

# Research Excellence Initiative Presentation

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in Lake County



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# Definition: SIDS

## Infant:

- Live-born baby
- Less than 1 year of age

## Mortality (SUID):

- Sudden
- Unexpected

## SIDS:

- Unexplained (even after investigation)
- Usually sleep-related

# Significance of SIDS Research



- Premature loss of life
- Seeking resolution
- Providing path to prevention

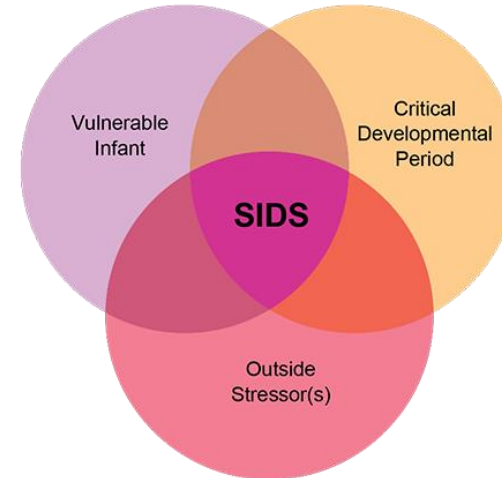
# SIDS Body of Knowledge

## The KNOWN

- Risk Factors
  - High maternal BMI
  - Low birth weight
  - High birth weight
  - 90% before 6 months of age
  - Brain abnormalities and genetics
  - Sleep environment
  - Sleeping position (prone)
- Protective Factors
  - Breastfeeding
  - Pacifiers
  - Prenatal and postnatal care
- Race Disparities
- Triple-Risk Model proposed

