



# Safe Sleep Simulation

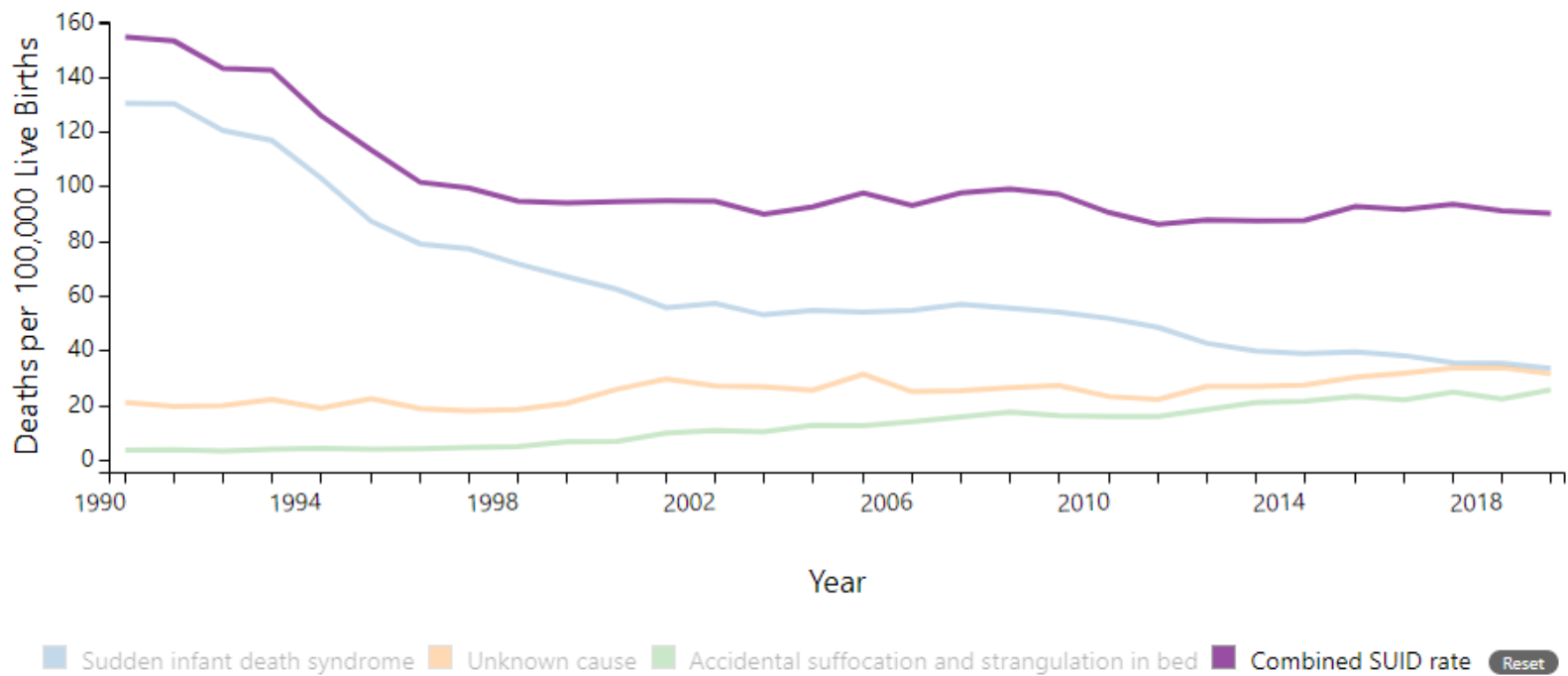
Helping Infants Sleep Safely around the World



