



# Current State of Infant Safe Sleep: Challenges, Barriers And the Way Forward

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Eileen Tyralla, MD, FAAP  
Chair, Infant Safe Sleep Committee  
PA Chapter of the AAP  
Medical Director, Cribs for Kids

- Dr Tyrala has no Conflicts or Financial Interests to Disclose

# Historical Perspective

- Prior to 1994
  - All sleep related infant deaths were called SIDS
  - US Incidence of SIDS: 1.2/1000 live births

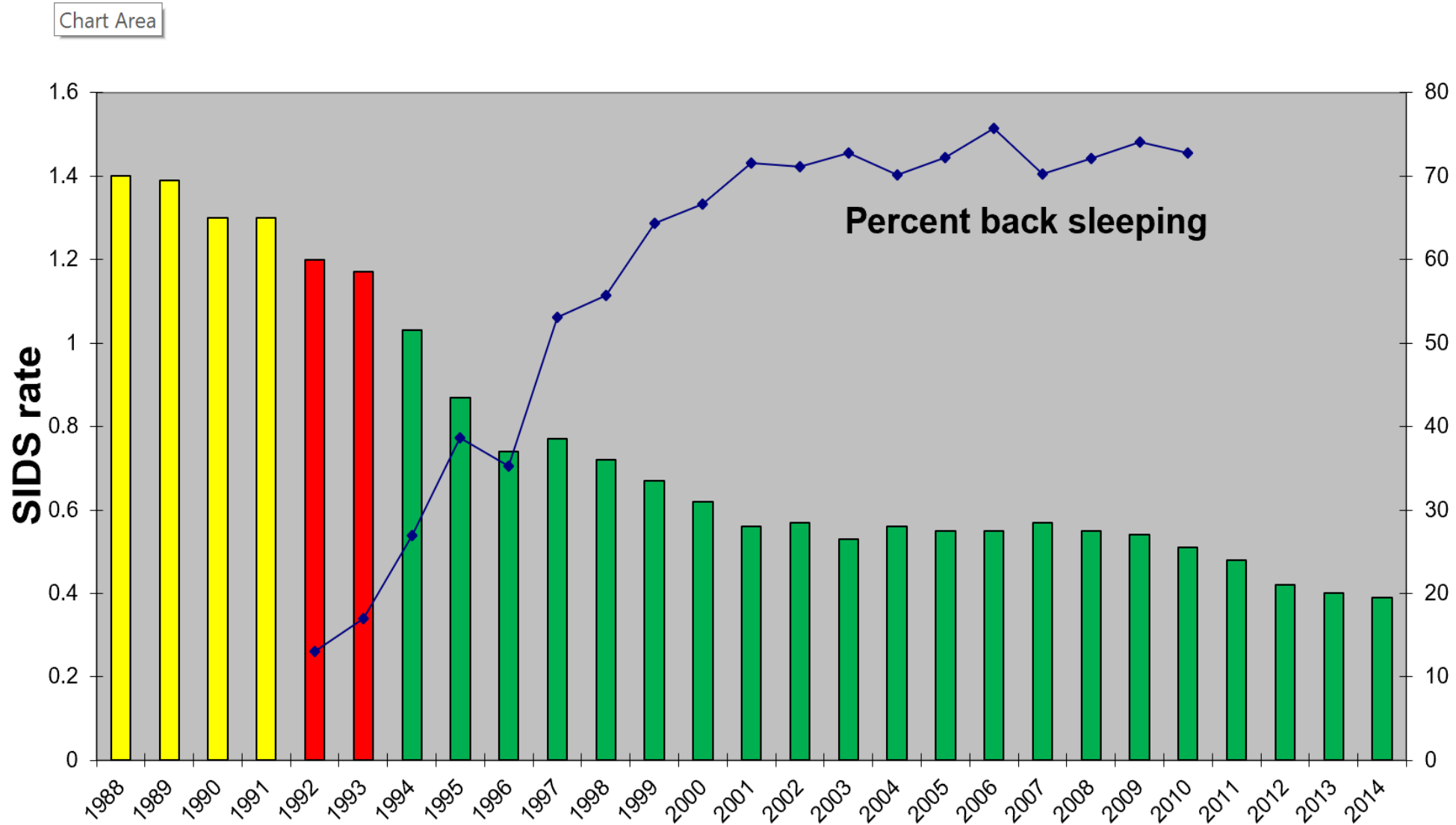
## History of SUID

- 1987, Netherlands: Extensive Media publicity about association between prone sleep position and Cot death
- 40% decrease in Cot death occurred in the Netherlands between 1987 and 1988

NICHD “Back  
to Sleep”  
Campaign-  
1994



# Did Back to Sleep Work??





# US SIDS Rate for 2022

0.39/1000 LIVE BIRTHS

## Enhancing SUID Data Collection

- **1996 :**
- **CDC Releases new “Sudden Unexplained Infant Death Investigation Reporting Form” (revised in 2006)**

