SUDI Prevention in NZ

Dr Christine McIntosh  
*GP & Research Fellow, University of Auckland*

Dr Shirley Tonkin  
*Senior Research Fellow University of Auckland, Cot Death Society.*

Prof. Alistair Gunn  
*Paediatrician and HOD Department of Physiology, University of Auckland.*

Funded by:  
Auckland Medical Research Foundation  
Child Health Research Foundation – Cure Kids
The leading cause of *preventable* post-neonatal deaths in New Zealand
Child and Youth Mortality Review Committee, Te Ròpù Arotake Auau Mate o te Hunga Tamariki, Taiohi. 2009.

**Fifth Report to the Minister of Health: Reporting mortality 2002–2008. Wellington:**

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Rate/1000 live births</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>328</td>
<td>1.10</td>
</tr>
<tr>
<td>Maori</td>
<td>202</td>
<td>2.34 (4.5x)</td>
</tr>
<tr>
<td>Pacific people</td>
<td>42</td>
<td>1.31 (2.5x)</td>
</tr>
<tr>
<td>Asian</td>
<td>4</td>
<td>0.14</td>
</tr>
<tr>
<td>Other incl. NZ Euro</td>
<td>80</td>
<td>0.52</td>
</tr>
</tbody>
</table>

- **Netherlands rate:** 0.10/1000
Figure 1.2 Post-neonatal SUDI mortality rates per 1000 live births, by DHB of residence, New Zealand, 2003–2007 combined

Note: The Exact Method of Agresti and Coull has been used to estimate 95% confidence intervals. The line shows the national post-neonatal SUDI mortality rate per 1000 live births.
- Peak 2 months
- During Sleep
- Silent
- ‘Healthy baby’ – unexpected
- Autopsy – asphyxial features
- Sleep circumstances
- Not new & not “syndrome”
4 major modifiable risk factors

1. Prone or side sleeping
2. Smoking in pregnancy
3. Not breast feeding
4. Bed-sharing/co-sleeping

Triple Risk Model
Filiano & Kinney 1994

- Underlying Vulnerability
- Exogenous stressors
- Critical developmental period: 1-3 months from term
- SUDI
Age at death

Median age: 11 weeks

**Triple Risk Model**

*Filiano & Kinney 1994*

**Underlying Vulnerability**
- Smoke exposed
- Anatomical
- Prematurely born, SGA
- Not breast fed

**Critical developmental period**
1-3 months from term

**Exogenous stressors**

**SUDI**
Breastfeeding duration

21% of Maori mothers smoked and slept with infant sometimes or always.
Maternal smoking during pregnancy renders a baby less responsive to hypoxia once they are born.
Triple Risk Model
Filiano & Kinney 1994

Underlying Vulnerability
- Smoke exposed
- Anatomical
- Prematurely born, SGA
- Not breast fed

Critical developmental period
1-3 months from term

SUDI

Exogenous stressors
- Unsafe sleep environment
  - prone, side, soft bedding, overheating, co-sleeping
- Smoke exposure
SUDI cases

- Bed sharing: Yes 64%
- Placed to sleep: Supine 43%
  - Side 34%
  - Prone 23%

<table>
<thead>
<tr>
<th>Location found</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cot or bassinet</td>
<td>54 (28)</td>
</tr>
<tr>
<td>Double/queen/king bed</td>
<td>77 (40)</td>
</tr>
<tr>
<td>Mattress on floor</td>
<td>35 (18)</td>
</tr>
<tr>
<td>Single bed</td>
<td>16 (8)</td>
</tr>
<tr>
<td>Couch / armchair</td>
<td>8 (4)</td>
</tr>
<tr>
<td>Other (airbed, carseat, car, on chest)</td>
<td>4 (2)</td>
</tr>
<tr>
<td>Missing</td>
<td>27 (12)</td>
</tr>
</tbody>
</table>

Bedsharing / Sleep position 7 – 28 days

<table>
<thead>
<tr>
<th>Bedsharing</th>
<th>22 (92%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not bedsharing</td>
<td>2 (8%)</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
</tr>
</tbody>
</table>

Non-back sleep position 58%

Sudden Unexpected Death in Infancy- SUDI

- “I took him into bed with us so that the cockroaches wouldn’t get onto him. I woke to find my 18 month old child was using him as a pillow.” (3.5 weeks)

- “I took him into bed to feed him. We both fell asleep. We found him face down in the bed.” (2 months)

- “I thought because she was more than 6 months old we could take her to bed with us. We found her face buried into the bunched up blanket.” (7 months)

- “I had started sleeping her on her tummy as she seemed to settle well that way. The midwife visited that day and said “oh well most of us (parents) slept on our tummies as babies”. That night she died.” (5 weeks)

- “We had been in hospital with her that night. I was worried about her so I took her to bed with me. She was dead when I woke.” (6 weeks)
Any sleeping position where there is pressure on the chin is dangerous

- Car seats, slings, baby hammocks, prone, pillows, propped on adult arm

“normal” infants may be at risk
A six-week-old baby boy has been smothered to death while sleeping in the same bed as his parents.

