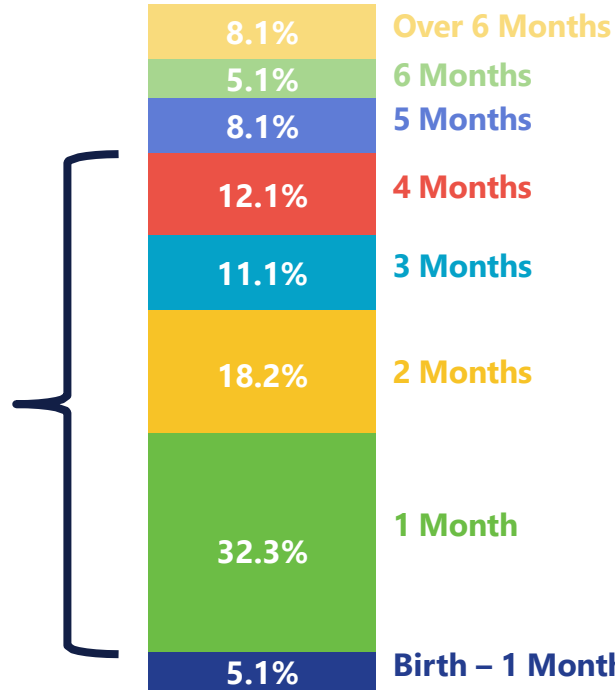
Filiano JJ, Kinney HC. A perspective on neuropathologic findings in victims of the sudden infant death syndrome: the triple-risk model. *Biol Neonate*. 1994;65(3-4):194-197. doi:10.1159/000244052.



2019 SUIDs by Age of the Baby

73.7%

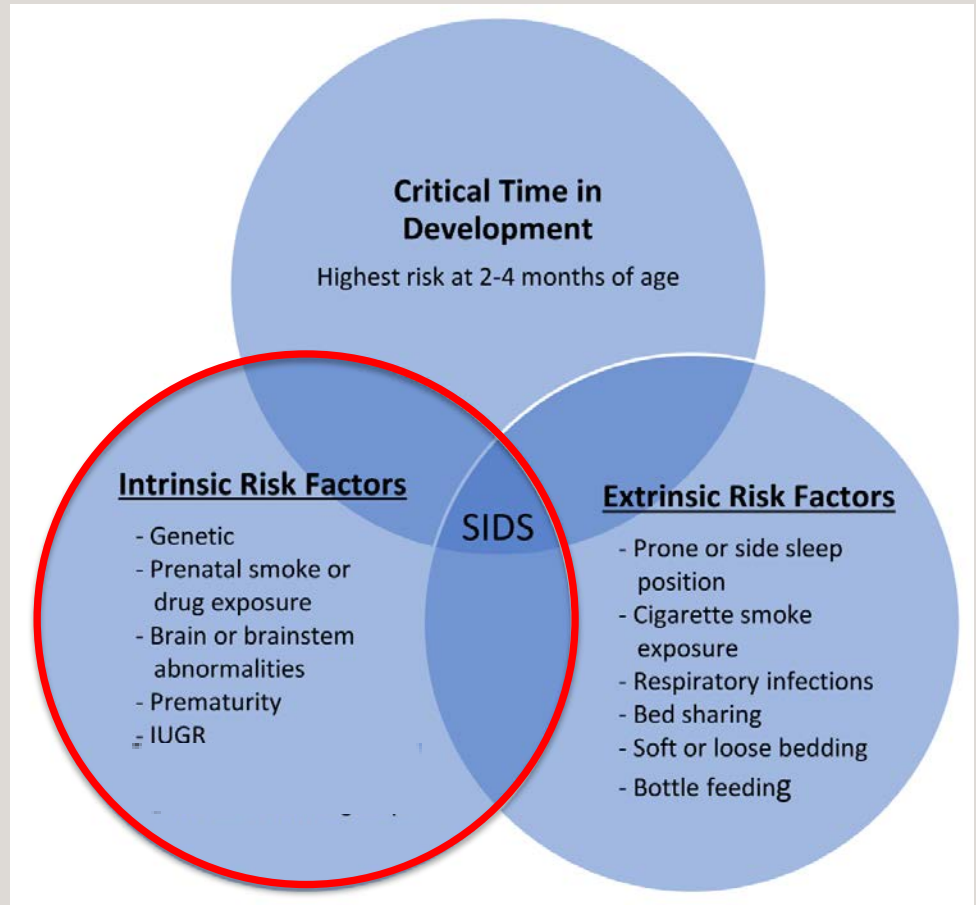
of Indiana SUIDs
occurred between
1 month and 5 months



Time-specific percentages may not add up to 100% overall due to rounding.

Triple Risk Model

Filiano JJ, Kinney HC. A perspective on neuropathologic findings in victims of the sudden infant death syndrome: the triple-risk model. *Biol Neonate*. 1994;65(3-4):194-197. doi:10.1159/000244052.



What do the data tell us?