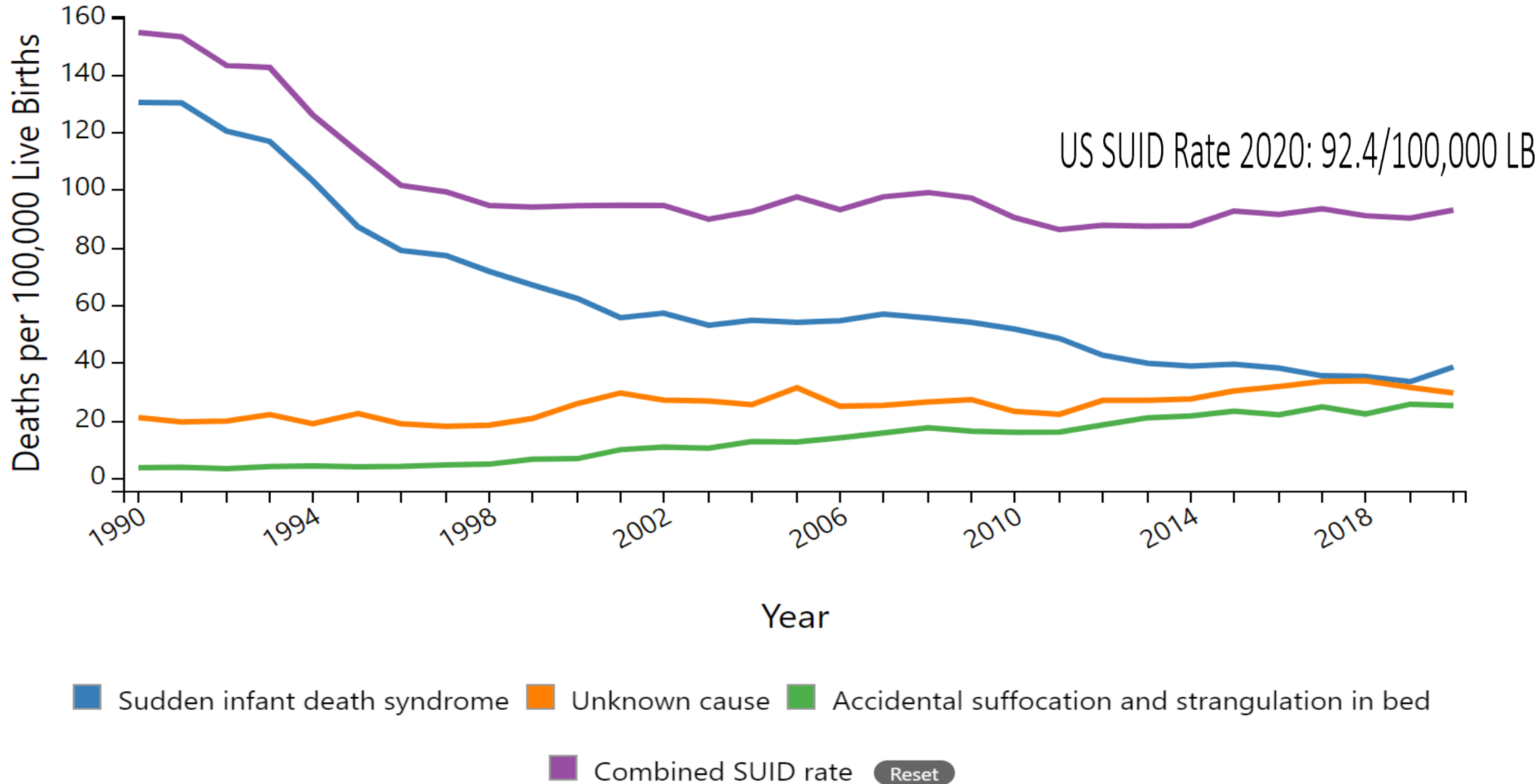


Coding Diagnostic Shift: Enhanced death scene investigations were revealing causes of death other than SIDS.....

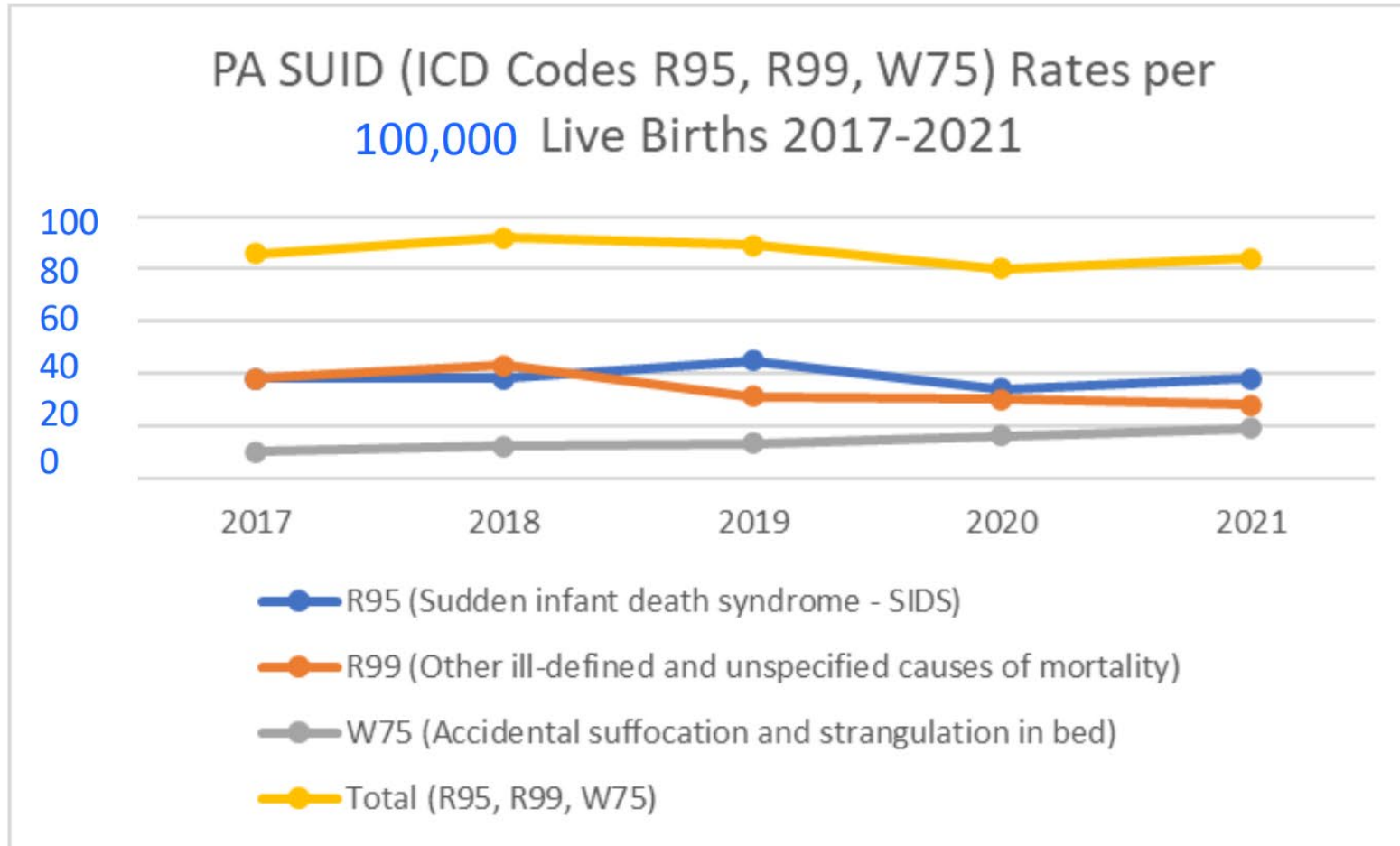
ASSB: Accidental  
Suffocation/Strangulation  
in a Sleep Environment

