

Racial/Ethnic Disparities in Infant Mortality

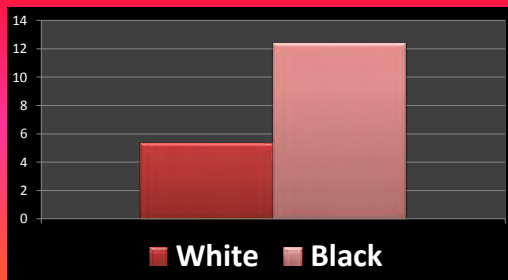
Kathleen Kendall-Tackett, Ph.D., IBCLC, FAPA

www.PraeclarusPress.com



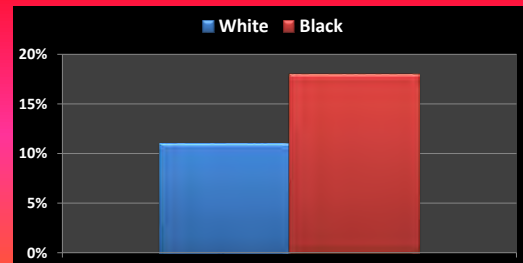
- U.S. ranks a 41st in infant mortality
- Low ranking largely due to high rates of infant mortality in racial/ethnic minority populations

Infant Death Rates per 1,000 Live Births



MMWR Feb 8 2013/ 62(5); 90

Percentage of Preterm Births



http://www.cdc.gov/nchs/data/nvsr/nvsr59/nvsr59_01.pdf

- The rate of SIDS in 2005
 - Black (99 per 100 000 live births)
 - American Indian/ Alaska Native (112 per 100 000 live births)
 - White infants (55 per 100 000 live births)
 - Asian and Hispanic have “nearly half” of the rates for whites



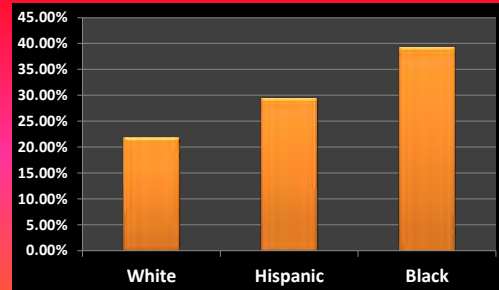
- CDC national survey of new mothers
 - 59% of African American mothers initiated breastfeeding compared to 75% of white mothers and 80% of Hispanic mothers

MMWR 2013, 62(5); 77-80

- What is related to ethnic-group disparity in infant mortality?
 - Preterm birth
 - Lower breastfeeding rates
 - Cumulative adversities
 - Unsafe sleep practices

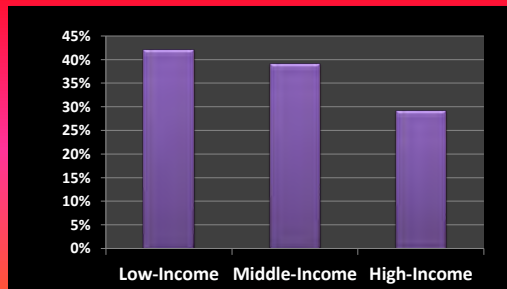


U.S. Obesity Rates by Ethnicity



CDC, 2010, <http://www.cdc.gov/Features/dsObesityAdults/>

U.S. Obesity Rates by Income



National Center on Health Statistics 2011

• The Physiology of Discrimination



Psychoneuroimmunology



• Stress Response



- Insulin is the principle regulator of fat metabolism



Taubes, 2011, *Why we get fat*: Knopf

- Insulin resistance precedes weight gain



Bacon 2008, *Health at every size*.

Social Rejection



Panksepp, 2011. *Social pain* (11-51).
Amer Psychol Assn

- Throughout our evolutionary history, being socially connected increased our chances of survival
- Being part of the a group provided resources, protection, and safety

- Perceived discrimination African Americans
 - You are treated with less courtesy other people
 - You are treated with less respect than other people
 - You receive poorer service than other people at restaurants and stores
 - People act as if they think you are not smart

Lewis et al. *Brain Behav Immun* 2010; 24(3): 438-443

- 296 African Americans (M age=73), self-reported experiences of discrimination were associated with elevated C-reactive protein levels
 - This association remained even after controlling for depression, smoking, chronic health conditions, such as heart disease, diabetes, and hypertension.