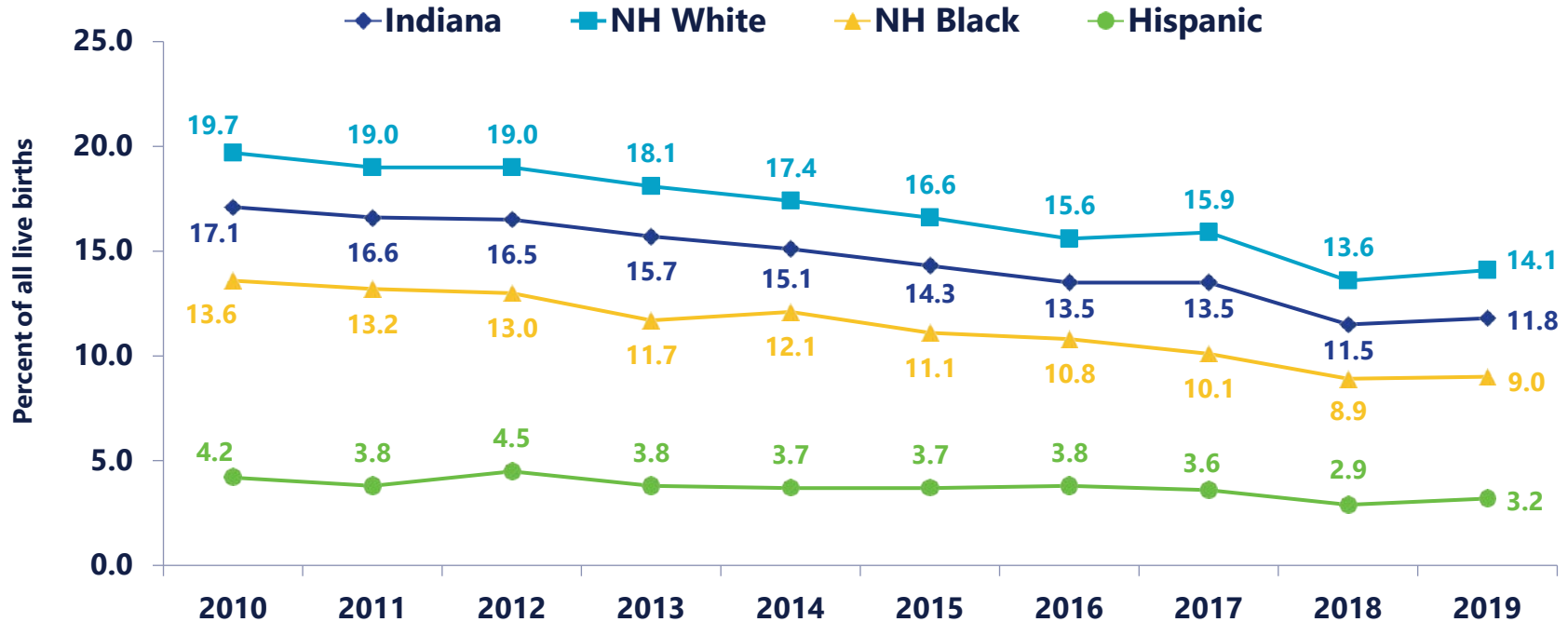
SIDS intrinsic risk factors

	% LBW (< 2,500 G)	% PRETERM (< 37 WKS GESTATION)	% SMOKING	% NOT BREASTFEEDING
INDIANA	8.2	10.1	11.8	18.0
ALLEN	8.8	9.6	8.5 ^s	20.9 ^s



