Reducing SIDS risks whilst promoting breastfeeding

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24TH ANNUAL INTERNATIONAL MEETING

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English Observational studies

1) Avon Infant Mortality Study (AIMS)
   1987-9: 72 SIDS & 144 controls

2) Confidential Enquiry into Stillbirths & Deaths in Infancy (CESDI) Study
   1993-6: 325 SIDS & 1300 controls

3) South West Infant Sleep Scene (SWISS) Study
   2003-6: 80 SIDS & 87 controls

4) Avon Cohort Study
   1984-2003
   300 SIDS

- Prospective
- Population-based
- Age-matched controls
- Contemporaneous
- Ref sleep within 24 hours of interview
- Face to face interviews
“The sudden death of a baby that is unexpected by history and in whom a thorough necropsy examination fails to demonstrate an adequate cause of death”

*Beckwith 1969*

ICD Code R95 (798.0)
SIDS epidemiological observational studies

Decade

- 1950s: 3 Case-Control studies, 0 Cohort & Case Series Studies
- 1960s: 5 Case-Control studies, 6 Cohort & Case Series Studies
- 1970s: 18 Case-Control studies, 8 Cohort & Case Series Studies
- 1980s: 25 Case-Control studies, 16 Cohort & Case Series Studies
- 1990s: 19 Case-Control studies, 12 Cohort & Case Series Studies
- 2000s: 4 Case-Control studies, 5 Cohort & Case Series Studies
- 2010s: 2 Case-Control studies, 3 Cohort & Case Series Studies

Case-Control studies (N=76)
Cohort & Case Series Studies (N=50)
Cot deaths 'could be linked to long flights'

Cot deaths are linked to too much coffee

How smoke got in the eyes of the cot-death research

Report blames family doctors for many sudden infant deaths

Lorry diesel fumes linked to cot deaths

WARNING: Parents urged to boycott Boots mattresses

Invisible soot particles are suspected of penetrating deep into lungs and causing blood clots. Nick Nuttall reports
Main messages

1) Don’t sleep babies on their front

2) Don’t let your baby get too warm

3) Don’t smoke during pregnancy or near your baby
The fall in SIDS – Lives saved

Number of SIDS deaths in E&W

Year

Avon Campaign

National Campaign
The fall in SIDS – Lives saved

Number of SIDS deaths in E&W

27,251 deaths
Risk reduction advice we all agree on

1) Put the baby on their back to sleep
2) Don’t overdress the baby
3) Don’t use too much bedding
4) Make sure the room is not too warm
5) Make sure your baby’s head remains uncovered
6) Use a firm, flat, clean mattress
Risk reduction advice we all agree on

7) Don’t use duvets, quilts or pillows
8) Don’t use electric blankets or hot water bottles
9) Breastfeed your baby
10) Don’t smoke during pregnancy
11) Don’t let anyone smoke in your home
12) Contact your doctor if you are at all concerned
Questions that remain

1) Is breastfeeding protective against SIDS? 
2) Should we be encouraging all infants to use a dummy (pacifier)? 
3) What advice shall we give about baby boxes? 
4) What advice shall we give about bed-sharing?
Infants put down prone
Before and after campaign

Before the Campaign
- SIDS: 91%
- Controls: 52%

After the Campaign
- SIDS: 24%
- Controls: 3%
Is breastfeeding protective against SIDS?
**Univariate risk of bottle-feeding**

McGarvey, *Ireland 2000*

Wennergren, *Nordic 1997*

Brooke, *Scotland 1997*

Blair, *UK 1996*

Klonoff-Cohen, *US 1995*

Gilbert, *England 1995*

Mitchell, *New Zealand 1992*

Biering-Sorensen, *Den 1978*

Carpenter, *England 1965*

Froggatt, *N Ireland 1961*

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Odds Ratio (Log Scale)
Infant breastfeeding attempted

**CESDI Study 1993-1996**

- SIDS: 44%
- Controls: 60%
  - p<0.0001

**SWISS Study 2003-2006**

- SIDS: 70%
- Controls: 79%
  - p=0.15
Duration of breastfeeding

N=323 Deaths & 1298 Controls
Source: CESDI SUDI study
Duration of Breastfeeding and Risk of SIDS: An Individual Participant Data Meta-analysis

8 studies 2267 SIDS, 6837 controls

Any breastfeeding > 2 months halved the risk of SIDS

Greater protection with increased duration

Breastfeeding did not have to be exclusive to confer protection

Thompson JMD et al. *Pediatrics* 2017;140(5):e20171324
Protective mechanisms?