## The UNKNOWN

- Triple-Risk Model validity
- Everything else



# Hypothesis

## Are Growth Standards Related to SIDS Mortality?

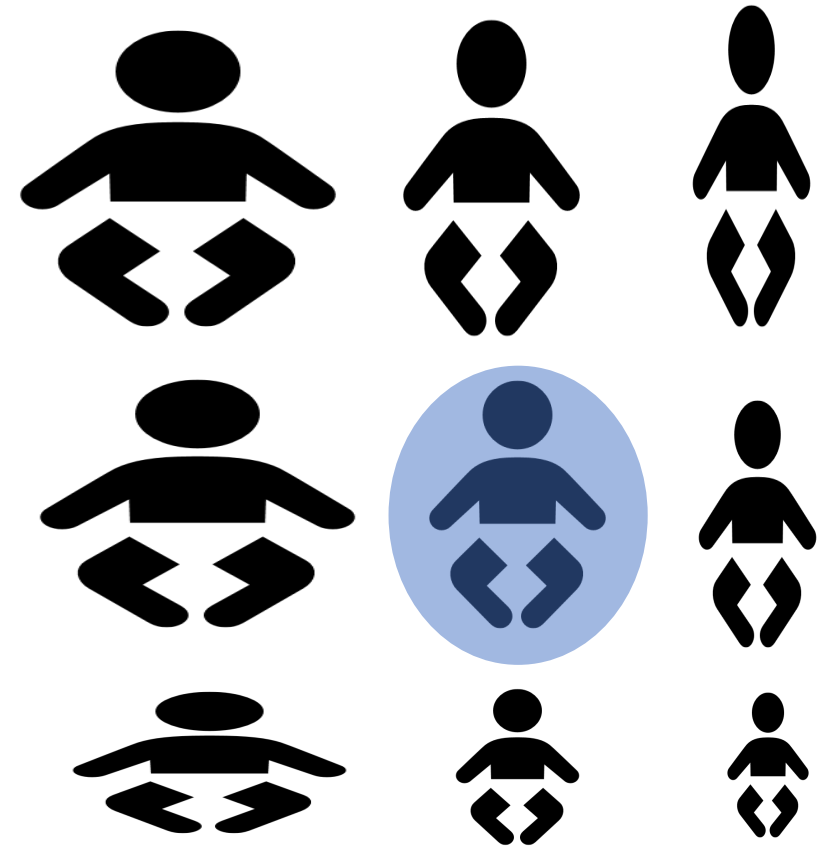
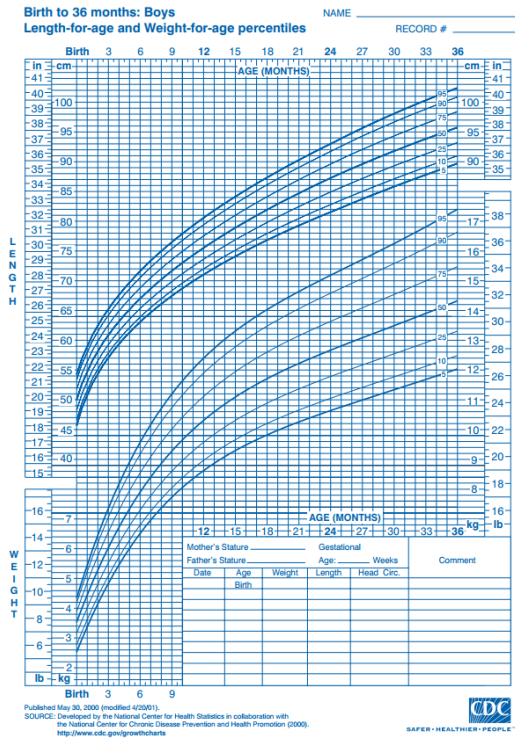
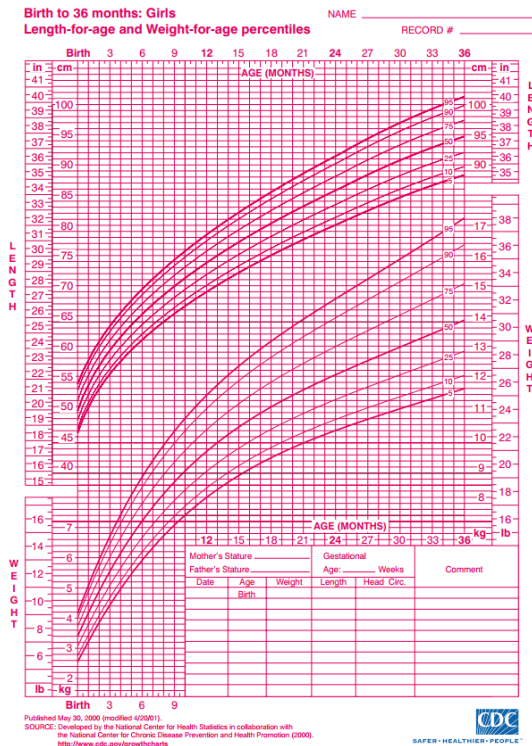
- Development Indicators (for age and trajectory)
  - Length/height
  - Weight
  - Head circumference
  - Arm circumference for age
  - Skinfold measurements