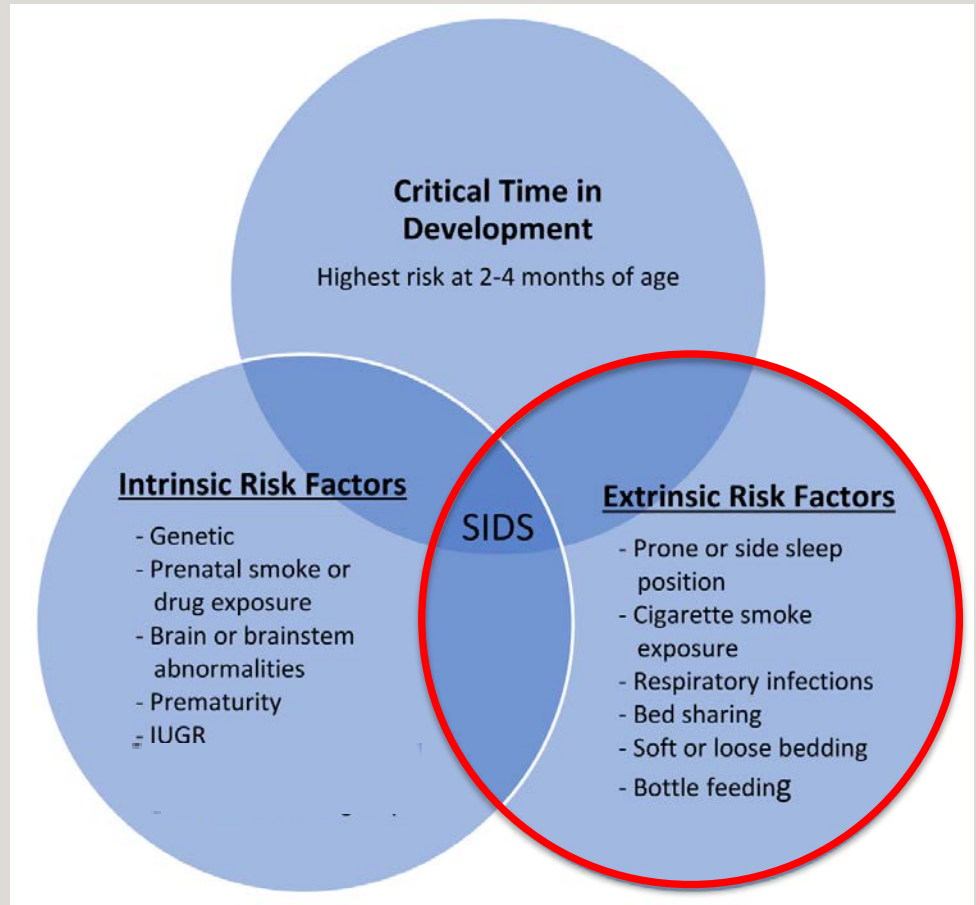
% Women Smoking During Pregnancy

Indiana by Race and Ethnicity, 2010-2019



Triple Risk Model

Filiano JJ, Kinney HC. A perspective on neuropathologic findings in victims of the sudden infant death syndrome: the triple-risk model. *Biol Neonate*. 1994;65(3-4):194-197. doi:10.1159/000244052.



Extrinsic factors –

What do the data tell us?

_ prone (tummy sleeping)

_ soft bedding

Remain most common risk factors for SIDS



A safe sleep environment was defined as one where

- the infant was found supine on a firm sleep surface, including a crib or bassinet mattress, portable crib, or pack-and-play,
- the sleep surface was free of soft objects, loose bedding, bumper pads, or any objects that could increase the risk for suffocation

Parks SE, Erck Lambert AB, Hauck FR, et al. Explaining Sudden Unexpected Infant Deaths, 2011–2017. *Pediatrics*. 2021;147(5):e2020035873



Sudden Unexpected Infant Deaths, 2011–2017

TABLE 1 Demographic Characteristics of SUIDs by Assigned SUID Category, 2011–2017

Characteristic	Total	SUID Case Registry Categories				
		Explained, Suffocation With Unsafe Sleep Factors	Unexplained, Possible Suffocation With Unsafe Sleep Factors	Unexplained, Unsafe Sleep Factors	Unexplained, No Unsafe Sleep Factors	Unexplained, Incomplete Information ^a
Total, <i>n</i> (%)	4929	899 (18)	649 (13)	2022 (41)	55 (1)	1304 (27)

Parks SE, Erck Lambert AB, Hauck FR, et al. Explaining Sudden Unexpected Infant Deaths, 2011–2017. *Pediatrics*. 2021;147(5):e2020035873



OUT OF 105 SUIDS REVIEWED

99

Mentioned at least one unsafe sleep factor

4

Provided inadequate information for the CFR committee to determine if the sleeping environment was unsafe

2

Had no unsafe sleep factor



In 99 of the 105 deaths, infant was placed to sleep in an environment with at least one unsafe sleep factor



It's Not Simple Math

Babies who *sleep on their tummies* have a 5 times greater risk of SIDS.

5



Babies who *sleep on soft bedding* have a 5 times greater risk of SIDS.

5

21

Babies who *sleep on their tummies on top of soft bedding* have a 21 times greater risk of SIDS.



Pre/Pilot Data vs. Post Safe Sleep Engagement Data Behavior Results

Safe Sleep Behavior/ ?	Pre/Pilot Survey Data	Post Survey Data
How often is there a cushion, pillow, blanket, or sheepskin in crib/ under baby?	Never: 66%	Never: 85%
To keep baby warm at night the safer option to a blanket is	Wearable Blanket: 59%	Wearable Blanket: 85%
How often do you use a wedge	Never: 74%	Never: 92%
How often is there a bumper pad around the edge of the crib	28%	26%
Sleeping in an adult bed	60.4%	57%

UNSAFE BEDDING IS THE LEADING CAUSE OF UNEXPECTED INFANT DEATH

Stuffed Toys/Soft Bedding



Bumper Pads and Pillows



Very young infants are unable to move away from hazards that can impair their breathing.

BABY SLEEPS SAFEST:

**ALONE
ON THEIR
BACK
IN THEIR
CRIB**



Babies should always sleep Alone, flat on the Back, in their own empty Crib or bassinet.

#SafeSleepIndy

Marion County FIMR Community Safe Sleep Workgroup: A Part of the Community Action Team/ Community Action Network

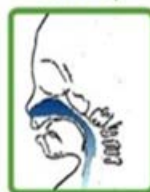
ALL INFANT INCLINED SLEEPERS INCREASE RISK OF SUFFOCATION!



"There is no safe way to use infant inclined sleepers!"
-Consumer Product Safety Commission (CPSC)

These devices position infants at an angle that allows a baby's head to slump forward, blocking airflow, and making it easier for a baby to roll over into the sidewalls or head rest, interfering with breathing.

Chin Up



Airway Open

Chin-to-Chest



Airway Blocked

Babies should always sleep alone, flat on their backs, in their own empty crib or bassinet.

#SafeSleepIndy

Marion County FIMR Community Safe Sleep Workgroup: A part of the Community Action Team/ Community Action Network

These products, including those made by other manufacturers, have been linked to at least 73 infant deaths and more than 1,000 incidents, many of them resulting in serious injuries.

