Injury Prevention Hot Topics

Safe Sleep

WRHA Injury Prevention Program (IMPACT)
Jacquie Habing, Manager
Dr. Lynne Warda, Medical Lead

Population and Public Health Staff Development Sessions
December 1 & 6, 2011
Session Objectives

1. Welcome and update from the Injury Prevention Program
2. Review two hot topics in child injury prevention for public health staff:
   • Safe Sleep
   • Child Occupant Protection
Injury Prevention Program

- WRHA IPP/IMPACT merged 2009
- Team:
  - Program specialists: Shawn Feely, Wendy French
  - Program analyst: Gemma Briggs
  - Manager: Jacquie Habing
  - Medical lead: Dr. Lynne Warda
- Site: currently HSC, future Hargrave
- Scope: all injury, all ages
Guiding Principles

- Burden (severity, burden, trends)
- Health sector mandate/fit
- Evidence-informed, evidence gap
- Expected significance/impact
- Identified need + potential for uptake
- Population health approach
- Opportunity for partnerships
- Readiness of community/target group
- Disparities are addressed as part of the strategy
- The strategy will be evaluated
- Communication/dissemination plan
- Sustainability
Injury Priority Areas

- Falls: older adults, children
- Vulnerable road users: cyclists, pedestrians
- Child occupants: booster seats, car seats
- Children < 5 years: safe sleep, product safety, home safety
Core Supporting Activities

- Data/surveillance
- Research/evaluation
- Capacity/training
- Partnerships
- Policy/advocacy
- Strategic planning and program evaluation
Sleep Environment Risk Factors for Sudden Infant Death

The Manitoba Experience and Public Health Response
Recent SIDS/SUID Manitoba Cases

- 3 weeks, sleeping with parent on couch, found prone
- 12 weeks, sleeping with teen mom in foster care, crib in room
- 6 months, adult bed, found on the floor in pile of clothing
- 8 months, sleeping with parents, found wedged between wall and mattress
- 4 months, found between two mattresses on the floor
- 4 months, found in swing with blanket over face
- 11 months, found in stroller under lap tray, no restraint in use
- 4 months, placed prone in playpen

Safe sleep issues? Common themes? Other risks? Protective factors?
Learning Objectives – Safe Sleep

• Define SIDS, SUID, ALTE
• Describe 5 sleep environment risk factors
• Identify 6 safe sleep messages for families
• Name one national and one WRHA safe sleep guidance document
• Describe the regional bedsharing policy for hospitals
• Identify 3 safe sleep resources for parents
Definitions

• SIDS
• SUID
• ALTE
• Entrapment
• Strangulation
• Suffocation
• Choking
• Asphyxia
Causes of Suffocation

- Types: Entrapment, strangulation, suffocation, aspiration
- Crib/bed/furniture entrapment
- Clothing: drawstrings, hoods, buttons
- Bedding, piles of clothing, bumper pads
- Pets
- Plastic bags, plastic film
- Aspiration (small parts): toys, coins, food
Other Causes of Sudden Death

- Child abuse, trauma
- Sepsis/infection/pneumonia
- Seizure
- Dysrhythmia
- Aspiration (GER, other)
- Central causes of apnea
- Upper airway, lower airway causes of apnea
- SIDS, SUID
Triple-risk model: SIDS

- Predisposed infant
- Unstable period of homeostatic control
- Triggering factor(s)

**FIGURE 8**
Triple-risk model for SIDS.²⁶
Risk Factors for Sudden Infant Death

- SIDS risk factors?
  - Classic: sleep position, smoking, overheating
- SUID risk factors?
  - Sleep environment risks
- Suffocation risk factors?
  - Bed, bedding, toys/objects, humans, pets
- Entrapment risk factors?
  - Bed, furniture
References/Evidence review

• Joint Statement on Safe Sleep (PHAC 2011)
• SIDS and Other Sleep-Related Infant Deaths: Expansion of Recommendations for a Safe Infant Sleeping Environment (AAP Oct 2011)
  – Policy statement
  – Technical Report
• WRHA SIDS/SUDS Clinical Practice Guideline
• Research Literature
The Bottom Line...