- Increased immunity from the breast milk?
- Brain Development?
- Arousal mechanism?
- Proxy marker for a different infant care practice?
- Proxy marker for something unmeasured
Should we be encouraging all infants to use a dummy (pacifier)?
Dummies 'slash cot death risk by 90pc'
by JENNY HOPE, Daily Mail

DUMMY AT BEDTIME CUTS COT DEATH RISK BY 90 %
It helps tots breathe, say docs
By Greig Box
Multivariaterisk of using a dummy for the last sleep

Vennemann, Germany 2001
McGarvey, Ireland 2000
Brooke, Scotland 1999
L’Hoir, Netherlands 1996
Carpenter, Europe 1996
Hauck, US 1996
Fleming England 1996
Mitchell, New Zealand 1992


Odds Ratio (Log Scale)

Pooled Risk ~ 0.33
Dummy use for last sleep

Based on 8 studies (Mitchell, Blair, L’Hoir, Pediatrics 2006)

- SIDS: 27%
- Controls: 42%
Based on 8 studies (Mitchell, Blair, L’Hoir, Pediatrics 2006)
Change in routine for the last sleep

CESDI Study: 321 SIDS & 1299 controls

Univariate OR: 1.97 [1.35-2.87]
Multivariate OR: 2.35 [1.03-5.36]
An estimated 50% (64/127) of SIDS cases who were bed-sharing on the night they died were unaccustomed to this type of sleeping arrangement. (McGarvey et al 2006)

“For 19 (73%) of the 26 co-sleeping deaths, co-sleeping was not their usual sleeping arrangement and the parent had chosen to co-sleep for a specific reason, usually that the infant was unsettled.” (Child Death Review Programme and all Wales Perinatal Survey 2015).
CESDI & SWISS combined
Interaction of dummy use and co-sleeping

Interaction: P<0.001

<table>
<thead>
<tr>
<th>Infants Co-sleeping</th>
<th>Infant not co-sleeping</th>
</tr>
</thead>
<tbody>
<tr>
<td>22%</td>
<td>49%</td>
</tr>
<tr>
<td>42%</td>
<td>43%</td>
</tr>
</tbody>
</table>
Duration of dummy use for last sleep

NB. N= 8 SIDS & 16 controls

Source: SWISS SUDI study
Changes in SIDS rate, dummy use and breastfeeding prevalence at 1-3 months of age

1993-1996 Study
- SIDS Rate: 0.67 per 1000 livebirths
- Dummy prevalence: 51%
- Breastfeeding at 1-3 months: 60%

2003-2006 Study
- SIDS Rate: 0.42 per 1000 livebirths
- Dummy prevalence: 21%
- Breastfeeding at 1-3 months: 79%
Abstract results
17/25 observational studies reported an association between pacifier use and shortened duration of breastfeeding

4 RCT’s recruiting mothers who were keen to breastfeed showed no difference

Abstract conclusion
The highest level of evidence does not support an adverse relationship between pacifier use and breastfeeding duration
What advice should we give about baby boxes?
LETTERS

CARDBOARD BABY BOXES

Concerns about the promotion of a cardboard baby box as a place for infants to sleep

Peter S Blair professor of epidemiology and statistics, Anna Pease senior research associate, Francine Bates chief executive, Helen Ball professor of anthropology, John M D Thompson associate professor, epidemiologist, and statistician, Fern R Hauck professor of public health sciences, Rachel Moon professor of paediatrics, Betty McEntire CEO and executive director, Anat Shatz chief executive, Marta Cohen consultant paediatric pathologist, Trina C Salm Ward assistant professor of social work, Peter Fleming professor of infant health and developmental physiology.
Our concerns

- No evidence that using these boxes reduces SIDS
- Potential to obscure the infant from parental observation
- No published evidence that the box can be used safely:
  - Questionable provision of a lid
Our concerns

- No evidence that using these boxes reduces SIDS
- Potential to obscure the infant from parental observation
- No published evidence that the box can be used safely:
  - Questionable provision of a lid
  - Low level draughts and use by young siblings or pets
  - Putting the box on raised surfaces
  - Fire-retardant?
- Undermining current safety messages
Baby Box Pilot
Wahakura?
Pepi-Pod?
What advice should we give about bed-sharing?
Univariate risk of bed-sharing - prior to fall in SIDS

Mitchell, NZ 1987-90
Lee, Hong Kong 1986-87
Carpenter, England 1958-61
Univariate risk of bed-sharing - after fall in SIDS