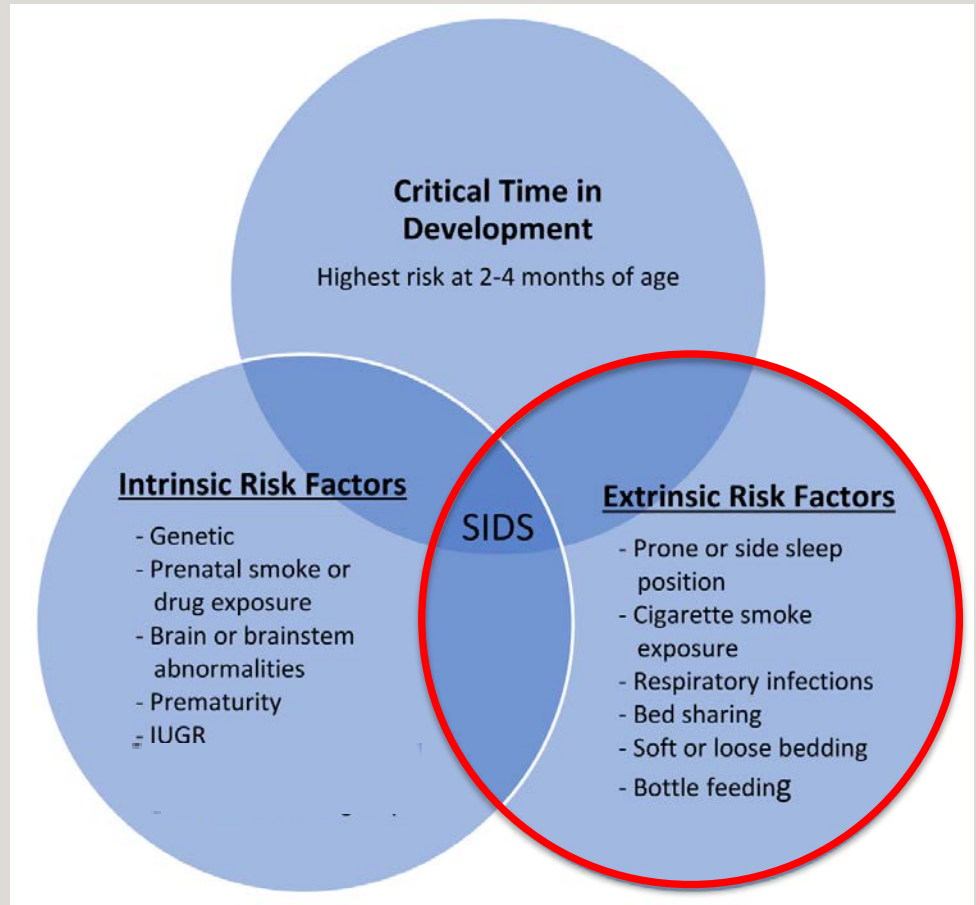
Safe Sleep for Babies Act: the U.S. Senate is now considering legislation to ban infant inclined sleeper's manufacture and sale.

More than 5 million infant inclined sleepers have been recalled. The Consumer Product Safety Commission has warned caregivers not to use any inclined sleepers. For more information:



Triple Risk Model

Filiano JJ, Kinney HC. A perspective on neuropathologic findings in victims of the sudden infant death syndrome: the triple-risk model. *Biol Neonate*. 1994;65(3-4):194-197. doi:10.1159/000244052.



Breastfeed Your Baby to Reduce the Risk of SIDS

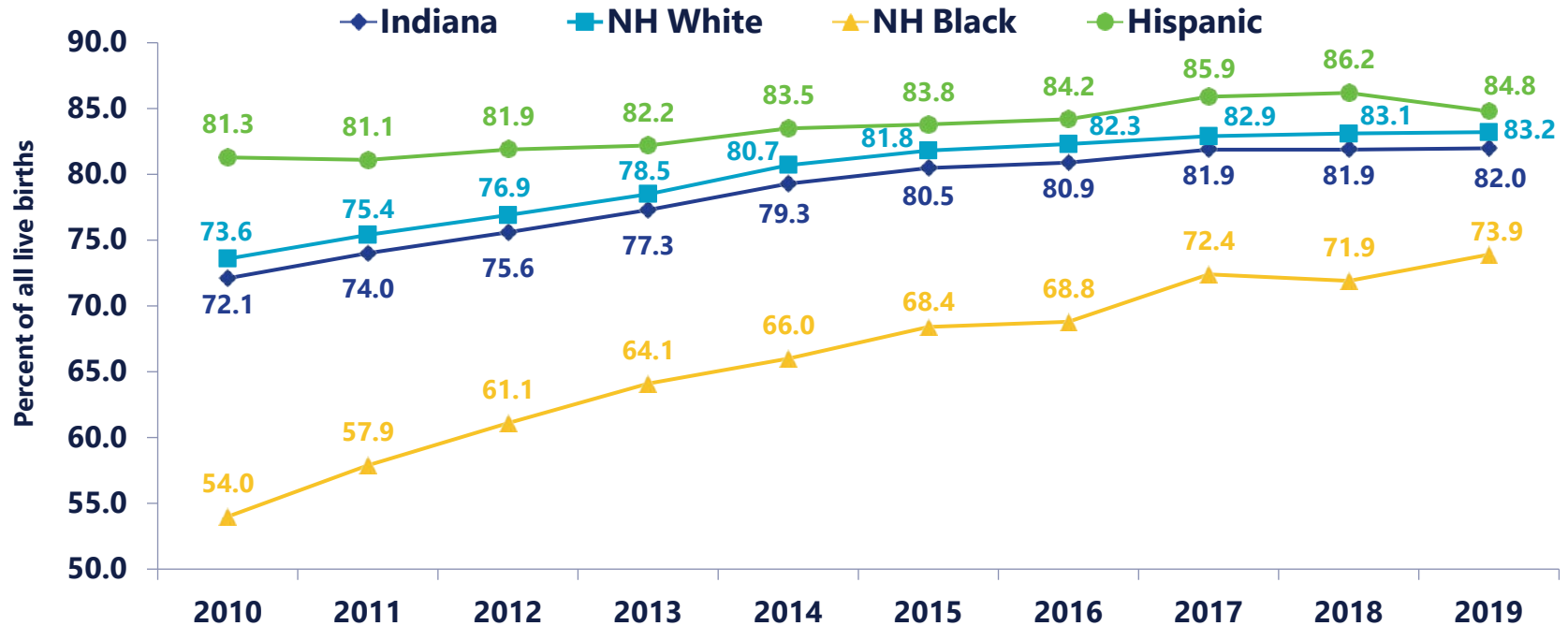
Many moms and moms-to-be know that breastfeeding offers many benefits for moms and babies. But they may not know that breastfeeding reduces baby's risk for Sudden Infant Death Syndrome (SIDS).

