

Safe T Sleep™ innovation addresses flat head concerns

Aim

- To help prevent and treat plagiocephaly without synostosis (PWS) (aka flat head), extending the options for safe positioning of sleeping infants.

Introduction

This paper includes:

- Safe T Sleep *Sleepwrap*'s background, safety record and uses
- **Safe T Sleep's use in relation to positional plagiocephaly without synostosis PWS (where the skull sutures remain open), often referred to as "flat" or "misshapen" heads.**
- the results achieved by babies with PWS referred to Safe T Sleep over the past two years
- the results of an independent hospital trial that has just been completed in New Zealand.

Background

Safe T Sleep *Sleepwrap* was invented by Miriam Rutherford who has a background in

- nursing training
- human development education
- positive parenting facilitation
- community work.

The mother of three children, she has been involved in campaigning for objective and full education about safer sleep for the past 20 years.

Her aim is to empower people to make wise choices by providing full, objective information about all the factors leading to safer and more restful sleeping and ultimately, peace of mind for parents.

Miriam originally developed Safe T Sleep to help keep her own babies safe and settled and reduce the risk of falls and injuries. Statistics from New Zealand and Australia have highlighted that **almost one in four hospital admissions for falls in the 0-2 age group are the result of falls from cots, beds and bunks.**

Encouraged by many parents and health professionals including midwives and nurses, Miriam developed the Safe T Sleep *Sleepwrap* which was released to the public in 1992.



Early trials

Initial trials spanned six months, involved more than 300 babies, 600 parents, 15 clinicians from different fields in the medical profession, a wide range of professionals and organisations within the community.

The results were overwhelmingly positive and feedback since has showed that Safe T Sleep helps to:

- keep babies' faces clear during sleep
- prevent climbing and falling during the few minutes before and after sleep
- encourage longer more settled sleep
- safely maintain a back or side sleep position
- make visiting and travelling with babies easier and more practical
- reduce parental anxiety about sleep safety
- ease the transition from cot to bed
- provide peace of mind for caregivers and babysitters.

Safe T Sleep's effectiveness has been highlighted at a number of international conferences including the

- 7th International Conference for Paediatric and Child Health Nurses: Caring for Kids, Sydney 2002
- International SIDS Conference Auckland 2000
- International Karitane Conference in Australia

Safety record

More than 60,000 Safe T Sleeps have been used since its launch without a single reported death or injury, while NZ SIDS statistics suggest more than 100 SIDS deaths could have been expected in a group of this size.²

Hospital uses

At least 20 specific medical and hospital applications for the *Sleepwrap* have also been identified including positioning those with:

- breathing difficulties
- reflux conditions
- broken bones
- burns
- cleft palate
- catheters
- monitors
- post-operative needs.

How Safe T Sleep works

The *Sleepwraps* are recommended for babies and young children between birth and three years old (and sometimes older for special needs children and recreational boating use).

Parents are encouraged to use Safe T Sleeps in conjunction with skilled positive parenting techniques and safe bed making practices.

A wide fabric section is secured around the mattress and is attached to a second fabric strip that wraps underneath the armpits and around the baby's torso and leaving arms and legs free to move naturally.

Dimensions are strictly specified and fabric has been scientifically tested for breathability, washability and strength, to ensure no risk of entanglement or "bunching" of fabric.

Portability of the Safe T Sleep *Sleepwrap* ensures consistent application of safe sleep practices wherever babies go.

You can adjust the *Sleepwrap* to suit the baby's stage of development, size and mobility. To help maintain a sleep position it may be necessary to use a safety-capped safety pin secured as per Safe T Sleep product instruction leaflet (copies available).

Safe T Sleep can be used with or without rolled up towels or nappies to aid sleep positioning.

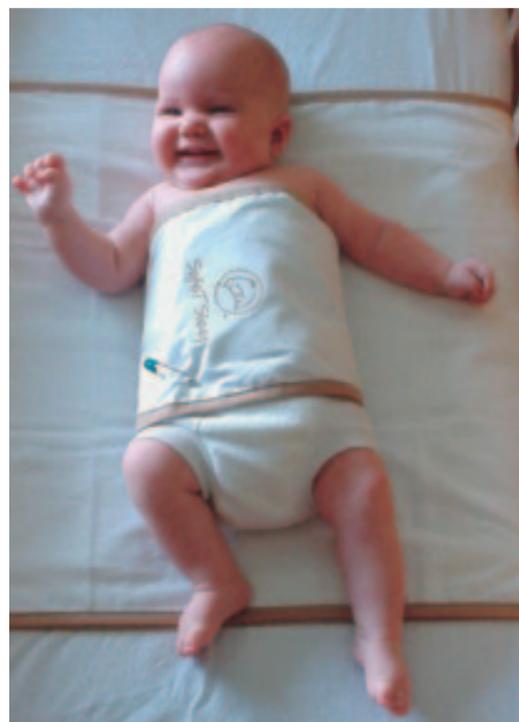
Side or back sleeping is possible, while still helping to prevent babies rolling onto their tummies, or creeping into dangerous, cold or awkward positions.