Lewis et al. *Brain Behav Immun* 2010; 24(3): 438-443

- Low social status related to elevated CRP
 - 3-year longitudinal study of 188 middle-aged and older adults
- African Americans, women and those with low education had highest CRP

McDade et al., *Psychosom Med* 2006; 68: 376-381

- Low parental education predicted metabolic and CVD risk factors in high school students
 - Higher insulin levels
 - Higher glucose
 - Greater insulin resistance
 - Higher-LDL, lower HDL
 - Higher waist circumference
 - Higher BMI



Goodman et al., *Psychosom Med* 2005; 67: 9-15.

The Pima Indians of the Sonora

Prevalence 50%

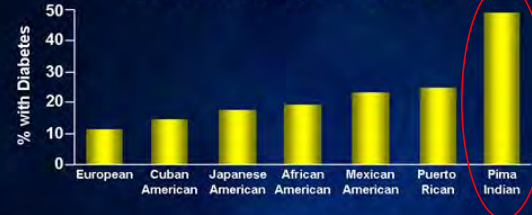
Prevalence 8%

Taubes, 2008; *Good calories, bad calories*. Knopf



U.S. Diabetes Prevalence by Ethnic Group

Men and Women, Age 45-74 Years



Harris MI, et al. *Diabetes*. 1987;36:523-534.
 Flegal KM, et al. *Diabetes Care*. 1991;14(suppl 3):628-638.
 Knowler WC, et al. *Diabetes Care*. 1993;16(suppl 1):216-227.
 Fujimoto WY, et al. *Diabetes Res Clin Pract*. 1991;13:119-128.
 Fujimoto WY, et al. *Diabetes*. 1987;36:721-729.





The Role of Sleep



Cappuccio et al. *Sleep* 2008; 31: 619-626

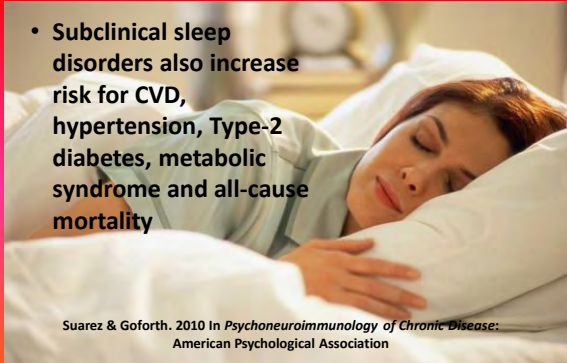
- Meta-analysis of sleep duration and obesity (36 studies, N=634,511)
- Children and adults
- Short sleep duration (< 5 hours) related to obesity worldwide



Hall et al., *Sleep* 2008, 31(5): 635-643

- Short sleep duration related to metabolic syndrome in middle-aged adults
- Short sleep duration was related to abdominal obesity, elevated fasting glucose, and hypertriglyceridemia

- Subclinical sleep disorders also increase risk for CVD, hypertension, Type-2 diabetes, metabolic syndrome and all-cause mortality



Suarez & Goforth. 2010 In *Psychoneuroimmunology of Chronic Disease*: American Psychological Association

- Even short periods of sleep deprivation can elevate cortisol and glucose levels, and increase insulin resistance

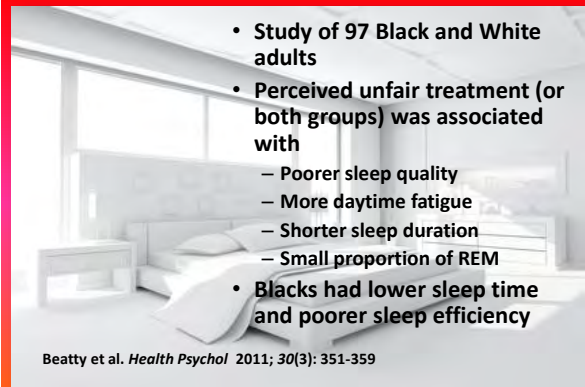


McEwen, *Biological Psychiatry* 2003; 54: 200-207

- Study of Black and White adults (N=187)
- Blacks had shorter sleep duration and lower sleep efficiency
 - 25 minutes to fall asleep (vs. 16 minutes)
 - 3.6% SWS (vs. 6.8%)
- Difference persisted even after controlling for SES