Undetermined: Baby found  
in unsafe sleep  
environment but could not  
officially be determined as  
suffocation death

# Trends in Sudden Unexpected Infant Death by Cause, 1990–2020



# PA SUID Statistics



There were  
~133K births in  
PA in 2021, so  
**~100-137 SUID  
deaths**

## SUID Rates by State, 2016–2020

State	Deaths	Population	Crude Rate
Mississippi	347	184394	188.2
Pennsylvan	593	677750	87.5
New Jersey	308	502659	61.3
New York	668	1121135	59.6
Massachus	165	346673	47.6

2009: CDC  
Creates  
National  
SUID/SUDC  
Case Registry

- GOAL: Utilize new protocols for investigation of sleep related infant deaths in a comprehensive and coordinated fashion to obtain best possible data re causes of SUID
- 
- Pilot projects launched in:
  - New Jersey
  - Georgia
  - Michigan
  - Colorado
  - New Mexico



# CDC SUID Case Registry

- **SUID included deaths with any of the following on death certificate:**
  - 1. Unknown
  - 2. Undetermined
  - 3. SIDS
  - 4. SUID
  - 5. Unintentional sleep related asphyxia
  - 6. Cardiac or respiratory arrest without other well-defined causes
  - 7. Ill-defined causes with potentially contributing unsafe sleep factors

# Unsafe Sleep Factors

**Prone or Side  
positioning**

**Shared Sleep  
Surface**

**Sleep Surface  
other than Crib  
or Bassinette**

**Any bedding  
other than a  
fitted sheet**

**Soft Objects in  
the Sleep area**

AND.....

With whom infant  
was surface  
sharing if  
applicable

Exposure to  
prenatal cigarette  
smoking

Ever breast fed

Primary care giver

Supervisor at time  
of death and  
whether evidence  
of impairment

Open Child  
Protective Services  
Case

Presence of Crib or  
Bassinet in the  
home



# CDC SUID Case Registry

Age at Death

Sex

Race and  
ethnicity (as  
social constructs)

Gestational age  
at birth

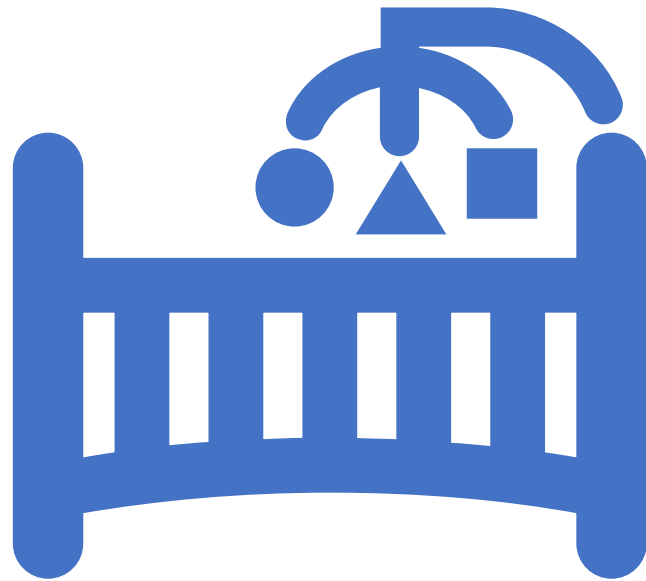
Insurance

Plurality

# CDC SUID/SUDC Case Registry 2020

- Includes 19 States and 4 Counties/Regions:

Alaska; Arizona; San Francisco County, CA; Colorado; Delaware;  
Georgia; Cook County, Illinois; Indiana; Kentucky; Louisiana; Maryland;  
Michigan; Minnesota; New Hampshire; New Jersey; New Mexico;  
Nevada; **Pennsylvania**; Tennessee; Utah; Tidewater Region of Virginia;  
Pierce County Washington; Wisconsin



## “Characteristics of Sudden Unexpected Infant Deaths on Shared and Nonshared Sleep Surfaces”

Lambert ABE, Shapiro-Mendoza CK, et al.  
Pediatrics.2024,153(3):e2023061984

Study of 7595 SUID that occurred between 2011-2020 among residents of CDC SUID Registry Jurisdiction

<b>TABLE 1</b> Infant and Other Characteristics Among Sudden Unexpected Infant Death by Surface Sharing Status, SUID Case Registry, 2011 to 2020					
	Percent Distribution by Surface Sharing Status				
	Sharing		Nonsharing		<i>P</i> <sup>a</sup>
	<i>n</i>	%	<i>n</i>	%	
Overall	4520	59.5	3075	40.5	
Infant's found location					<.001
Crib, bassinet, or portable crib	94	2.1	1594	51.8	
Adult bed	3422	75.7	678	22.0	
Chair or couch	710	15.7	134	4.4	
Other	284	6.4	654	21.3	
Number of unsafe sleep factors in addition to surface sharing <sup>d</sup>	<i>n</i>	%	<i>n</i>	%	<.001
1	811	17.9	822	26.7	
2	2277	50.4	1436	46.7	
3	1414	31.3	647	21.0	
Exposed to maternal cigarette smoking during pregnancy					<.001
Yes	1870	41.4	937	30.5	
No	2296	50.8	1901	61.8	
Unknown	307	6.8	196	6.4	