Impacts of "back to sleep"

It is well established that **keeping sleeping babies off their tummies has significantly reduced the incidence of SIDS.³**

Unfortunately, supine sleeping recommendations have also been linked to reported increases in cases of PWS.⁴

A study of admissions at Middlemore Hospital indicated up to 300% more referrals for the condition over recent years and this finding is reflected internationally where "back to sleep" has been promoted.^{3,4}



Asymmetry more than “cosmetic”

There is a wide range of “normal” head shapes. **It is the asymmetry caused by plagiocephaly that is the concern.**

Once a **flat spot begins it deforms the overall head symmetry.** One parent described the effect as making her child’s head look “like a book end”, in another case a nine year old boy is teased and unable to wear a baseball cap because of the flattened back of his head, similarly a medical professional referred to Safe T Sleep reports her daughter cannot have plaits because it accentuates the unacceptable deformation of her head. Even moderate deformation can have lasting and damaging affects on a child’s self esteem, future potential and career choices.



In some cases the condition can be linked to disfigurement including bulging foreheads, misaligned ears, flattened eye sockets and torticollis (tightened neck muscles on one side).

The “wait and see” attitude can exacerbate **the problem** which **can be treated more easily in its earlier stages** by vigilant counter-positioning.

While the softer skulls of younger babies allow problems to develop quickly, they also make corrections easier and faster to achieve.

Head turning difficult to maintain

Alternating babies’ head positions while they sleep in supine and semi-supine positions has been recommended to prevent the protracted pressure which can lead to skull deformation and does seem to work for some babies.



However, in spite of tactics such as altering head positioning, changing placement of cots and toys and

increasing tummy time during the day, many babies will repeatedly revert to a preferred head position during sleep. (Repetitive pressure on any one part of the skull can cause PWS.)

Active counterpositioning in babies with an established flat spot is even harder.⁴

Premature and low birth weight infants appear to be at increased risk.⁶

“Feet to foot” danger

Sole reliance on the “feet to the foot of the cot” position is not recommended as, although it is a back sleeping position, some babies have died after being put to bed in this way then using their feet to lever themselves around and become wedged sideways under the bedclothes.

This recommendation is being reviewed as indicated in this excerpt from a clinical review article, published in Sleep Medicine Reviews 2000

“...in practice...most cots will often still allow the infant to turn sideways and thus for the head to become covered by bedding. ...Further studies are now indicated to resolve whether the recommendation should continue to be supported.”⁷

However, use of a Safe T Sleep avoids this concern.

Treatment options

Apart from counterpositioning recommendations, current interventions for PWS can include:

- infants wearing moulded helmets or orthotic head bands for up to 23 hours a day for several weeks or months, often resulting in irritability, pressure sores on the child’s head, disturbed, restless sleep and resultant sleep deprivation and emotional stress for parents and babies. (Just trying to keep a hat on a young child is known to be a challenge!)
- in extreme cases, surgery (incidence of this in the United States is up to 4% 4,5)
- more recently, some health professionals have recommended use of a Safe T Sleep *Sleepwrap* (sometimes in conjunction with additional aids and techniques)



Referrals success

- following continued referrals over a two year period from health professionals, including craniofacial plastic surgeons, more than 40 families have used Safe T Sleep in conjunction with practical wrapping and positioning techniques and advice to assist their baby’s corrective head positioning
- all have achieved significant improvements in their baby’s head shape
- among them were two young patients who were scheduled for surgical intervention but have now had their head shapes completely resolved
- many affected parents now express the view that their baby’s problem could have been prevented. (Ref. written parent feedback.)



Middlemore Hospital trial 2002

Following Safe T Sleep's success in the community a formal hospital trial was set up by craniofacial plastic surgeon based at Auckland's Middlemore Hospital, Dr Tristan de Chalain to test "whether varied head/body positions can be achieved safely and effectively in neonates and older babies using a Safe T Sleep Sleepwrap according to instructions."