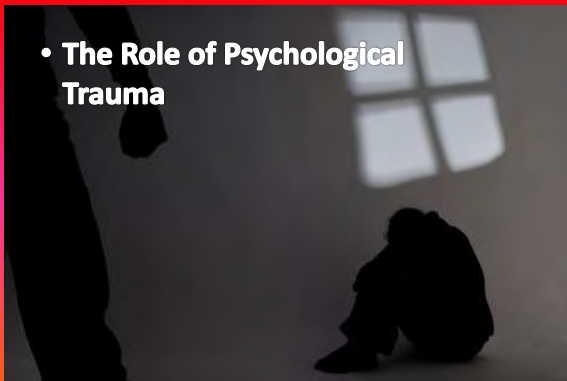
Mezick et al. *Psychosom Med* 2008; 70: 410-416

- Study of 97 Black and White adults
- Perceived unfair treatment (or both groups) was associated with
 - Poorer sleep quality
 - More daytime fatigue
 - Shorter sleep duration
 - Small proportion of REM
- Blacks had lower sleep time and poorer sleep efficiency

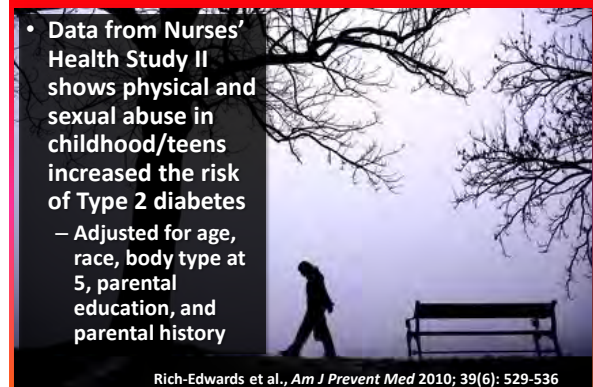


Beatty et al. *Health Psychol* 2011; 30(3): 351-359

- **The Role of Psychological Trauma**



- Data from Nurses' Health Study II shows physical and sexual abuse in childhood/teens increased the risk of Type 2 diabetes
 - Adjusted for age, race, body type at 5, parental education, and parental history



Rich-Edwards et al., *Am J Prevent Med* 2010; 39(6): 529-536




- Severity of abuse increased symptoms
- 50% increase in risk for severe physical abuse
- 69% increase in risk for repeated forced sex

Rich-Edwards et al., *Am J Prevent Med* 2010; 39(6): 529-536



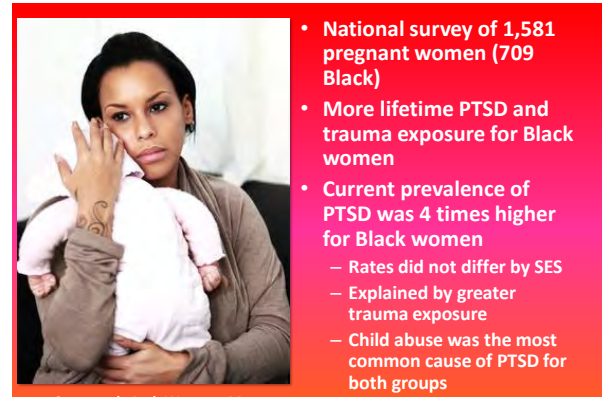
- BMI also influenced by past abuse
 - Physically and sexually abuse girls had higher BMIs
 - Trajectories grew wider as the girls grew
 - Particularly for those who experienced repeated forced sex

Rich-Edwards et al., *Am J Prevent Med* 2010; 39(6): 529-536




- Data from Black Women's Health Study (N=33,298)
- Measured waist circumference and BMI
- Early life sexual and physical abuse was related to overall and central obesity
 - Relationship existed even after controlling for lifestyle factors