Level A recommendations
• Back to sleep for every sleep
• Use a firm sleep surface
• Room-share without bed-sharing
• No soft objects and loose bedding
• Pregnant women should receive regular prenatal care
• Avoid smoke exposure during pregnancy and after birth
• Avoid alcohol/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 cardio-respiratory monitors as a strategy for reducing the risk of SIDS
Sleep Position

• Supine is the safest position until age 1
• Why? Rebreathing, overheating, suffocation
• Side position is as unsafe as prone (2.0-2.6X)
• Higher risk for infants placed prone who usually sleep supine (child care, illness)
• Hospital: preterm infants supine by 32 weeks
• Newborns should be placed supine from birth
  Infants who roll both ways can be left prone
Sleep Surfaces

• Safety-approved crib, portable crib, playpen or bassinet
• Firm mattress with no gaps
• No drop sides (US, soon Canada?)
• Beware playpen bassinets and change tables – not designed for sleep!
• Car seats/infant seats/swings are not safe for routine sleep and require adult supervision
Bed-sharing

• Adult bed: risks related to suffocation, entrapment between bed/wall/furniture, soft bedding, pillows, mattress sag, falls

• Bed-sharing: risks related to overheating, rebreathing, airway obstruction, head covering, smoke exposure (all are risk factors for SIDS) + bed-related risks

• Recent meta-analysis of 11 studies: 2.88 risk (1.99-4.18) with bedsharing
Particularly Hazardous...

• “Stress to parents that they avoid the following situations at all times”
  • Smokers (one or both parents)(OR 2.3-17.7)
  • Age < 3 months regardless of smoking status (OR 4.7-10.4)
  • (BW<2500, GA < 37 weeks, nonsmokers OR 15.2)
  • Waterbeds, sofas, armchairs (OR 5.1-66.9)
  • Pillows, blankets (OR 2.8-4.1)
  • Multiple bed sharers (OR 5.4)
  • Parent has consumed alcohol (OR 1.66)
  • Bedsharing with nonparent (OR 5.4)
Bedding

- Pillows, quilts, comforters, sheepskins
- Increase risk up to 5X regardless of sleep position
- Unsafe under infant
- When loose can cause head-covering
- Risk of suffocation/rebreathing when used to create barriers to prevent infant from falling

No wedges/positioners, bumper pads
Room-sharing

- Recommended routine practice
- 50% reduction in SIDS
- Safer than solitary sleeping and bedsharing
- Separate sleep surface
- No smoking in the room
Smoking

• Maternal smoking accounts for 1/3 SIDS
• LBW, prematurity, decreased infant arousal
• Post-natal parental smoking is associated with a 2.5-5.8 fold increase in SIDS
• Risk increases with # smokers in the home, smokers in the same room as the baby, # cigarettes smoked, daily hours baby exposed
Substance Use/Abuse

- Maternal alcohol use, binge drinking: OR 6-8 independent of smoking
- In-utero exposure to opiates, cocaine, methadone, heroin: OR 2-3 after controlling for numerous associated risk factors
Breastfeeding

• Previous studies not consistent
• Recent meta-analysis of 18 case control studies: OR 0.40 (0.35-0.44)
• Exclusive BF more protective: OR 0.27 (0.24-0.31)
• Why? More easily aroused from sleep, decreased respiratory and GI illness
• Return infant to crib after feeding
Pacifier Use

• Protective effect
• Especially when used at time of last sleep
• Two meta-analyses: OR 0.39, 0.48
• Why? Lowered arousal thresholds, maintains airway open in sleep, modifies autonomic control
• No significant association with BF duration
• Delay use until BF established
Overheating

- Definite association with SIDS
- Increased when prone
- Head covering risk: overheating, hypoxia, rebreathing
- Some evidence that good room ventilation may reduce the risk of SIDS
Swaddling