# In Summary:

**Bedsharing #1 risk factor for SUID (60% vrs 40%)**

**Bed sharers more likely to have  $\geq 2$  additional unsafe sleep factors present (81% vrs 68%)**

**Sleep Location: Adult bed 76% of BS's (22% for non-BS's)**

**Crib/bassinet : 2% of BS's (51% for non BS's)**

**Chair or Couch : 16% of BS's (4% non BS's)**

**Maternal Cigarette exposed prenatally: 37% overall: 41% BS vrs 30% non-BS**

**TABLE 1** Infant and Other Characteristics Among Sudden Unexpected Infant Death by Surface Sharing Status, SUID Case Registry, 2011 to 2020

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	<i>n</i>	%	<i>n</i>	%	
Overall	4520	59.5	3075	40.5	
Infant demographic and birth characteristics					
Age in months					<.001
0–3	3307	73.2	1744	56.7	
4–6	903	20.0	940	30.6	
7–<12	310	6.9	391	12.7	
Infant race and ethnicity					<.001
Non-Hispanic American Indian/Alaska Native	118	2.6	42	1.4	
Non-Hispanic Asian	25	<1	39	1.3	
Non-Hispanic Black	1906	42.2	882	28.7	
Non-Hispanic Native Hawaiian/Pacific Islander	16	<1	6	<1	
Non-Hispanic white	1609	35.6	1422	46.2	
Non-Hispanic multiple	253	5.6	187	6.1	
Hispanic	532	11.8	456	14.8	
Unknown	60	1.3	40	1.3	

# In Summary:

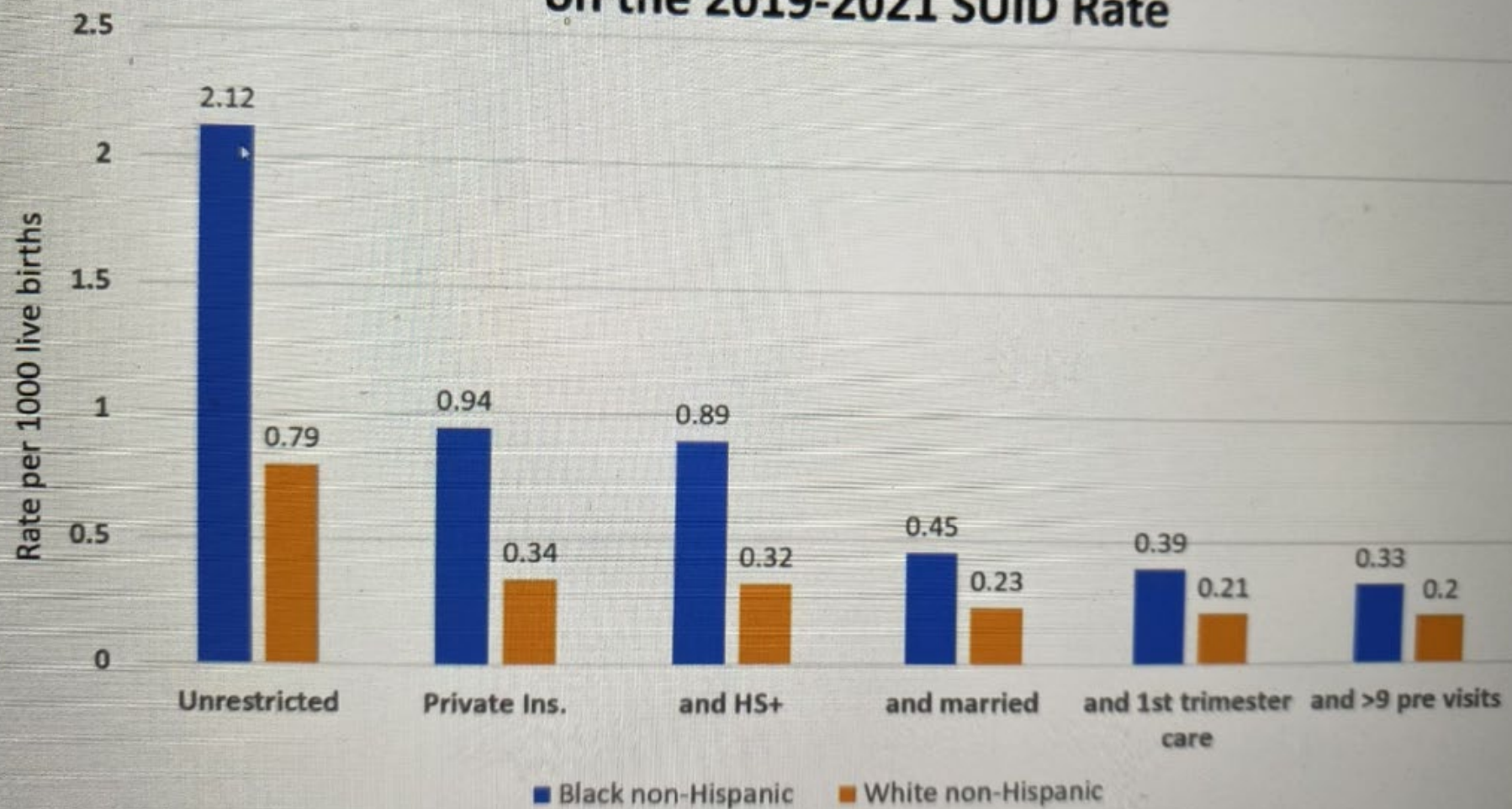
Infants 0-3 months of age at greatest risk of death in both groups (66%) but greatest amongst sharers (73% vrs 57%)

Non-Hispanic Black infants accounted for 37% of SUID but represent only 15% of US births

Non-Hispanic white infants accounted for 40 % of all SUID (52% of US births)

Hispanic infants accounted for 13% of all SUID (24 % of US births)

## The Impact of Adverse Social and Health Determinants on the 2019-2021 SUID Rate





# Profile of Infant most at risk for SUID:

Surface Sharing

Adult bed sleep  
location

2 or more unsafe  
sleep factors in  
sleep environment

Maternal cigarette  
smoking

Infant 0-3months  
of age (66%)