Boynton-Jarrett et al. *Pediatrics* 2012; 130: 245-253



- National survey of 1,581 pregnant women (709 Black)
- More lifetime PTSD and trauma exposure for Black women
- Current prevalence of PTSD was 4 times higher for Black women
 - Rates did not differ by SES
 - Explained by greater trauma exposure
 - Child abuse was the most common cause of PTSD for both groups

Seng et al. *Arch Womens Ment Health* 2011; 14(4): 295-306



Listening to Mothers Survey II

- ❑ 18% had some PTS
- ❑ Non-Hispanic black mothers had the highest rates (26%)
- ❑ Hispanic mothers (14%)

Declercq et al. 2008. *New mothers speak out*. New York: Childbirth Connection



- Prospective 3 cohort sample first-time pregnant women
 - 255 PTSD+
 - 307 trauma-exposed, resilient
 - 277 non-trauma exposed
- PTSD+ babies birthweight 283 g less than resilient women; 221 g less than non-exposed women
- PTSD also associated with shorter gestation

Seng et al. *BJOG* 2011; 118(1): 1329-1339

- Increased IL-6, TNF- α in stressed and depressed moms
- IL-6, IL-8, TNF- α ripens cervix
- Levels increase in pre-eclampsia and infection
- CRH triggers parturition

Coussons-Read et al. *Psychosom Med* 2005, 67: 625-631



Mother-Infant Sleep and Infant Mortality

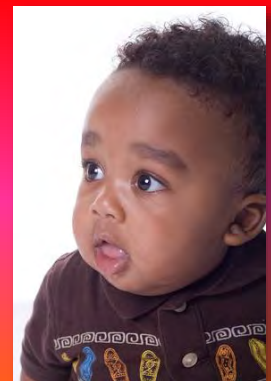
City of Milwaukee Ad Campaign Unveiled November 9, 2011



"Co-sleeping deaths are the most preventable form of infant death in this community," Barrett said.

"Is it shocking? Is it provocative?" asked Baker, the health commissioner.
"Yes. But what is even more shocking and provocative is that 30 developed and underdeveloped countries have better (infant death) rates than Milwaukee."

- Milwaukee's infant mortality rate in 2009 was 10.4 deaths for every 1,000 live births, according to the health department
- For white babies, it was 5.4. The rate for black babies was nearly three times as high: 14.1



- Do campaigns such as these keep babies safe?

– Unfortunately, the answer is “no”



Low press, CST, January 3, 2012

One-month-old infant dies in co-sleeping incident

Medical Examiner's report says baby was sleeping on floor with three other children

WITI-TV, MILWAUKEE—

The Milwaukee Medical Examiner reports a one month, 28 day old infant died in a co-sleeping incident on New Year's Eve, while sleeping on two crib mattresses on the floor of a living room with three other children.....

<http://www.fox6now.com/news/witi-20120103-co-sleeping-one-month-old,0,4277315.story>

This latest co-sleeping death comes just days after 10-day-old Egypt Holloway died while sleeping in a queen size bed with three other children.

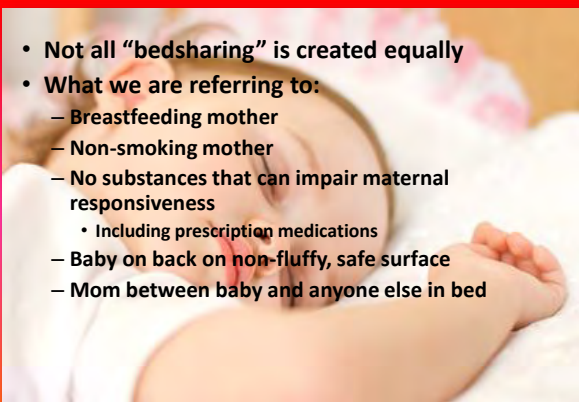
The City of Milwaukee just launched a provocative ad campaign to raise awareness about the dangers of co-sleeping. They advise parents to put their babies, especially those under three months of age, in a crib or bassinet alone, next to the parents' bed.