- Does not reduce the risk of SIDS
- ++ increased risk if swaddled and prone
- May be used as a strategy to soothe/calm
- Tight swaddling: overheating, increases respiratory rate, adversely affects respiration
- Loose swaddling: risk of head covering
- Any swaddling may reduce sleep arousal, particularly if unaccustomed to swaddling
Understanding Crying/Colic

- Evidence-based international approach
- Normal crying curve
- PURPLE
- Focus groups, RCTs
- Booklet, DVD
- 10 languages
- www.purplecrying.info

The Letters in PURPLE Stand for:

<table>
<thead>
<tr>
<th>P</th>
<th>U</th>
<th>R</th>
<th>P</th>
<th>L</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEAK OF CRYING</td>
<td>UNEXPECTED</td>
<td>RESISTS SOOTHING</td>
<td>PAIN-LIKE FACE</td>
<td>LONG LASTING</td>
<td>EVENING</td>
</tr>
<tr>
<td>Your baby may cry more each week. The most at 2 months, then less at 3-5 months.</td>
<td>Crying can come and go and you don’t know why.</td>
<td>Your baby may not stop crying no matter what you try.</td>
<td>A crying baby may look like they are in pain, even when they are not.</td>
<td>Crying can last as much as 5 hours a day, or more.</td>
<td>Your baby may cry more in the late afternoon and evening.</td>
</tr>
</tbody>
</table>
Swaddling for Crying?

• Several studies have documented reduced crying hours with routine and ↓ stimuli
  – Sleep, feed, cuddle, alone time in playpen, to his/her crib awake but sleepy when showing signs of fatigue
  – Reduce noise from radio, television, or noisy toys, and baby gyms, if the child is less than 3 months old.
  – Avoid using bouncy chair (except for feeding) for an infant that cries excessively. Never use on elevated surfaces!
  – Avoid continuous entertainment, visits, outings

• Swaddling did not ADD significant benefit to this routine after the first 3 days. Try this first!
Swaddling Tips

- Not recommended as routine practice
- May be used to convert prone sleeper to supine
- Always lay supine, not side or prone
- No head covering
- Swaddle to allow hip flexion/abduction, breathing
- Ensure infant will not escape the swaddle
- Stop swaddling when the infant can roll over
- Use light receiving blanket (may need two)
Swaddling Guidance

• Issue raised at both practice councils
• Small working group has reviewed the evidence
• Plan: develop a one-page evidence review and an information sheet for parents about crying management strategies
• Timeframe: draft to practice councils in Jan 2012

Feedback?
Back to Sleep SIDS Trends?

• Declining incidence 1990s-now
  – 1.1/1000 live births 1990 – 0.3/1000 in 1999
  – 16-20 cases/year to <5 cases/year (SIDS)
• Males 60-70%
• African American, First Nations 1.5-2X risk
• Age: 80% less than 5 months, peak 2-4 months, 3% greater than one year of age
• Most apparently healthy prior to death, many with minor recent illness (GI, resp sx)
FIGURE 1
Provincial Death Review

• Office of the Chief Medical Examiner (OCME)
  – Children’s Inquest Review Committee (CIRC)
  – Investigate sudden deaths, authorizes autopsy
  – Authority to call inquests, take other action
  – Monitors trends

• College of Physicians and Surgeons of Manitoba (CPSM)
  – Child Health Standards Committee (CHSC)
  – Investigates medical care related to the death
  – Medical Consultant
CPSM Study 2003-2005

• Deaths due to Sudden Infant Death Syndrome (SIDS) steadily declined since the early 1990s
• There appeared to be an increasing proportion of sudden unexplained infant deaths (SUID) with significant risk factors in the sleep environment, including:
  – unsafe sleeping locations (i.e. sofas, adult beds)
  – sleeping position
  – soft/excessive bedding
Objective

• To estimate the prevalence of sleep environment risk factors for sudden infant death in Manitoba (population 1.2 million)
Methods

• All deaths of infants <1 year of age with a cause of death of SIDS, SUID, or suffocation during sleep were examined for 2003-2005

• Data sources: medical records, police reports, child welfare, medical examiner, and autopsy reports (all had complete autopsies)