- Null Hypothesis: They are not significantly different from control

# Hypothesis

## Are Growth Standards Related to SIDS Mortality?

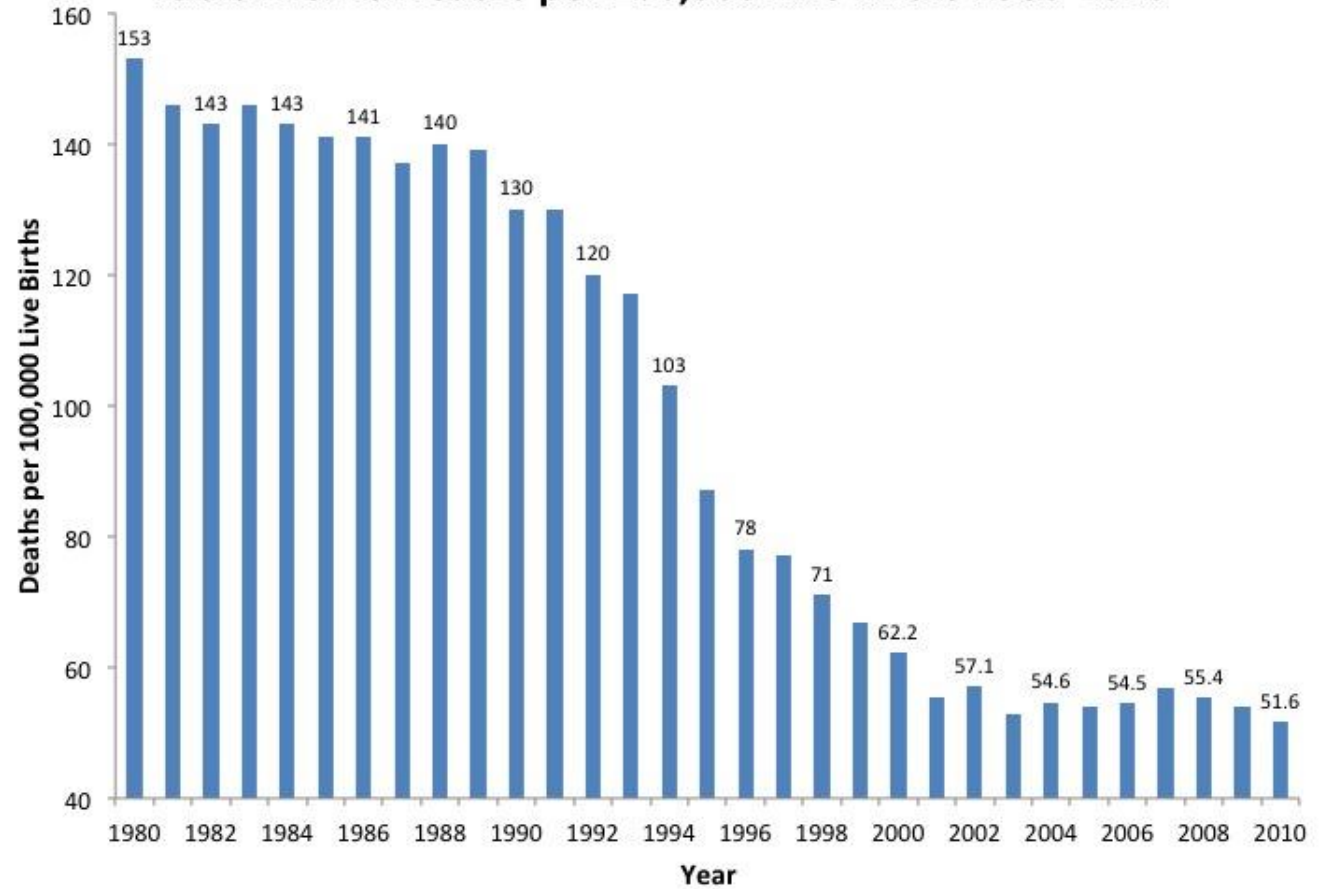




# The Clues

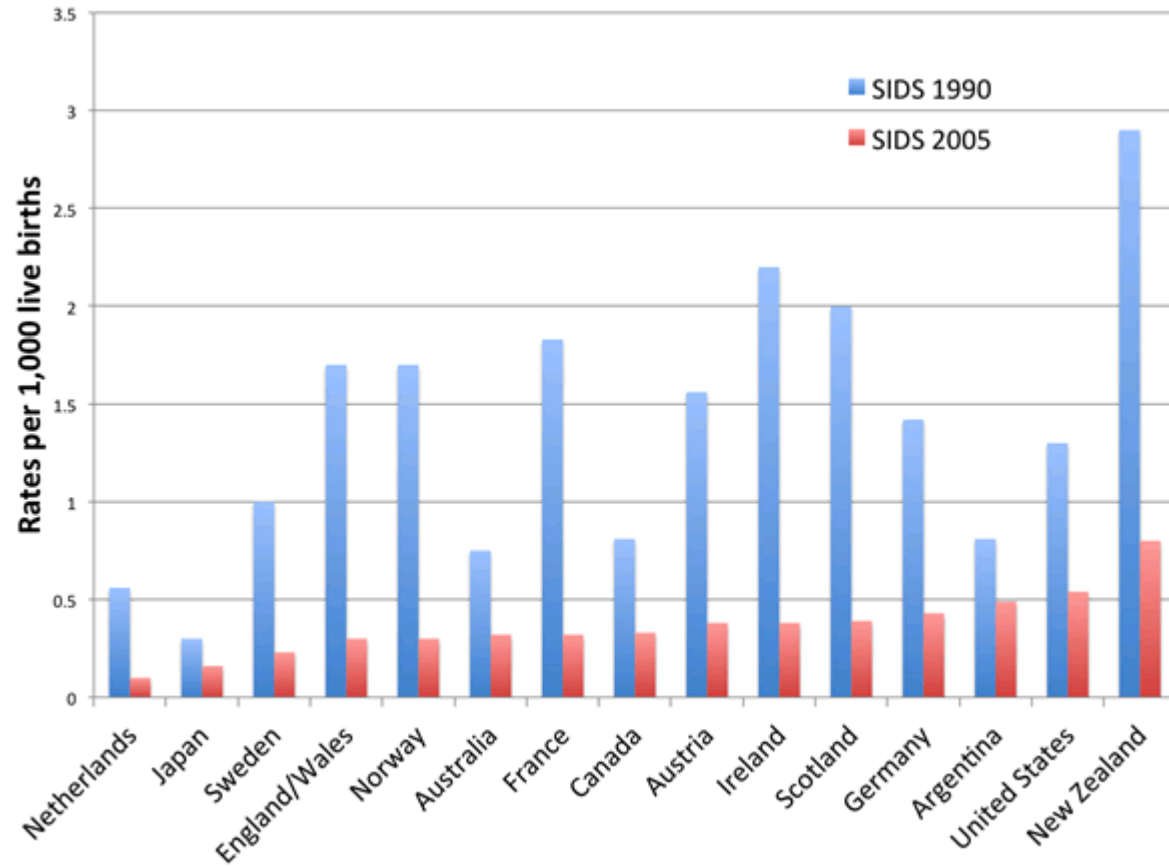