Non-Hispanic  
Black race

Public Insurance

Prone sleep  
position if not  
surface sharing

# Take Home Message.....

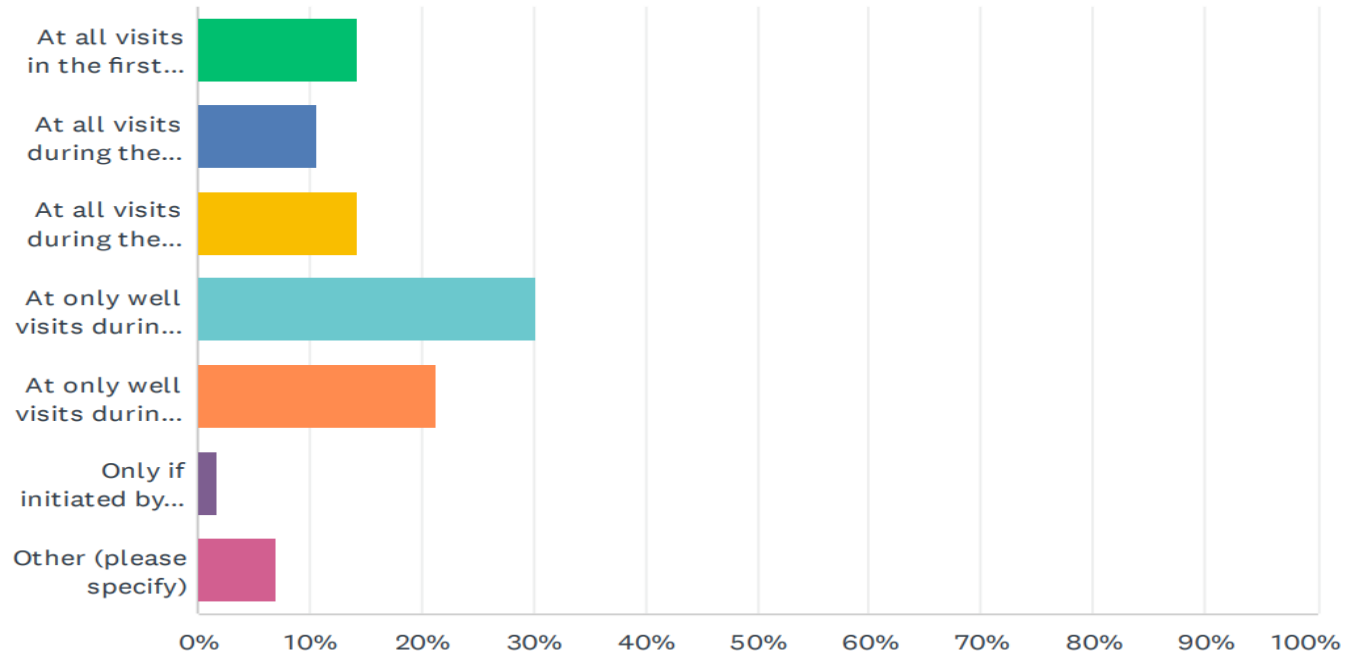
Almost every infant who died had multiple risk factors

Infant Safe Sleep Messaging is Complicated!

Comprehensive Safe Sleep Counseling for every family at every encounter is necessary and important!

# Q1 Do you counsel parents about the AAP Guidelines for Infant Safe Sleep?

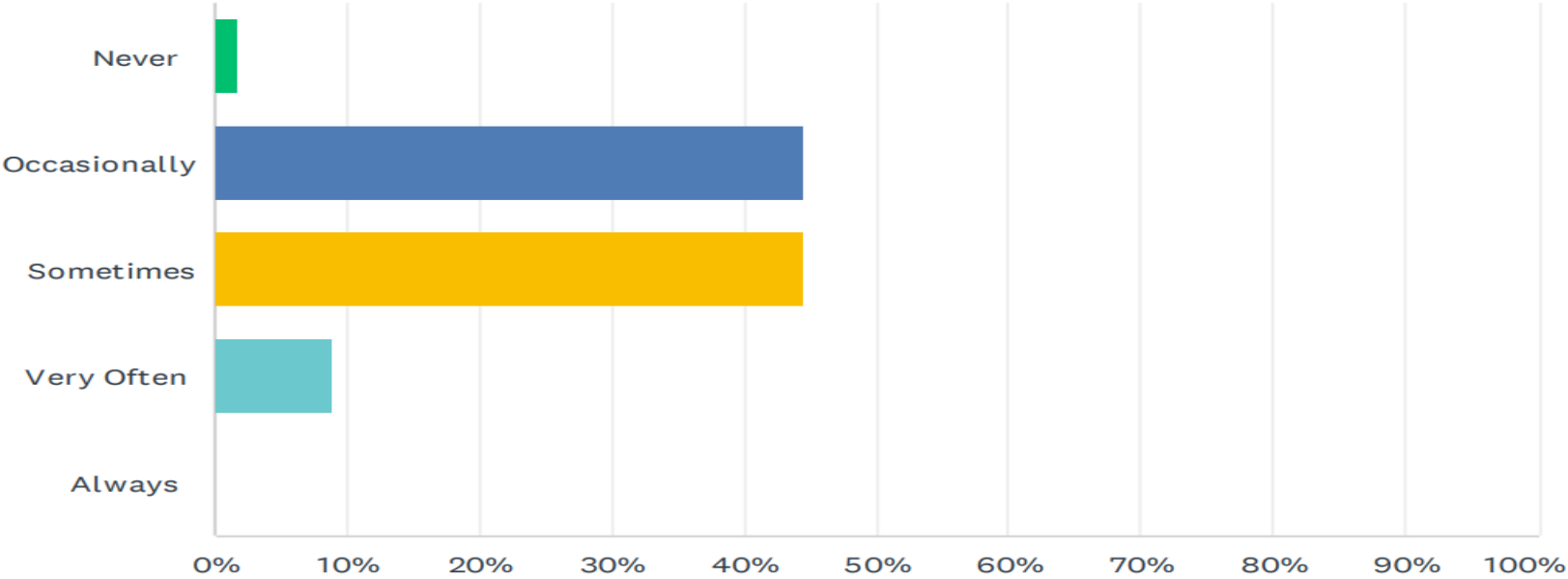
Answered: 56 Skipped: 0



ANSWER CHOICES	RESPONSES	
At all visits in the first month of life	14.29%	8
At all visits during the first 6 months of life	10.71%	6
At all visits during the first year of life	14.29%	8
At only well visits during the first 6 months of life	30.36%	17
At only well visits during the first year of life	21.43%	12
Only if initiated by...	1.79%	1
Other (please specify)	7.14%	4