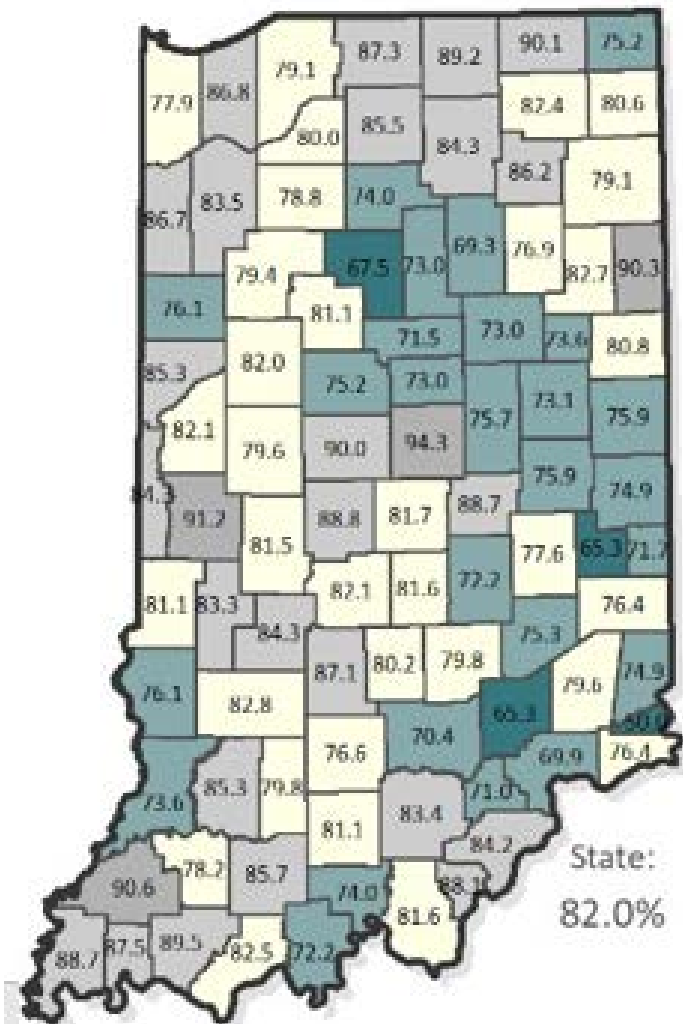
Babies who are breastfed or are fed expressed breastmilk are at lower risk for SIDS compared with babies who were never fed breastmilk. According to research, the longer you exclusively breastfeed your baby (meaning not supplementing with formula or solid food), the lower his or her risk of SIDS.



% Infants Breastfed at Hospital Discharge

Indiana by Race and Ethnicity, 2010-2019





Percent of Infants Breastfed at Discharge 2019

Bed sharing when parents do not smoke: is there a risk of SIDS?

“When neither parent smoked, and the baby was less than 3 months, breastfed and had no other risk factors, the AOR for bed sharing versus room sharing was 5.1.”

Carpenter R, McGarvey C, Mitchell EA, Tappin DM, Vennemann MM, Smuk M, Carpenter JR. Bed sharing when parents do not smoke: is there a risk of SIDS? An individual level analysis of five major case-control studies. *BMJ Open*. 2013 May 28;3(5):e002299. doi: 10.1136/bmjopen-2012-002299. PMID: 23793691; PMCID: PMC3657670.

Breastfeeding and Safe Sleep

“The AAP acknowledges that parents frequently fall asleep while feeding the infant.”

Give your baby
some space.

Share the room. Not the bed.



Breastfeeding and Safe Sleep

“To make feeding at night safer:

- **Feed in an adult bed**, not a sofa or armchair
- **No pillows, blankets or sheets on the bed**
- If the parent falls asleep while feeding the infant, the infant should be placed back on a separate, sleep surface as soon as the parent awakens

Give your baby
some space.

Share the room. Not the bed.



<https://www.ncemch.org/learning/building/>

Addressing the Problem

Building on Campaigns with Conversations is a new approach to supporting caregivers to help overcome barriers to safe sleep and breastfeeding. It is part of a greater trend in public health promotion—utilizing an individualized approach that takes into account each family's needs, beliefs, and the context of their lives. This training on the Conversations Approach is based on Ajzen's Theory of Planned Behavior and follows current recommendations from the American Academy for Pediatrics (AAP) for safe sleep and optimal breastfeeding for healthy infants.