<http://www.fox6now.com/news/witi-20120103-co-sleeping-one-month-old,0,4277315.story>

- The topic of safe infant sleep is considerably more complex than it is frequently portrayed



- Not all “bedsharing” is created equally
- What we are referring to:
 - Breastfeeding mother
 - Non-smoking mother
 - No substances that can impair maternal responsiveness
 - Including prescription medications
 - Baby on back on non-fluffy, safe surface
 - Mom between baby and anyone else in bed



PEDIATRICS
OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

- *SIDS and Other Sleep-Related Infant Deaths: Expansion of Recommendations for a Safe Infant Sleeping Environment*
 - POLICY STATEMENT
 - TECHNICAL REPORT
- Published November, 2011

- AAP 2011 Policy Statement Level A Recommendations
 - Back to sleep for every sleep
 - Use a firm sleep surface
 - Room-sharing without bedsharing is recommended
 - Keep soft objects and loose bedding out of the crib
 - Pregnant women should receive regular prenatal care
 - Avoid smoke exposure during pregnancy and after birth

- Avoid alcohol and illicit drug use during pregnancy and after birth
- **Breastfeeding is recommended**
- Consider offering a pacifier at nap time and bedtime
- Avoid overheating
- Do not use home cardiorespiratory monitors as a strategy for reducing the risk of SIDS

- Bedsharing and SIDS Risk
 - Review of previous findings



Meta-analysis that AAP cited to make their “no bedsharing” recommendation

Only studies analyzing bedsharing and risk of SIDS were included

All case-control studies about SIDS & bedsharing considered

Vennemann et al. *J Pediatrics* 2012; 160: 44-48

Summary OR for Bedsharing and SIDS was 2.89

2404 cases

6495 controls

710 cases bedshared
28.8%

863 bedshared
13.3%

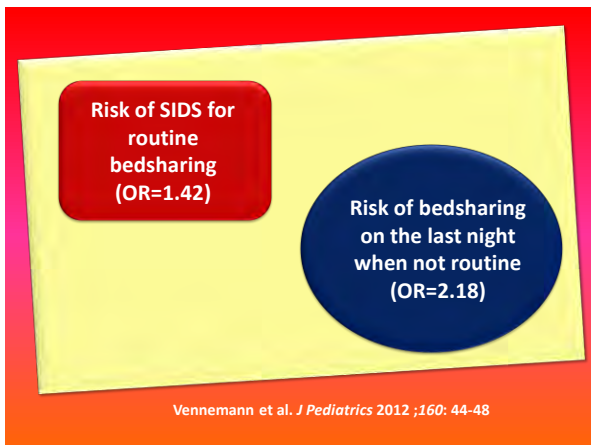
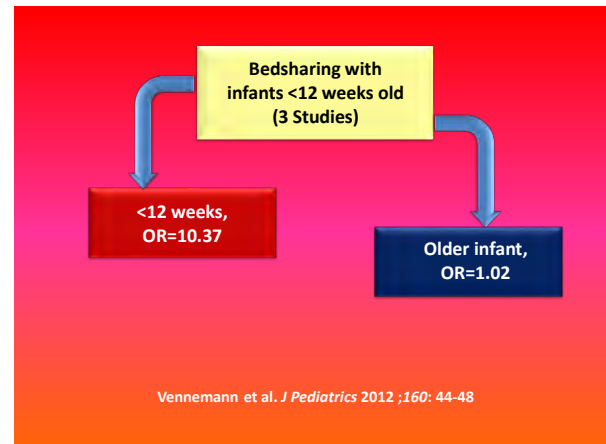
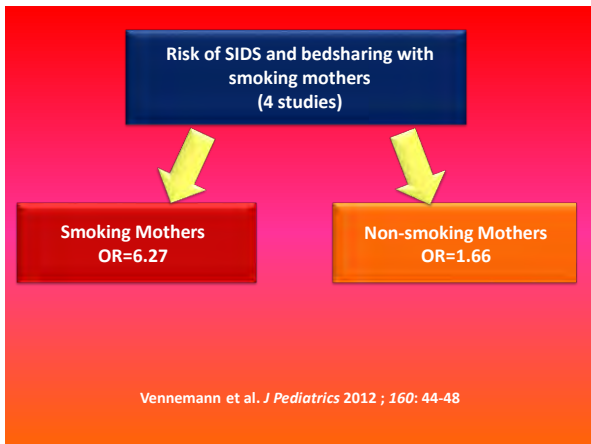
“some heterogeneity in the analysis”

Vennemann et al. *J Pediatrics* 2012 ; 160:44-48

“Only recent studies have disentangled infants sleeping with adults in a parental bed from infants sleeping with an adult on a sofa.”