# Q2 How often do patients in your practice express having difficulty following the AAP Guidelines for Safe Sleep?

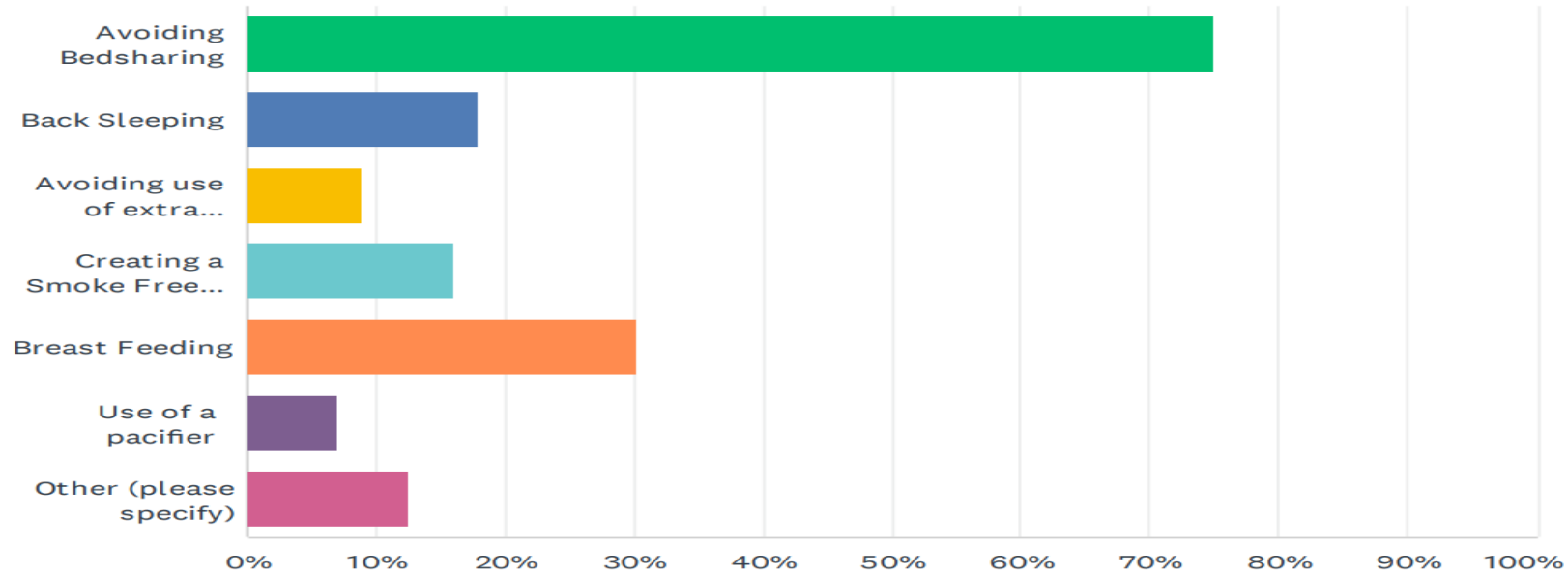
Answered: 56 Skipped: 0



ANSWER CHOICES	RESPONSES	
Never	1.79%	1
Occasionally	44.64%	25
Sometimes	44.64%	25
Very Often	8.93%	5
Always	0.00%	0
<b>TOTAL</b>		<b>56</b>

### Q3 Which AAP Safe Sleep Guidelines do parents in your practice say are the most difficult to follow? (Select up to 3)

Answered: 56 Skipped: 0




ANSWER CHOICES	RESPONSES	
Avoiding Bedsharing	75.00%	42
Back Sleeping	17.86%	10
Avoiding use of extra bedding (loose blankets, pillows, etc)	8.93%	5
Creating a Smoke Free environment	16.07%	9
Breast Feeding	30.36%	17
Use of a pacifier	7.14%	4
Other (please specify)	12.50%	7
<b>Total Respondents: 56</b>		

What strategies could we  
use to provide more  
effective Infant Safe Sleep  
Messaging that leads to  
actual behavior change



# Strategies

Provide tools needed to overcome anticipated barriers to practicing safe sleep before they are needed!



# **The Tension between AAP Safe Sleep Guidelines and Infant Sleep**

Moon RY, Mindell JA, Honaker S, Keim S. et al. Pediatrics 2024;153(4):e2023064675

- **Focus group and surveys of mothers who acknowledged that they had placed their infant in a non-supine position or non-recommended location at least 2x in the previous week**
- **Pre-Delivery:**

**Were aware of A, B, C's of safe sleep**

**Intended to follow them!**



# Post Delivery

- **Recommendations seen as unrealistic for infant Sleep:**
- **Frequent Infant awakenings perceived as infant being uncomfortable in crib or on the back**
- **Bedsharing and holding infant did promote sleep**
- **Were following La Leche “Safe Sleep Seven”: If Breast feeding and non-smoker, bed sharing is OK**



Even the best  
intentioned parents  
have trouble  
following the  
recommendations,  
particularly no  
bedsharing.....

- Example:
  - It's 3 AM; my baby won't sleep and everything I've tried won't settle him down! I desperately need sleep and I have to be up at 6AM!!! The only way I can survive is to bring him into bed with me!
  - This is not the time to learn techniques for soothing a baby who won't sleep!