Core Modules

The modules are designed to help you understand the Conversations Approach and gain the knowledge and skills needed to implement it to promote breastfeeding and safe sleep practices.

- A New Approach
- How Babies Sleep and Eat
- Understanding Current Recommendations
- Anticipating Reluctance and Refusal
- Respectful Dialogue and Structure of a Conversation
- Creating Plans to Support Family Decisions
- Putting It All Together to Make a Difference





INDIANA UNIVERSITY
SCHOOL OF MEDICINE



Indiana University Health

Data – How and Why We Use Data

- Our team utilizes data to ensure that our efforts are focused on the populations that would most benefit from our services
- When data does not match goals or expectations, we attempt to identify the barriers and improve the system
- The more data we are able work from the more reliable our results are



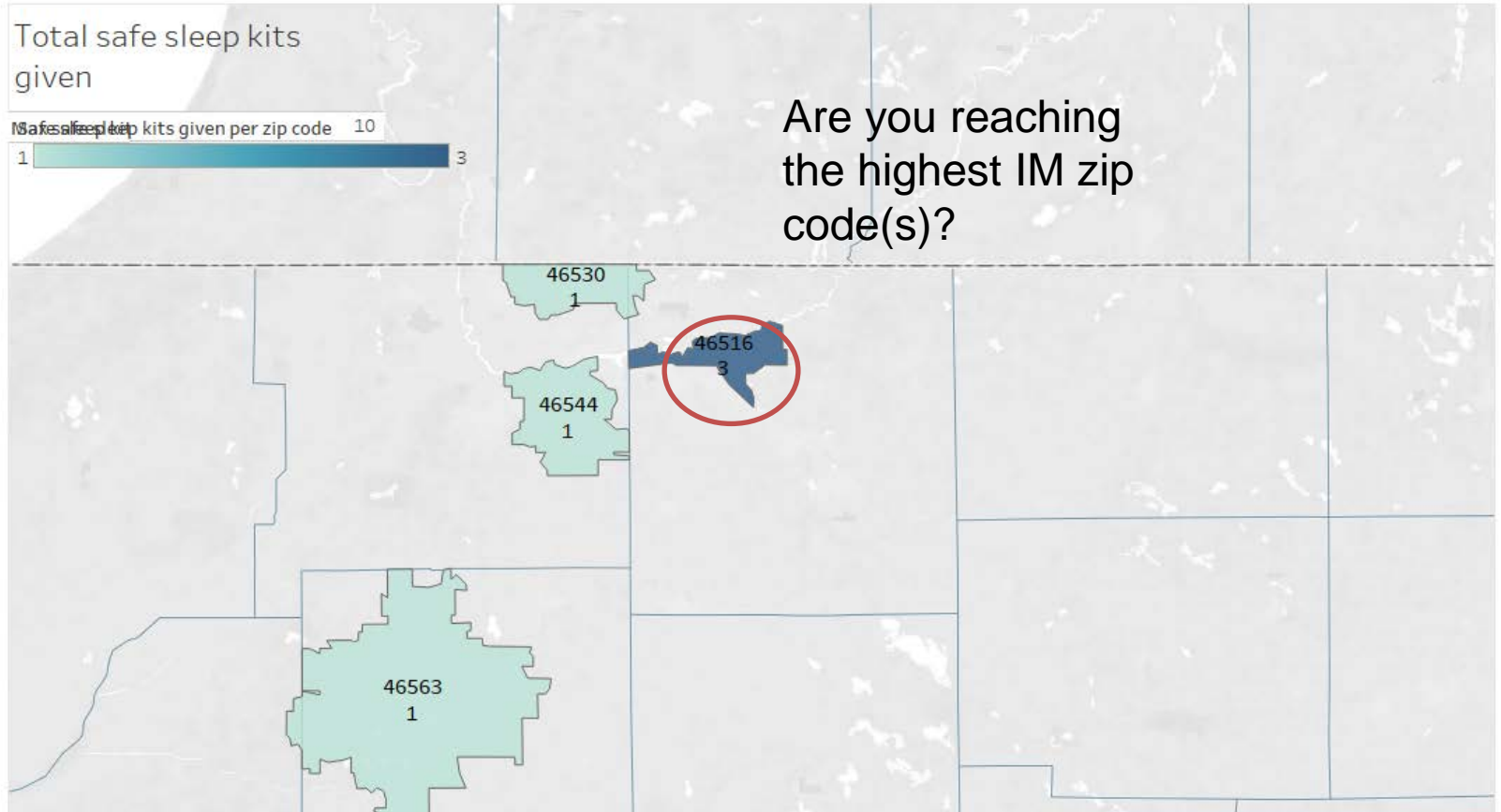
Data Use in Marion County

- In Marion County, the following data points are utilized most often with partners:
 - Mother's birthdate
 - Baby's birthdate
 - Zip code
 - Race
- As the data is entered, reports are automatically generated on a regular basis and distributed out as partners see fit