Police and coroners say newborns should never be allowed to sleep in the same bed — up to 12 babies in Auckland alone die each year after being smothered.

Police were called to the West Auckland address last week after the infant was found dead in the morning.

Post-mortem examination results have yet to be completed but Detective Sergeant Megan Goldie said it was possible the newborn suffocated from "oversleeping" — parents rolling over the top of the baby.

Goldie, head of the Henderson child abuse team, confirmed no charges would be laid.

"It was an accident waiting to happen, such a waste of perfectly healthy baby," said Goldie. "It's such a huge risk that parents are running with their baby. It's just tragic. One baby is too often. It's heartbreaking."

Babies could easily be smothered by pillows or blankets, said Goldie, and she urged parents to not sleep in the same bed as their child.

The latest death follows Northland Coroner Grant Shortland's warning of the risks of putting babies to sleep in the same bed as parents or siblings.

"As much as we love our children we might have to reason to banana boxes next to the bed for them to sleep in."

Shortland ruled over two inquiries heard in Kaikohe District Court in August — into the deaths of 7-week-old Sampson O'Halloran and 9-day-old Kawereito Howard. Baby Sampson had been sleeping with his mother and 2-year-old brother, baby Kawereito with his parents and 3-year-old brother.

In June, Auckland Coroner Dr Murray Jamieson called the death of 5-week-old Abirone Talabell Byford "completely unnecessary" and repeated his plea for parents to put babies in banana boxes or drawers instead of sharing beds. He estimated 12 Auckland babies a year died when sleeping with their parents.

"One baby is too often. It's heartbreaking."

SERGEANT MEGAN GOLDIE

Baby Aihione's mother, Camellia Waa, had been drinking during the afternoon and evening, later rolling over and accidentally smothering her.

"From time to time, in every court from Albany in the north to Pokeno in the south, I am confronted by another unnecessary death," said Jamieson.

"And these deaths are among small babies who cannot defend themselves and they certainly cannot defend themselves against being overtopped by another person — usually a parent or parents, particularly when alcohol or drugs are associated."

Jamieson first called for parents to use banana boxes for their children in October 2005, after eight infant deaths resulting from bed-sharing.

A US expert with 12 years' experience, Vronne Daji, said new parents were given a lot of information when their baby was born. This included advice on how the baby should sleep and that on the "back is best."

"But in the end new mothers will do what they want to do. If they want to have their baby in the bed with them, they will," said Daji.

"They do it because they choose to do it. I find it's a cultural thing and sometimes it's easy because some mothers are lazy.

"I went to a mum who was busy downstairs while her baby was asleep on its tummy upstairs. I said it only takes minutes for a baby to suffocate."

The good thing is that I bought a baby safe sleeper."

"Plunket always make arrangements for parents to have a baby safe sleeper when their baby is born."

- From Linley Crewley, Auckland, and New Zealand Herald reporters
Other Protective Factors:

- Room sharing (not bed sharing)
- Pacifier use
Hauck et al. meta-analysis
Summary odds ratios and 95% CI

<table>
<thead>
<tr>
<th></th>
<th>Univariate analyses OR</th>
<th>Multivariate analyses OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usual pacifier use and risk of SIDS</td>
<td>0.90 (0.79-1.03)</td>
<td>0.71 (0.59-0.85)</td>
</tr>
<tr>
<td>Last/reference sleep pacifier use and risk of SIDS</td>
<td>0.47 (0.40-0.55)</td>
<td>0.39 (0.31-0.50)</td>
</tr>
</tbody>
</table>
Current projects:

- South Auckland SUDI Prevention Steering Committee
- Pepi-pod and Wahakura- Chch, Hawke’s Bay, CMDHB.
- Whakawhetu (Maori SIDS), TAHA (Pacific mother and infant service) and Change for Our Children tripartite agreement.
- Assembly of a “tool-box” for SUDI prevention
pepi-pod

a safe space for babies more vulnerable to accidental suffocation

Rules of Protection:

On the back, face clear
Only baby in here
Every sleep, everywhere
Always breathing smokefree air
Drugs and drinking nowhere near
Own space, best care.
Wahakura
How can we make a difference?

- **No smoking** in pregnancy
- Before and at 6 week check – **sleep safety!**
  - Especially vulnerable infants
  - Explain risks with co-sleeping & give advice on safer options
  - Encourage breast feeding
  - Explain pros/cons of dummies
Sources of information:

- CYMRC 5th Report to MOH
- Whakawhetu - Prevention of Maori SIDS
- TAHA Well Pacific Mother and Infant service
- Change For Our Children
- SIDS NZ
Thanks to:

- Dr Shirley Tonkin
- Prof. Alistair Gunn
- Prof. Ed Mitchell
- Dr Lynne Hutchison
- Karen Chiu