“This is certainly a limitation of the individual studies and hence of the meta-analysis.”

Vennemann et al. *J Pediatrics* 2012 ; 160: 44-48



Bedsharing varied by ethnicity ("Always" bedshare)

- 41.1% Hispanic
- 43.1% Black
- 23.8% Asian/Pacific Islander
- 26% American Indian/Alaska Native
- 15.7% White

Lahr et al. *Matern Child Health J* 2007; 11: 277-286

"Non-economic factors [in bedsharing] are also important, particularly among blacks and Hispanics.

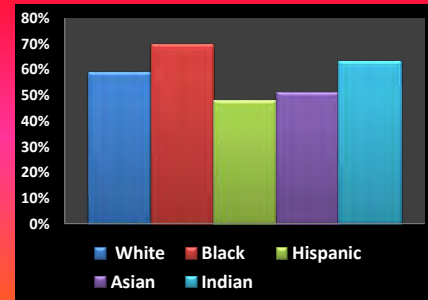
Campaigns to decrease bedsharing by providing cribs may have limited effectiveness if mothers are bedsharing because of cultural norms."

Lahr et al. *Matern Child Health J* 2007; 11: 277-286



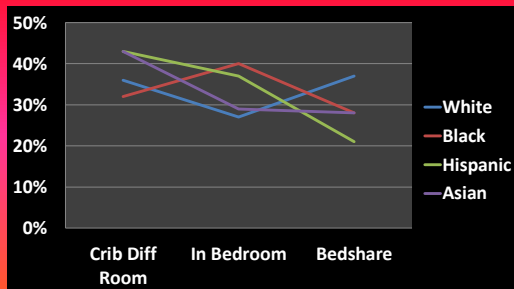
Bedsharing Rates by Ethnicity

Survey of Mothers' Sleep and Fatigue, U.S. Sample

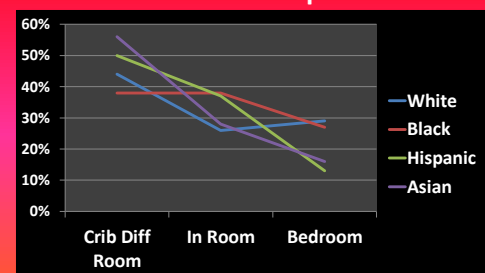


$\chi^2 (10) = 27.39, p < .002$

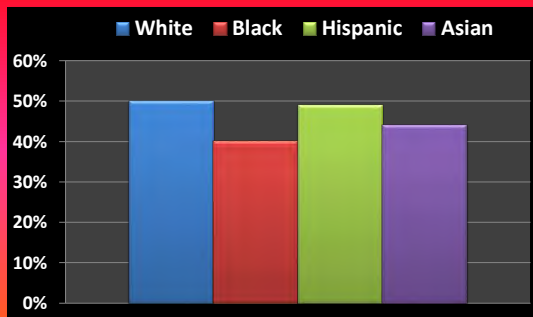
Where Mother Thinks Baby Should Sleep



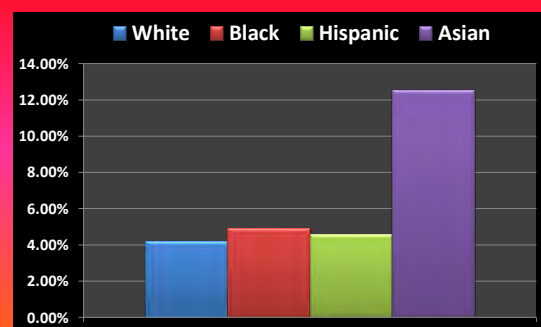
Where Partner Thinks Baby Should Sleep



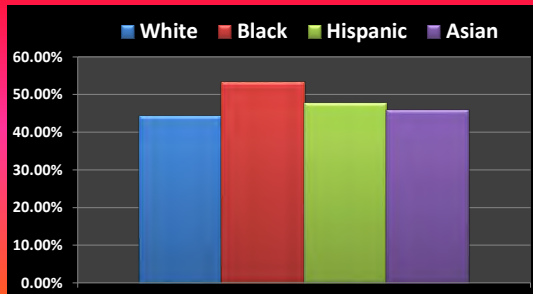
It's the Right Way to Do It



Doctor Told Them To



Only Thing That Worked



- Longitudinal study of 97 initially breastfed infants
- All measures of bedsharing frequency are strongly correlated with breastfeeding rate
 - 70% of infants were involved in bedsharing in the first month, falling to 44% at 6 months