Table 1. SIDS Deaths per 100,000 Live Births 1980-2010

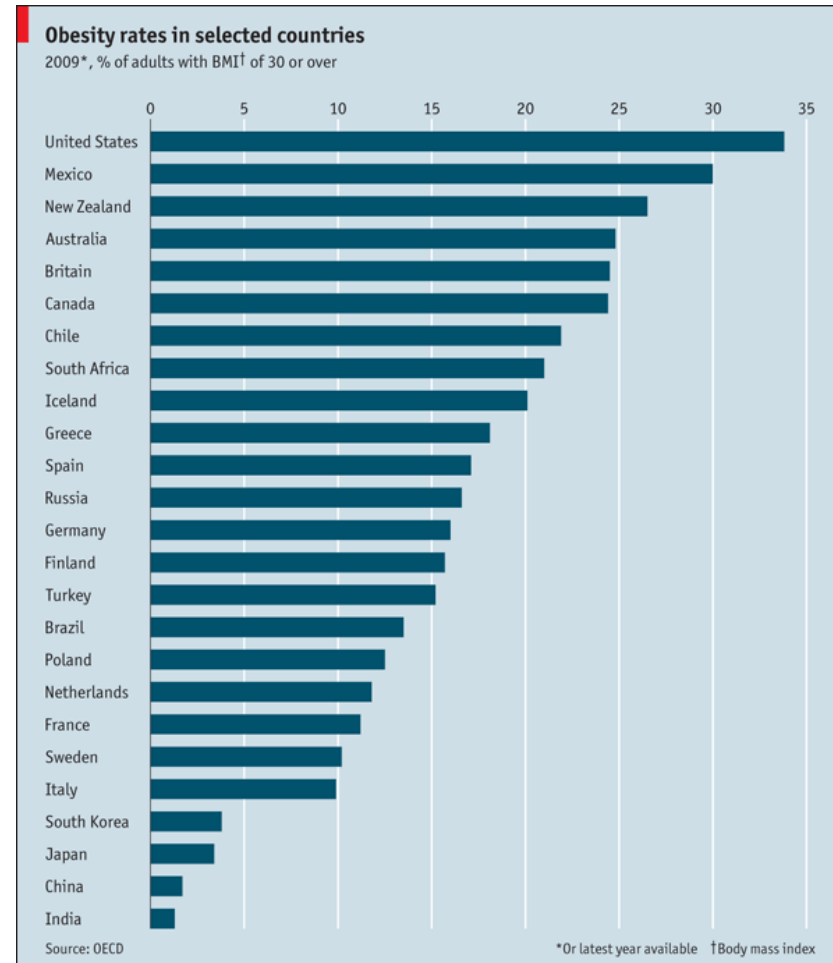


Source: CDC Wonder and the National Center for Health Statistics

# The Clues



Georgetown University, National Center for Education in Maternal and Child Health