• Cases with another specified cause of death (e.g. pneumonia, foreign body) were excluded
Methods: Data Collected

• age, sex
• sleep location
• presence, number, and age of bed-sharers
• position left/found
• soft/excessive bedding
• warm environment
• drugs/alcohol use (guardians, bed-sharers)
• smoking in the home
Sudden Infant Deaths: 2003-5

- 24 cases identified
- Mean age 17.2 weeks
  (SD 2.6, range 1.1 - 48.3 weeks)
- 71% were male
- Causes of death were:
  - SUID (14)
  - SIDS (5)
  - Suffocation (5)
Sleeping position

• Research evidence: place all infants supine in a crib that meets current safety standards
• Back to Sleep campaigns have resulted in marked declines in SIDS rates
• For 2003-5, only one infant was placed supine in a crib; all others were either not placed supine or not in a crib
• Only eight infants (33%) were placed on their back to sleep (seven prone, three side)
Sleeping location

- Adult bed (11) 46%
- Crib (5) 21%
- Sofa (4) 17%
- Playpen (2) 8%
- Car seat (1) 4%
- Other (1) 4%
Bedsharing

- Bedsharing was present in nearly half of cases (n=10, 42%)
- All infants sleeping on a sofa were bedsharing and six of those sleeping on an adult bed
- Bedsharers included one adult (4), two adults (4), one adult/one child (1), and two adults/one child (1)
- Two bedsharers had been drinking alcohol
Other risk factors

- Soft bedding (11)
- Soft/excessive bedding (3)
- Smokers in the home (3)
Update: Sleep Location

The diagram shows the number of children sleeping in different locations from 2003 to 2008. The locations include bed, sofa, crib, playpen, and other. The total number of children sleeping in each category is also shown.
Update: Bedsharing

- **2003**: 6
- **2004**: 6
- **2005**: 3
- **2006**: 7
- **2007**: 5
- **2008**: 4

### Categories:
- **alone**
- **bedsharing**
Study Conclusions

• Over 95% of sudden infant deaths in our region have at least one significant risk factor in the sleep environment
• Only one-third of infants had been put to sleep on their backs
• Only one-fifth found in a crib
• These findings indicate an ongoing need for parental education and reinforcement of safe sleep recommendations
WRHA Response

• Working groups 2004-2011
• Regional Policy: no bedsharing in WRHA facilities (exception – palliative care/oncology)
• Regional pamphlet
• Caring for your newborn
• Clinical Practice Guideline SIDS/SUD
• Ongoing issue at FF and PHN practice councils
1.0 PURPOSE:

To establish a safe sleeping environment for infants and children in the hospital setting and ensure families receive education about safe sleeping practices.

2.0 DEFINITIONS:

2.1 Bed sharing: When an infant or child sleeps on the same sleeping surface as an adult.

2.2 Infant/Child: All inpatients who are assigned a crib or bassinette during hospitalization (are ≤3 years of age and/or ≤35 inches tall).

2.3 Sleeping surface: chair, sofa, stretcher, cot.

3.0 POLICY:

3.1 Infants/Children shall not occupy a bed or any other Sleeping Surface with a sleeping adult during hospitalization. Exceptions shall be hospital care provided during palliative care situations.

3.2 All Staff shall provide Infant/Child care that ensures appropriate and safe sleeping during hospitalization.
NEW! Safe and Smoke-Free Homes

• Aim: to support 2011 PHAC statement and ongoing public health safe sleep practice in prenatal/postpartum care + home visiting
• Door hangtag, smoke free homes magnet
• Tips sheet on Insite for staff
• Rollout via Smoking Cessation champions
• Messages: smoke-free home + safe sleep
Key Messages for Parents

- Back to sleep for every sleep
- Alone in a crib or playpen
- No blankets or soft bedding
- Same room as parents (smoke-free room)
- Breastfeed
- Smoking significantly increases the risk of SIDS
- Discuss the risks of bedsharing
Bedsharing discussions

• Can/should we discuss “safe” bedsharing?
• vs. discuss the risks of bedsharing and risk reduction
• See AAP wording
Questions?