# Provide Practical Information on Techniques to Promote Infant Sleep and limit the need to resort to bedsharing!

Teach the 5 S's for soothing the fussy baby as early as possible (**think prenatal period!**) with reinforcement in the hospital and beyond

## **The Happiest Baby (Harvey Karp)**

Swaddling (<3 months of age)

Sucking (pacifier use)

Swaying

Shushing

Soothing (Side Position while holding)

# Suggest Infant Massage be part of a Bedtime Routine to promote Relaxation and Sleep

**From the American Academy of Pediatrics Press:**

**“The Calm Baby Method: Solutions for Fussy Days and Sleepless Nights”** by Ideran and Fishbein with section on infant massage

- <https://www.healthychildren.org/English/ages-stages/baby/Pages/the-benefits-of-baby-massage.aspx#> (Includes videos of techniques)

**Also Handouts that illustrate massage techniques can be downloaded from:**

[https://www.kenvuepediatrics.com/sites/pediatrics\\_hcp\\_us/files/061621\\_01\\_02\\_icm\\_touch\\_-poster\\_large.pdf](https://www.kenvuepediatrics.com/sites/pediatrics_hcp_us/files/061621_01_02_icm_touch_-poster_large.pdf)

# ASK FOR HELP UPFRONT!

- Identify a “Sleep Support System” in advance
- “Ask Dad, GM, or someone whom you trust to take over the non-feeding chores in the middle of the night and allow you to get some well deserved rest”

# Safe Sleep Education Must Start (at the latest!) in the Pre-natal Period

**We must make Infant Safe Sleep Education  
a standard part of the pre-natal experience!**

**I challenge all PA PQC members to make  
this happen in their institution**

**In the Hospital Setting:  
Offer Proactive Advice to the Breast Feeding Mother**

**Address Falling asleep during breast feeding  
(Incidence= 75%!!!)**

Proactively discuss **removing all extraneous objects** that could create a suffocation risk from the feeding area- (think SUID Registry data!)  
(Use the word **SUFFOCATION!**)

**Discuss setting a 20 minute timer on Mom's cell phone at start of each feed**

# In Hospital

Foster more realistic expectations about infant sleep patterns (infant sleep cycle is 1 ½ hours!)

Breast Feeding Infants wake up more frequently to feed

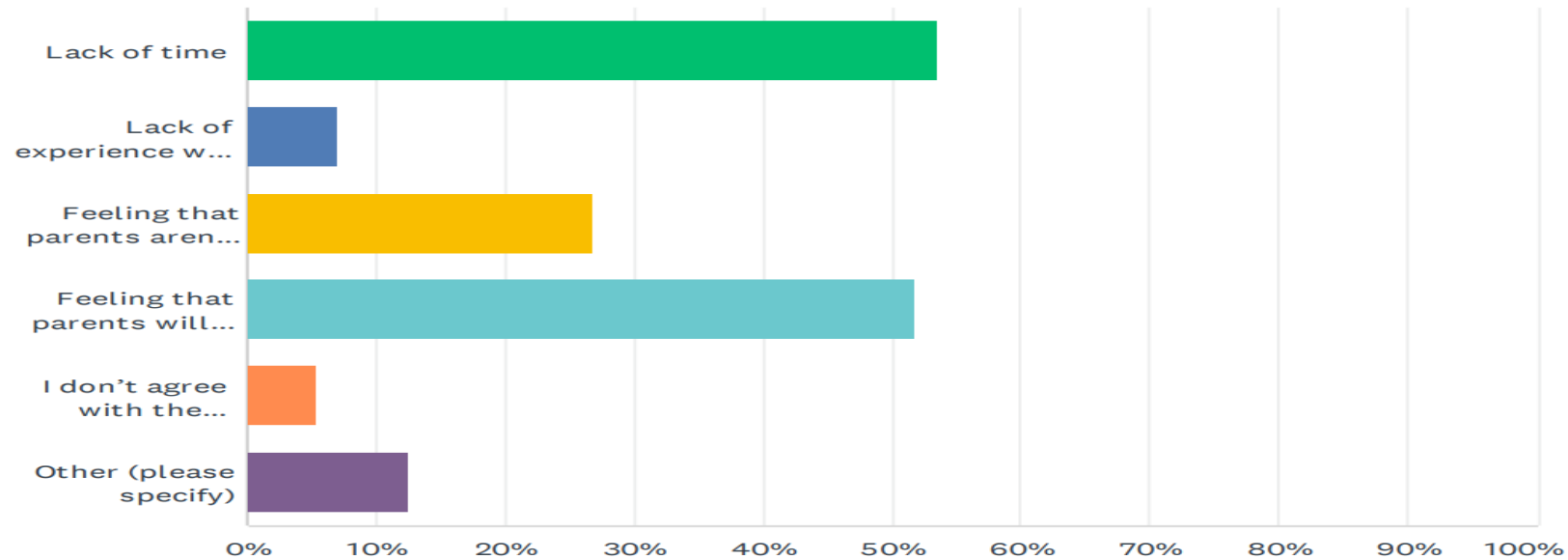


A close-up photograph of a hand holding a blue pencil, poised to write on a document. The background is softly blurred, showing a calculator and a pen. The overall lighting is warm and focused on the hand and pencil.

Results of Questionnaire sent to  
PA AAP Membership re  
“Delivering ISS Education”

## Q10 Which of these do you consider to be challenges in promoting safe sleep in your practice? (check all that apply)

Answered: 56 Skipped: 0



ANSWER CHOICES	RESPONSES	
Lack of time	53.57%	30
Lack of experience with persuasive techniques like motivational interviewing	7.14%	4
Feeling that parents aren't truthful about sleep practices	26.79%	15
Feeling that parents will not change practices regardless of what I say	51.79%	29
I don't agree with the recommendations	5.36%	3
Other (please specify)	12.50%	7
Total Respondents: 56		