Blair, *England 2003-06*

Tappin, *Scotland 1996-2000*

McGarvey, *Ireland 1993-2000*

Hauck, *US 1993-96*

Fleming, *England 1993-96*

Schellscheidt, *Germany 1993-94*
Proportion of bed-sharing deaths across studies

- Avon Data (1984-89): 13%
- UK study (1993-96): 26%
- US study (1993-96): 51%
- Irish study (1994-98): 31%
- Scots study (1996-00): 40%
- UK study (2003-06): 38%
Proportion of bed-sharing SIDS deaths in Avon

Back to sleep campaign

Before 1991: 14%
After 1990: 46%

Source: Avon Longitudinal study – 300 SIDS deaths
Number of bed-sharing SIDS in Avon

Source: Avon Longitudinal study – 300 SIDS deaths

Back to sleep campaign

Before 1991: 3-4 a year in bed
After 1990: 2 a year in bed
The fall in solitary sleeping SIDS in Avon

Source: Avon Longitudinal Study

Number

Year

- Sharing a parental bed
- Solitary sleepers
Sleeping position in the 1980s in Avon

Solitary Sleepers vs Bed-sharers

Source: Avon Longitudinal study
Bed sharing when parents do not smoke: is there a risk of SIDS? An individual level analysis of five major case-control studies

Robert Carpenter,¹ Cliona McGarvey,² Edwin A Mitchell,³ David M Tappin,⁴ Mechtild M Vennemann,⁵ Melanie Smuk,¹ James R Carpenter¹,⁶

<table>
<thead>
<tr>
<th>Study</th>
<th>Years</th>
<th>Drugs</th>
<th>Alcohol</th>
<th>Sofas</th>
<th>Smoking</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Zealand Study</td>
<td>1987-1990</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>European Study</td>
<td>1992-1996</td>
<td>N</td>
<td>Y/N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Irish Study</td>
<td>1994-2003</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Scottish Study</td>
<td>1996-2000</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>German Study</td>
<td>1998-2001</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

1472 SIDS & 4679 controls

AOR for non-hazardous bed-sharing in younger infants: 5.1 [95% CI 2.3 -11.4]

Reference group: breastfed baby girls placed on their back by non-smoking parents having no other risk factors
Bed-Sharing in the Absence of Hazardous Circumstances: Is There a Risk of Sudden Infant Death Syndrome? An Analysis from Two Case-Control Studies Conducted in the UK

Peter S. Blair¹, Peter Sidebotham², Anna Pease¹, Peter J. Fleming¹

¹School of Social & Community Medicine, University of Bristol, Bristol, United Kingdom; ²Medical School, University of Warwick, Warwick, United Kingdom

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<th>Smoking</th>
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</thead>
<tbody>
<tr>
<td>CESDI SUDI Study</td>
<td>1993-1996</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>SWISS study</td>
<td>2003-2006</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

400 SIDS & 1386 controls
# CESDI & SWISS combined
Infants found co-sleeping for the last sleep

<table>
<thead>
<tr>
<th></th>
<th>SIDS</th>
<th>Controls</th>
<th>Multivariate OR</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not co-sleep</td>
<td>255</td>
<td>1173</td>
<td>1.00 [Ref Group]</td>
<td></td>
</tr>
<tr>
<td>Co-slept:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>on a sofa or chair</td>
<td>33</td>
<td>7</td>
<td>18.34 [7.10-47.35]</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>adult &gt; 2 units of alcohol</td>
<td>29</td>
<td>12</td>
<td>18.29 [7.68-43.54]</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Adult who smoked</td>
<td>59</td>
<td>63</td>
<td>4.04 [2.41-6.75]</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>In absence of above hazards</td>
<td>24</td>
<td>131</td>
<td>1.08 [0.58-2.01]</td>
<td>&lt;0.82</td>
</tr>
</tbody>
</table>
# CESDI & SWISS combined

Infants found co-sleeping for last sleep (<98 days old)