Ball, *Infant Child Develop* 2007; 16: 387-401

Breastfeeding Only by Sleep Location

Survey of Mothers' Sleep and Fatigue



$\chi^2 (4)=288.36, p<.0001$

- Longitudinal study of 14,062 families in Avon, UK
- All bedsharing patterns were related significantly to higher rates of breastfeeding at 12 months

Blair et al. *Pediatrics* 2010; 126: e1119-e1126

- Study from Germany of 333 infant deaths, 998 age-matched controls
- Breastfeeding reduced the risk of sudden infant death syndrome by 50% at all ages throughout infancy



Vennemann et al. *Pediatrics* 2009 ; 123: e406-e410

“Advice on whether bed sharing should be discouraged needs to take into account the important relationship with breastfeeding.”

Blair et al. *Pediatrics* 2010; 126: e1119-e1126

• What can help?



1. Acknowledge discrimination and take steps to counter its physiological effects

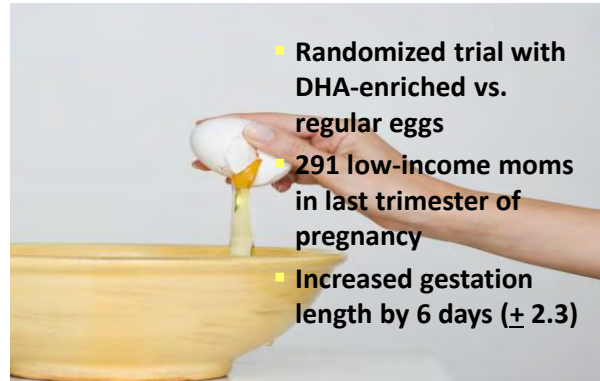


2. Lower inflammation in pregnancy

- Be proactive with depression and PTSD



- Randomized trial with DHA-enriched vs. regular eggs
- 291 low-income moms in last trimester of pregnancy
- Increased gestation length by 6 days (± 2.3)



Smuts et al., *Obstet Gyn* 2003; 101: 469-479

3. Encourage and support breastfeeding within communities at risk

- A More Excellent Way
- ROSE
- Free to Breastfeed



- In a study of 32 U.S. baby-friendly hospitals had breastfeeding initiation rates of 83.8% compared to the national average of 69.5%
- Exclusive breastfeeding rates in the hospital were 78.4% compared with a national rate of 46.3%
- Rates were similar even for hospitals with high proportions of black or low-income patients



Merewood et al. *Pediatrics* 2005; 116(3): 628-634



4. Support safe sleep practices for all families

- Office of Child Services policy
 - Use the least intrusive possible measure while still mitigating the threat
- Changes that are the least disruptive preserve the integrity of a family and are more likely to be followed

Angie, *Mothering* 2009; Jan-Feb: 48-49

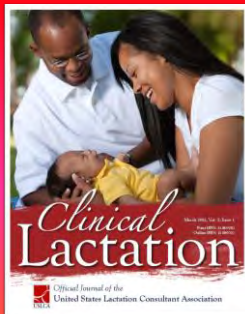


- Parents can be taught to create a safe sleeping environment
 - Remove bulky covers, not allowing other children in the bed
- Asking mom and dad to stop bedsharing, buy a crib, and change their entire nighttime routine is highly intrusive; A request more likely to be ignored or only appeared to be followed

Angie, *Mothering* 2009; Jan-Feb: 48-49



- We can make a difference in infant mortality



- USLCA's journal
www.ClinicalLactation.org



www.PraeclarusPress.com
www.UppityScienceChick.com
www.BreastfeedingMadeSimple.com
www.KathleenKendall-Tackett.com