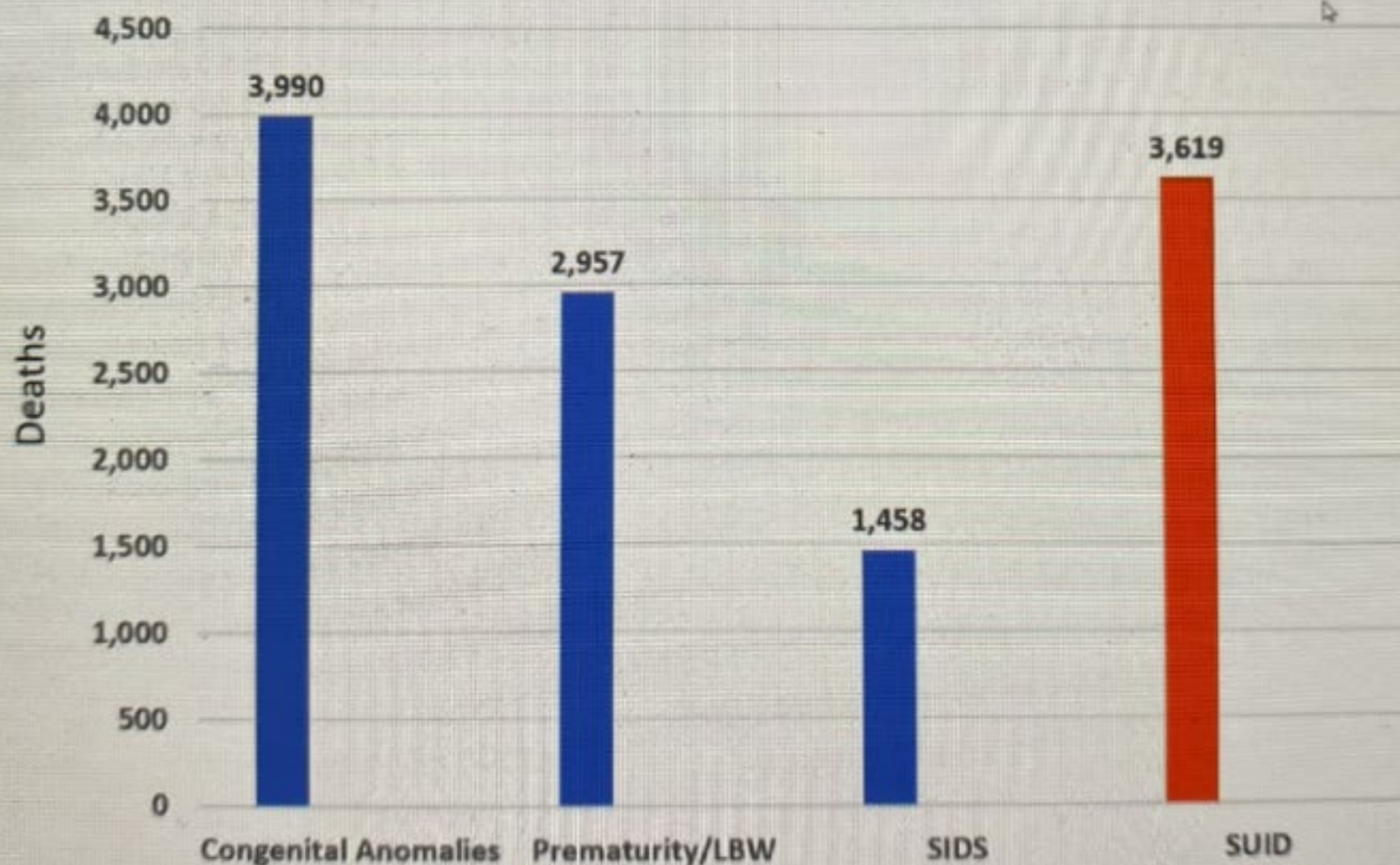
A hand holding a compass over a road junction. The hand is wearing a green long-sleeved shirt. The compass is a standard analog compass with a white face and black markings. The background shows a road splitting into two directions, with a body of water on the left and a sandy area on the right. The text "Where Do We Go From Here??" is overlaid in white.

Where Do We Go From Here??

# Babies Are Dying In Unsafe Sleep Environments Can Never Be Old News!

- This issue must be front and center at every health care encounter with every new family from the first prenatal visit through and until baby's first birthday!
- Until every baby is placed to sleep in a safe sleep environment for every sleep, our work is not done!

# Leading Causes of Infant Mortality in 2021 Revisited



# Some of the Current Obstacles:

01

Lack of standard protocols that include infant safe sleep education to mothers during the prenatal period

02

Ever shorter hospital stays for post partum mothers limiting educational opportunities for effective safe sleep education

03

Lack of effective tools to address the obstacles experienced in practicing and delivering infant safe sleep education

# Safe Sleep Education Must Start (at the latest) in the Pre-natal Period

## **It should include:**

Basic Infant Safe Sleep Recommendation

## **BUT ALSO:**

Information about Soothing Babies (5 S's)

Infant Massage Techniques

Identifying a Home Sleep Support System

## **Recommending Specific Social Media Sites:**

**Facebook Group:** “Safe Infant Sleep Evidence Based Support Group”

**Tik Tok:** @clairebearfoundation or @shaynaraphael

# Hospital Based ISS Education

Become a Cribs for Kids Certified  
Safe Sleep Hospital

Become a “Safe Sleep PA”  
Participant Hospital



# Addressing Barriers to ISS Education in the Out Patient Setting

- **Reality:**

- **Not enough time to discuss safe sleep effectively**

**Perception:**

**They won't listen to me anyway!**

# Use the QR code driven Cribs for Kids Handout

- **Cribs for Kids has created a 12 Steps for Safe Sleep QR code driven resource that utilizes smart phone technology to deliver infant safe sleep messaging and beyond**
- **We are working to enhance this but it is available now!**
- **Also Creating a Smart Phone App that delivers ISS messaging on an ongoing basis**
- **STAY TUNED!**

# Infant Safe Sleep Education Strategies Beyond the Hospital Experience

- **SMARTER Study:** Today's Baby: Showed the effectiveness of a 60 day post hospital mobile health intervention that utilized frequent texts or emails containing short videos with educational content about infant safe sleep practices ( Moon RY, Hauck FR, Colson ER, et al, The Effect of Nursing Quality Improvement and Mobile Health Intervention on Infant Sleep Practices: JAMA 2017;318(4) 351-359)

## **Newly Funded NIH Study:**

GET SMART (Get Social Media and Risk Reduction Training)

Randomized trial of 32 hospitals to determine optimal strategies to implement the SMART safe sleep interventions focusing on areas with the most vulnerable populations – **STAY TUNED!**