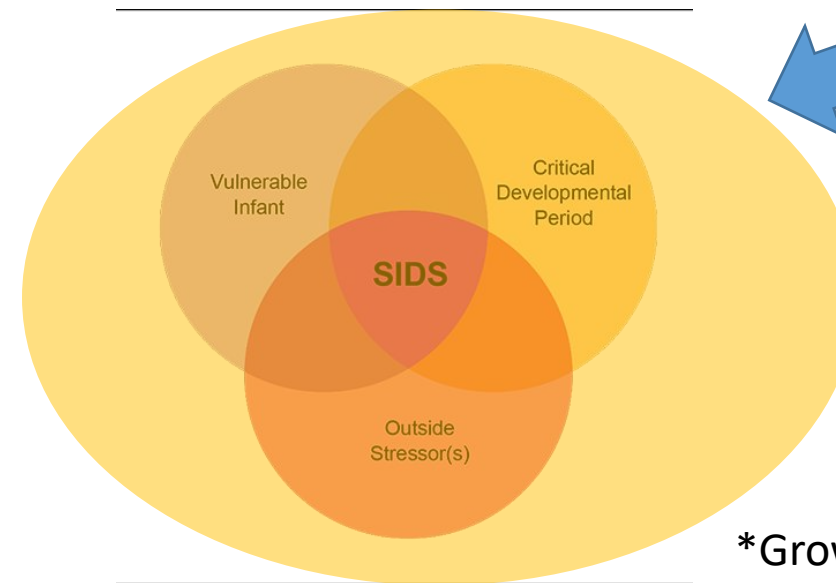
# Reframed...

## The KNOWN

- ✓ Risk Factors
  - ✓ High maternal BMI
  - ✓ Low birth weight
  - ✓ High birth weight
  - ✓ 90% before 6 months of age
  - ✓ Brain abnormalities and genetics
- Sleep environment
  - ✓ Sleeping position (prone)
- ✓ Protective Factors
  - ✓ Breastfeeding
  - Pacifiers
    - ✓ Prenatal and postnatal care
- ✓ Race Disparities
- ✓ Triple-Risk Model proposed