<table>
<thead>
<tr>
<th></th>
<th>SIDS</th>
<th>Controls</th>
<th>Adjusted OR</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not co-sleep</td>
<td>110</td>
<td>566</td>
<td>1.00 [Ref Group]</td>
<td></td>
</tr>
<tr>
<td>Co-slept:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>on a sofa or chair</td>
<td>22</td>
<td>5</td>
<td>21.44 [7.93-58.04]</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>adult &gt; 2 units of alcohol</td>
<td>19</td>
<td>5</td>
<td>19.35 [7.05-53.11]</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Adult who smoked</td>
<td>47</td>
<td>26</td>
<td>8.93 [5.27-15.14]</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>In absence of above hazards</td>
<td>23</td>
<td>70</td>
<td>1.62 [0.96-2.73]</td>
<td>&lt;0.07</td>
</tr>
</tbody>
</table>
### CESDI & SWISS combined
**Infants found co-sleeping for last sleep (≥98 days old)**

<table>
<thead>
<tr>
<th></th>
<th>SIDS</th>
<th>Controls</th>
<th>Adjusted OR</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not co-sleep</td>
<td>145</td>
<td>607</td>
<td>1.00 [Ref Group]</td>
<td></td>
</tr>
<tr>
<td>Co-slept:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>on a sofa or chair</td>
<td>11</td>
<td>2</td>
<td>23.86 [5.22-109.2]</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>adult &gt; 2 units of alcohol</td>
<td>10</td>
<td>7</td>
<td>6.38 [2.38-17.12]</td>
<td>0.0002</td>
</tr>
<tr>
<td>Adult who smoked</td>
<td>12</td>
<td>37</td>
<td>1.42 [0.72-2.79]</td>
<td>0.32</td>
</tr>
<tr>
<td>In absence of above hazards</td>
<td>1</td>
<td>61</td>
<td>0.08 [0.01-0.52]</td>
<td>0.009</td>
</tr>
</tbody>
</table>
ABC’s of Safe Sleeping

Alone

Back

Crib

Prevent Sudden Infant Death Syndrome
City of Milwaukee: Anti-bedsharing Campaign.

For too many babies last year, this was their final resting place.

The safest place is in a crib. City of Milwaukee Health Department. www.milwaukee.gov/safesleep
Wisconsin Anti-bedsharing Campaign.
ONCE upon a time, I was with my mummy. She fed me and we both fell asleep together.

I didn’t wake up.

THE END

Falling asleep with your baby if you are a smoker or have been drinking alcohol increases the risk of sudden infant death.

Safeguarding Campaign in Hertfordshire
….. ISPID is deeply concerned with recent health promotion campaigns that vilify parents or go too far with symbolism (for example: bed headboards as tombstones, or mothers depicted as meat cleavers or ogres in fairy tales). These over-simplified health campaigns might also mislead the public on the facts surrounding SIDS and its prevention.

We believe that such strategies are unnecessary, can be misleading and are very hurtful to parents who are already in deep pain. We disavow such strategies and encourage those who create campaigns for perinatal or infant death prevention to seriously consider the impact on parents who have had babies die and the extreme fear these might cause those parents with newborn infants.

ISPID statement on fear-based prevention strategies
Moon RY et al. 
Health Messaging and African-American Infant Sleep Location: A Randomized Controlled Trial. 

“Despite AAP recommendations to avoid bedsharing, public health efforts have been unsuccessful in changing behaviors.”

“African–American mothers who received an enhanced message about SIDS risk reduction and suffocation prevention were no less likely to bedshare with their infants.”
Caring for your baby at night
A guide for parents

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Some parents choose to sleep with their baby in bed and some fall asleep with their baby during the night while feeding and comforting whether they intend to or not. Therefore it is very important to consider the following points….
If you decide to share a bed with your baby:

- Keep your baby away from the pillows
- Make sure your baby cannot fall out of bed or become trapped between the mattress and wall
- Make sure the bedclothes cannot cover your baby’s face
- Don’t leave your baby alone in the bed, as even very young babies can wriggle into a dangerous position
- It is not safe to bed-share in the early months if your baby was born very small or pre-term
WARNING

• Ensure your baby has a clear flat sleep space
• Do not sleep with your baby when you have been drinking any alcohol or taking drugs (legal or illegal)
• Do not sleep with your baby if you or anyone else in the bed is a smoker
• Do not put yourself in the position where you could doze off with your baby on a sofa or armchair
Prevalence of breastfeeding amongst different bed-sharing groups

Blair PS, Heron J, Fleming PJ. Pediatrics 2010
SUDI Deaths by ICD-10 Code, 2001 - 2015 England & Wales

Rate per 1,000 live births

Year


PNM  SUDI  R95  R99  W75

England and Wales
22 - 24 October, 2020
Brisbane Convention Centre, Queensland, AUSTRALIA

DRIVING CHANGE
in Stillbirth, Neonatal Death and Sudden Unexpected Death in Infancy

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