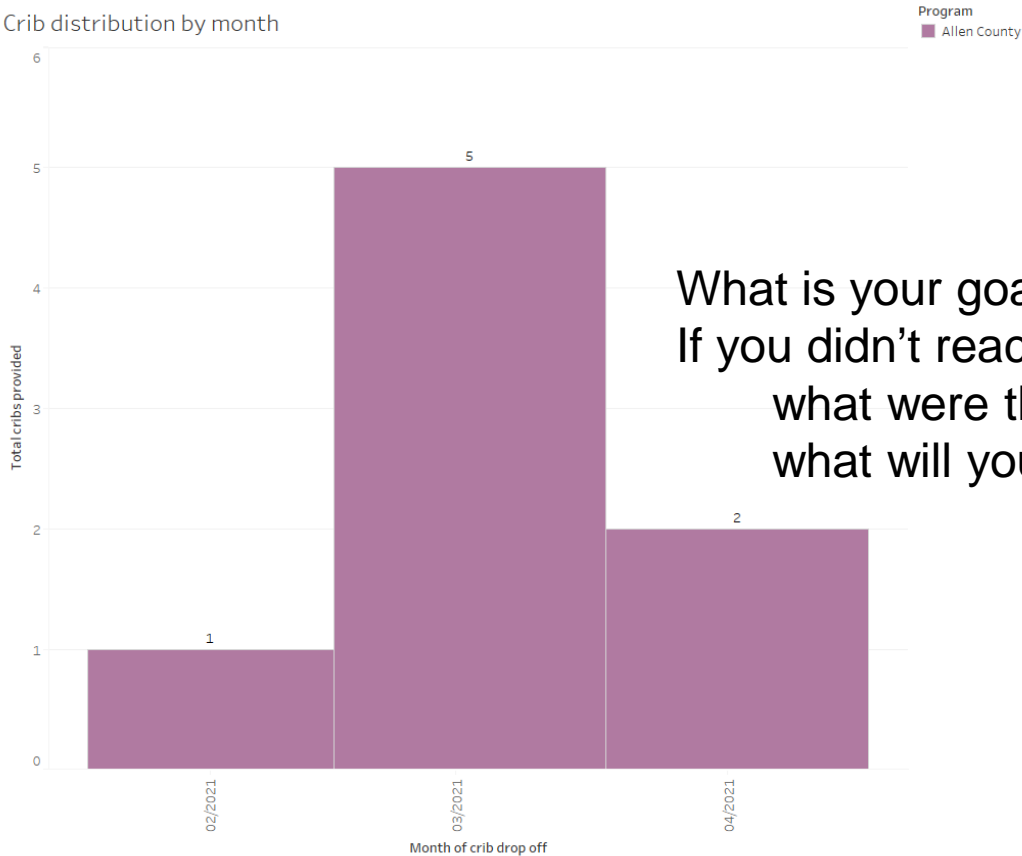


Example: Mapping of resource distribution in Allen County Safe Sleep Kits

Map of total safe sleep kits given in Allen County by zip code for All Years



Crib distribution by month



What is your goal for crib distribution?
If you didn't reach it,
what were the barriers?
what will you try differently



Crib distributed by mom race

	Grant Cycle Years				Grant Cycle Years		
	Null	Year 4	Total		Null	Year 4	Total
No data marked		2	2	No data marked	25%	18%	
African American / Black		2	2	African American / Black	25%	18%	
Caucasian / White	3	3	6	Caucasian / White	100%	55%	
Not provided		1	1	Not provided	13%	9%	
Grand Total	3	8	11	Grand Total	100%	100%	

Safe Sleep Kits distributed by race

	Todaydate			Grant Cycle Years	
	Null	2021		Null	Year 4
Caucasian / White	3	3	Caucasian / White	100.0%	42.9%
No data marked		2	No data marked		28.6%
African American / Black		2	African American / Black		28.6%
Not provided		0	Not provided		0.0%
Grand Total	3	7	Grand Total	100.0%	100.0%

Are you reaching your target population?
Does the distribution match the population you serve?



EXTRA SLIDES



SAFE SLEEP FOR YOUR GRANDBABY

Reduce the Risk of Sudden Infant Death Syndrome (SIDS) and Other Sleep-Related Causes of Infant Death



Every sleep, every time!

- 1 in 5 sleep-related deaths occur while the baby is in the care of someone else
- “Unaccustomed tummy sleeping” babies have an 18 times higher risk of sleep-related death
- Babies are 2-3 times more likely to be placed prone with a grandmother in the house