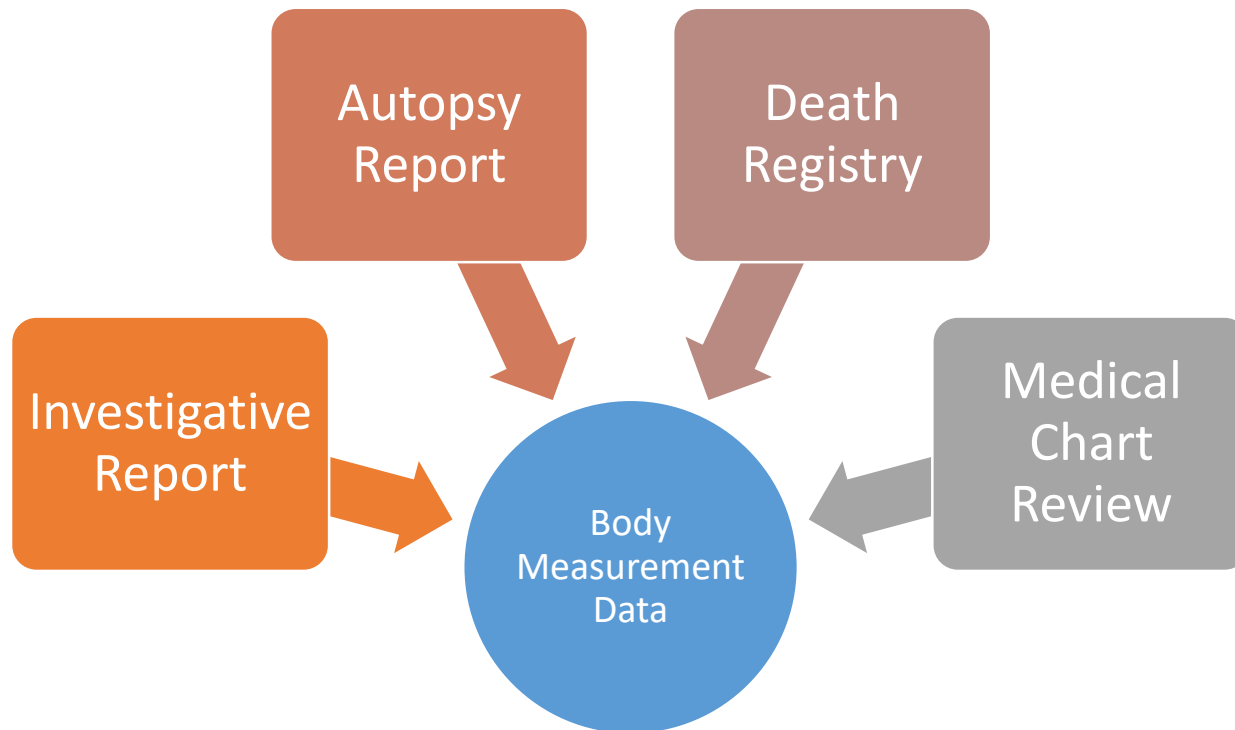
## The UNKNOWN

- Triple-Risk Model validity\*
- Everything else



\*Growth & Development

# Methodology



## RAW DATA

- Age
- Sex
- Race
- Ethnicity
- Length/height
- Weight
- Head circumference
- Arm circumference
- Skinfold- Subscapular
- Skinfold- Tricep

## INCLUSION CRITERIA:

- Live-Born
- Currently deceased
- Passed before the age of 1
- Sleep-related death

## EXCLUSION CRITERIA:

- Cause of Death Homicide

# Methodology (continued)

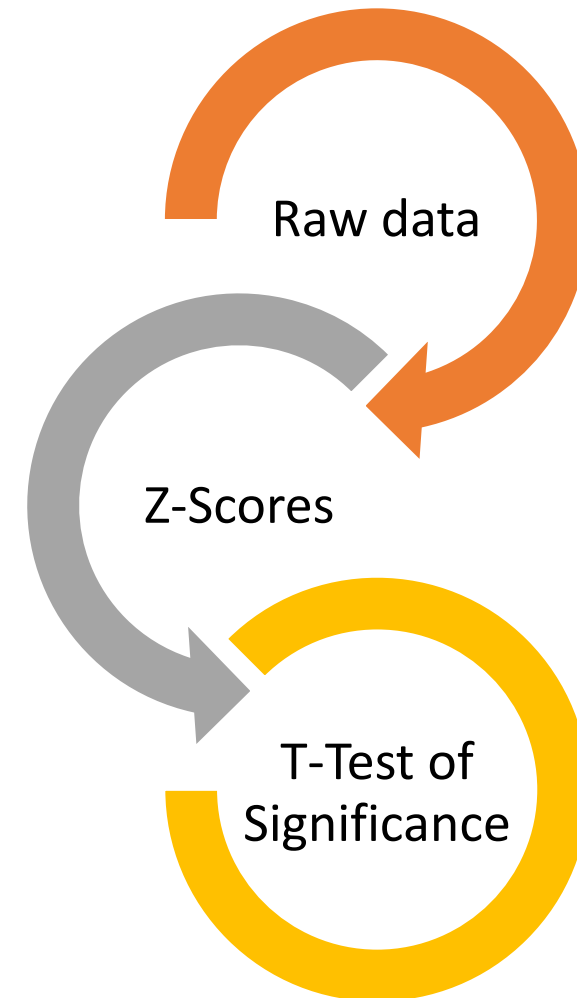
## GROWTH STANDARD\*

- Length/height for age
  - for age
- Weight
  - for age
  - for length/height
  - BMI for age
- Head circumference
  - for age
- Arm circumference for age
- Skinfolds
  - Subscapular for age
  - Triceps for age

## IF 2 or MORE RAW DATA POINTS

- Length/height for age
  - velocity
- Weight
  - velocity
- Head circumference
  - velocity

= Z-Scores  
Percentiles



\*World Health Organization, Child Growth Standards, 2006

# Potential Research Challenges

## Definitions:

- Historical Definitions
  - SIUD, SIDS
  - International Classification of Diseases
  - Growth Standards (WHO, CDC)
- Cause vs. Contributor
- Circular Definitions
- Stigma

## Data:

- Variations in Data Collection Methodology of Raw Data
- Matched pair difficulties
- Statistically valid sample sizes

# Is the Null Hypothesis True?

Let's find out!

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