## The Problem: Sleep-related death

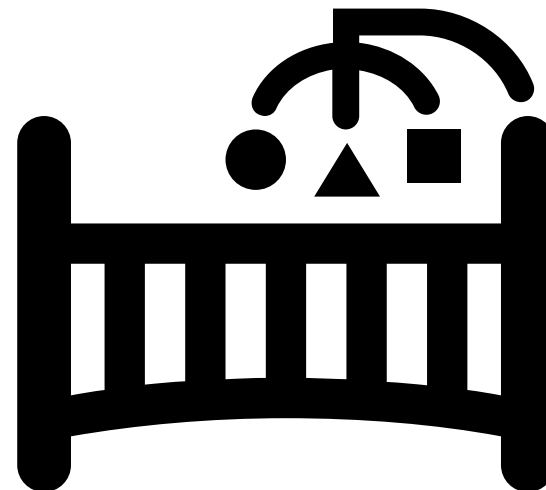
- Sudden unexpected infant death (SUID) causes 14% of Indiana infant deaths<sup>1</sup>
- 3,500 infants die annually of sleep-related deaths<sup>2</sup>
- Stagnant numbers of infant sleep-related deaths in the US since 1999.<sup>3</sup>
  - Non-adherence to safe sleep practices stem from beliefs<sup>4</sup> and safety misconceptions<sup>5</sup>
- Despite evidence supporting safe sleep recommendations, many parents do not follow the recommendations
  - 66.9% reported co-sleeping<sup>4</sup>
  - 85.6% of infant sleep deaths occurred in an adult bed<sup>5</sup>

## Trends in Sudden Unexpected Infant Death by Cause, 1990–2019



# The Gap?

- Effective program should address
  - Perceived severity<sup>5</sup>
  - Perceived benefit<sup>5</sup>
  - Perceived susceptibility<sup>5</sup>
- Successful program should
  - Engage caregivers with visual and hands-on learning<sup>5</sup>



# Our Solution

- Leverage highly realistic technology and hands-on training to maximize the impact of safe sleep education
- Safe sleep hands-on experiential learning
  - Utilizing advanced medical simulation technology
  - Local, primary prevention
- Visual representation of anatomic and physiologic responses to sleep positions
  - On back (supine)
  - On stomach (prone)
  - Sitting in car seat or swing (upright)



# Our Solution

## 3D print models

- Infant trachea and esophagus
- Interactive models will allow interactive demonstration of infant vomiting in sleep positions



# Safe Sleep Kit



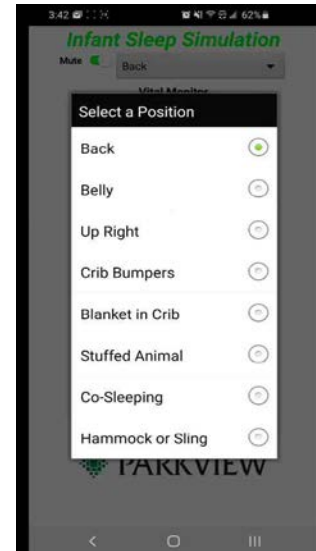
- 3D print of infant with trachea/esophagus insert
- Safe sleep monitor app for iOS and Android
  - Turns a phone or iPad into a monitor
  - Eliminates the need for specialized simulation equipment





# Simulation for Safe Sleep Kit

- Consists of two tools:
  - Safe Sleep App
  - [Safe Sleep Airway Infant](#)





# Pilot Plan

- **Collaborate with community health workers**
  - Parkview Women's and Children's Hospital
    - 100% of patients are below the poverty line
  - Healthier Moms and Babies
    - 100% of patients are below the poverty line
    - 62% of patients are African American
- **Study outcomes associated with implementation of Simulation to Promote Safe Sleep kits**
  - Community health workers verbally survey caregivers at home visits before the intervention, and after the intervention
  - Track any observations of sleep positions and interventions to correct or change sleep positions while in the home

# References

1. Stiffler D, Cullen D, Stephenson E, Luna G, Hartman T. When baby stops breathing: analysis of mothers' interviews. Clin Nurs Res. 2016;25(3):310–324. doi:10.1177/1054773815619580.
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3. Rubin R. Despite educational campaigns, US infants are still dying due to unsafe sleep conditions. JAMA. 2018;319(24):2466-2468.doi:10.1001/jama.2018.6097.
4. Stiffler D, Ayres B, Fauvergue C, Cullen D. Sudden infant death and sleep practices in the Black community. J Spec Pediatr Nurs. 2018;23:e12213. <https://doi.org/10.1111/jspn.12213>. Published February 25, 2018. Accessed January 17, 2020.
5. Chu T, Hackett M, Kaur N. Exploring caregiver behavior and knowledge about unsafe sleep surfaces in infant injury death cases. Health Educ Behav. 2015;42(3):293-301. doi:10.1177/1090198114547817.
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## Questions

[SafeSleepSimulation.com](https://SafeSleepSimulation.com)