Method

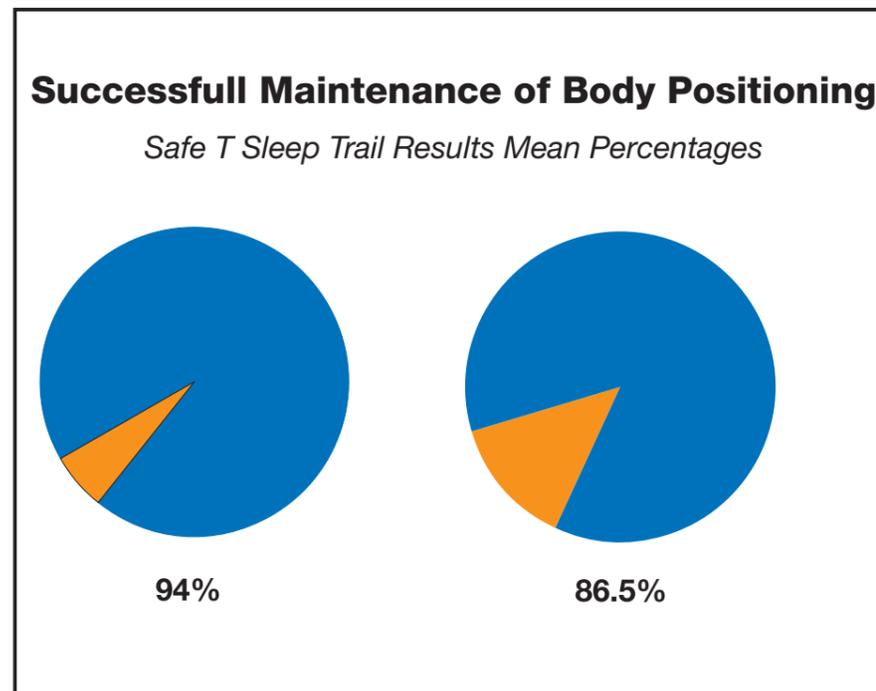
- Babies were categorised into age intervals of 0-3 months, 3-6 months, 6-9 months or 9-12 months
- they were put to bed in semi-supine positions using a Safe T Sleep Sleepwrap
- the lower arm was placed forward and the head turned to the left or the right
- head and body positions were observed and recorded every hour, as were variances from the positions selected.

Results

A total of 31 babies were involved and nearly 400 hours of observation was recorded.

Across all age groups:

- efforts to maintain body position were at least 90% successful (with a mean of 94%).
- efforts to maintain head position were at least 80% successful (with a mean of 86.5%).



There were few adverse events involving unwanted head/body movement.

Limitations of data - the 3-6 month and 9-12 month groups were small.

Conclusions

The overall results are significant.

Dr Chalain concluded that it is in helping families to achieve the goal of semi-supine sleeping with alternate head positions that the Sleepwrap is most useful, especially as a training aid with the younger babies, or as a behaviour modifier in the slightly older baby.

Summary

- Safe T Sleep's have been tried, tested and proven in the community for the past 10 years with overwhelming success
- More than 60,000 have been used without a single reported death or injury
- More than 40 families have successfully corrected PWS using Safe T Sleep
- Hospital trials have demonstrated that they are a safe and effective tool in achieving and maintaining varied body and head positions without increasing the risk of SIDS
- Prevention is better than cure
- With full and objective information, well informed health professionals and the right tools, parents and caregivers can reduce the likelihood PWS developing
- You don't have to choose between SIDS and misshapen heads. Both issues can be successfully addressed at the same time.

References

1. Otago Injury Prevention Unit study of New Zealand hospital admissions of infants 0-2 years 1989
2. (1996 1.9 SIDS deaths per 1000 live births; 1997 1.4 SIDS deaths per 1000 live births and higher SIDS incidence prior to that).
3. Mitchell EA, Brunt JM, Everard C. Reduction in mortality from sudden infant death syndrome in New Zealand: 1986-92. Arch Dis Child 1994; 70: 291-294.
4. Argenta et al. An increase in Infant Cranial Deformity with Supine Sleeping Position published in the Journal of Craniofacial Surgery Jan. 1996.
5. Turk A. E. et al. The "Back to Sleep" Campaign and deformational plagiocephaly: Is there cause for concern? The Journal of Craniofacial Surgery Vol. 7, No.1 12-18, Jan. 1996
6. Littlefield T R et al. Multiple Birth Infants at Higher Risk for Deformational Plagiocephaly. Paediatric Vol 103:3 March 1999 565-9
7. Gunn AJ, Gunn TR, Mitchell EA Is changing the sleep environment enough? Current recommendations for SIDS. Sleep Medicine Reviews Vol. 4, No. 5, 2000 453-469.

Available resources

- Free bassinet sized Safe T Sleep for educational/demonstration purposes
- Free bassinet sized Safe T Sleep for midwifery centre display purposes
- Safe T Sleep brochures
- Safe T Sleep instructions (in five languages)
- Instructional videos on the use of Safe T Sleep

- Copies of poster content
- Copies of reference papers
- Copies of parent testimonials
- Advice on grants available to low income households requiring Safe T Sleep Sleepwrap
- Advice on special sheet folding and baby wrapping techniques in order to assist in correcting PWS
- Specially designed head wedges



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