Orientation of the Trachea to the Esophagus

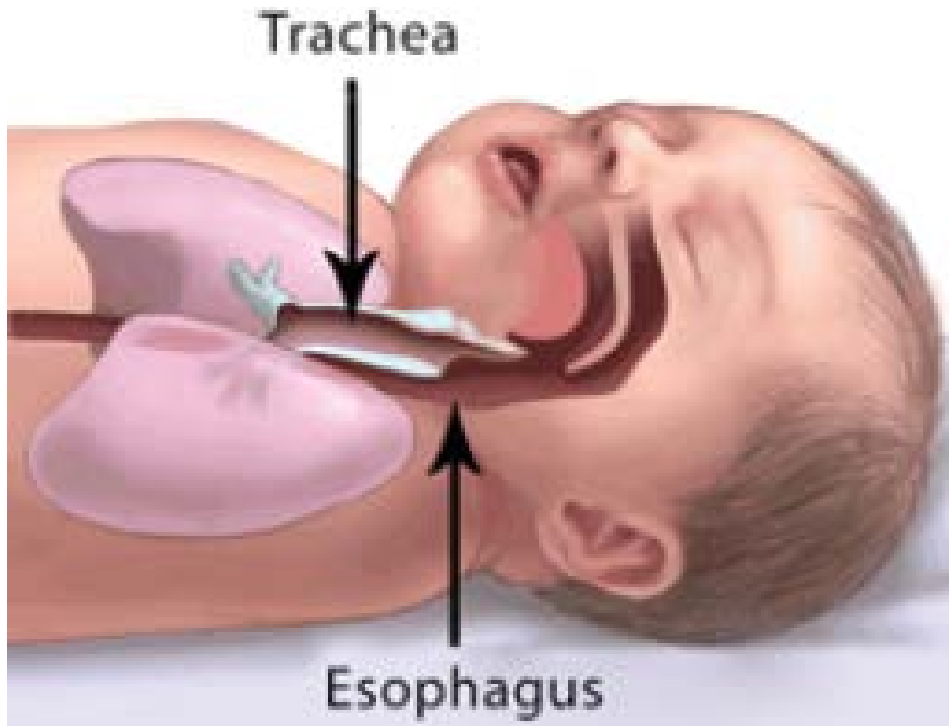


Image courtesy of the Safe to Sleep® campaign, for educational purposes only; Eunice Kennedy Shriver National Institute of Child Health and Human Development, <http://www.nichd.nih.gov/sids>; Safe to Sleep® is a registered trademark of the U.S. Department of Health and Human Services.

4 8 **Fisher-Price Rock 'n Play Sleeper Should Be Recalled, Consumer Reports Says**

At least 32 babies have died while in the sleeper. Why is it still on the market?

How the Rock 'n Play became a cult baby product — and why Fisher-Price is recalling it

Business

Parents dread life 'without a Rock 'n Play': Fisher-Price recall triggers shock and frustration



ROCK 'N PLAY



5
0



Inclined sleeper designed
for all-night sleep

Inclined sleeper designed
for all-night sleep



2 Auto Rock
Speeds

Comfortable
Incline

Music & Nature Sounds

MORE TO LOVE





This sleeper rocks,
hands free!

Model
5055

RECALLED

Auto Rock 'n Play™ Sleeper

SEE HOW WITH AN ONLINE
VIDEO TUTORIAL. VISIT US AT
WWW.FISHERPRICE.COM
©2014 FISHER-PRICE

Boppy Lounger



Boppy Lounger



Dock-a-Tot



Dock-a-Tot



DockATot Deluxe+ Dock (Bananas for You) - The All in One Baby Lounger, Portable Crib and Bassinet - Perfect for Co Sleeping - Breathable & Hypoallergenic -... by DockATot

★★★★☆ 454 customer reviews | 105 answered questions



Best Deal

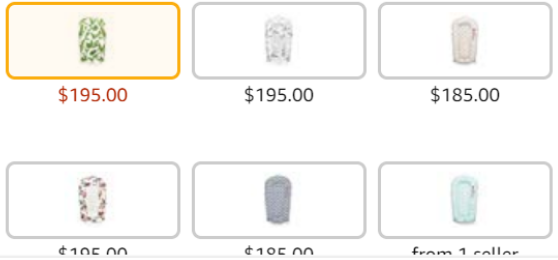
Price: **\$195.00** & **FREE Shipping**

Thank you for being a Prime member. Get \$70 off instantly: Pay \$125.00 upon approval for the Amazon Prime Rewards Visa Card. No annual fee.

Note: Not eligible for Amazon Prime.

In stock. Usually ships within 2 to 3 days. Ships from and sold by DockATot.

11 Colors: Bananas for You



Avoid the use of commercial devices that are inconsistent with safe sleep recommendations.



SIDS and Other Sleep-Related Infant Deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment. Pediatrics. 2016; 138:e20162938



What are important safe sleep recommendations?

Avoid the use of commercial devices that are inconsistent with safe sleep recommendations.



SIDS and Other Sleep-Related Infant Deaths: Updated 2016 Recommendations for a Safe Infant Sleeping Environment. Pediatrics. 2016; 138:e20162938



Swaddling and the Risk of Sudden Infant Death Syndrome: A Meta-analysis

Anna S. Pease, MA, MSc,^a Peter J. Fleming, MD, PhD, FRCP, FRCPCH,^a Fern R. Hauck, MD, MS,^b Rachel Y. Moon, MD,^c Rosemary S.C. Horne, PhD,^d Monique P. L'Hoir, MSc, PhD,^e Anne-Louise Ponsonby, MBBS, PhD, FAFPHM,^f Peter S. Blair, PhD^a

Despite the limitations, these analyses indicate that the current advice to avoid placing infants on their front or side to sleep may especially apply to infants who are swaddled. Given the marked increase in infants swaddled and found prone (rather than placed prone), coupled with an increased risk of swaddling with increased age regardless of sleeping position, health professionals and current guidelines should consider an appropriate age limit at which swaddling should be discouraged.

Swaddling and the Risk of Sudden Infant Death Syndrome: A Meta-analysis

Anna S. Pease, MA, MSc,^a Peter J. Fleming, MD, PhD, FRCP, FRCPC,^a Fern R. Hauck, MD, MS,^b Rachel Y. Moon, MD,^c Rosemary S.C. Horne, PhD,^d Monique P. L'Hoir, MSc, PhD,^e Anne-Louise Ponsonby, MBBS, PhD, FAFPHM,^f Peter S. Blair, PhD^g

Stop swaddling when baby is 2-3 months old (or earlier if baby shows signs of being able to roll over)

