CORONERS ACT, 1975 AS AMENDED

*SOUTH*  *AUSTRALIA*

# FINDING OF INQUEST

*An Inquest taken on behalf of our Sovereign Lady the Queen at Adelaide in the State of South Australia, on the 25th, 26th and 27th of June and 13th July 2001, before Wayne Cromwell Chivell, a Coroner for the said State, concerning the death of Jayden Tyler Trimboli.*

*I, the said Coroner, find that Jayden Tyler Trimboli, aged 6 days, died at the Women's and Children's Hospital, North Adelaide, South Australia on the 25th September 1998 as a result of hypoxic-ischaemic encephalopathy.*

## 1. Introduction

1.1. Jayden Tyler Trimboli was born at 1:23pm on 19 September 1998 at the Women's and Children's Hospital (WCH), North Adelaide. He died at 1:53pm on 25 September 1998 at the same hospital, just six days later.

1.2. The cause of Jayden's death was established at a post mortem examination conducted by Dr A J Bourne, Pathologist, on 28 September 1998, as hypoxic-ischaemic encephalopathy (Exhibit C1a). This means that his brain was deprived of oxygen causing the death of some brain tissue, and that his brain became so swollen that it was severely and irreparably damaged, to an extent which was incompatible with life.

## 2. Events leading up to Jayden's birth

2.1. Jayden's mother, Mrs Brenda Trimboli, was admitted to WCH at about 8pm on 18 September 1998. She was eight days overdue for delivery.

2.2. Registered Midwife (RM) Julia Cowley had been allocated as Mrs Trimboli's midwife that night. She started work at about 10:25pm, and went and chatted to Mrs Trimboli. At 10:45pm she went to the operating theatre to assist in an emergency caesarean section.

2.3. A foetal heart monitor or cardio-tocograph ('CTG') had been strapped to Mrs Trimboli's abdomen at about 8:50pm and, since the heart was showing a normal rhythm, the prostaglandin gel to induce labour was inserted, and the monitor was replaced at about 10pm. RM Cowley told Mrs Trimboli that the monitor would be removed at about 11:00pm. She also told Mrs Trimboli that the CTG was connected to another monitor at the nurses' station, and that she should ring the bell for assistance if no-one came to remove the monitor by 11:15pm at the latest (T161). She did not give Mrs Trimboli any instructions about how to read the monitor, or to ring the bell if the foetal heart rate fell below a certain level.

2.4. Before leaving, RM Cowley told the Shift Coordinator, RM Meredith Scobie, that the CTG was on, that it was due to be removed at 11:00pm, and that Mrs Trimboli had been instructed to ring the bell if no-one had removed it by 11:15pm (T161).

2.5. Mrs Trimboli said that she received a telephone call from her sister, Christine Caminiti, at about 11:10pm, and she was waiting for her sister to come to the hospital when she noticed a change in the readout, or 'trace', from the monitor. She said that when her sister arrived at about 11:25pm, she pointed out the change in the trace to her, and they discussed whether she should call the midwife (T17).

2.6. Mrs Trimboli said that she pressed the call button and a different midwife, not Julia Cowley, came to the room. She described the sequence of events as follows:

> 'Christine arrived around 11:25 and I told her about the graph. We called in the midwife at approximately 11:30. A different midwife came in and I told her that I noticed the change in the graph pattern. She said it was not unusual for the monitor to pick up the mother's heartbeat, instead of the baby's. She asked me if I had moved or got out of bed. I told her that I had only rolled onto my side. She repositioned the monitor and continued chatting with us as if everything was

> okay. She stayed in the room for about 10-15 minutes and continued to chat with us about general things. At no time did she suggest any sense of danger or cause for alarm. She was relaxed and calm in her manner. Although I don't remember the entire conversation, she did mention a caravan trip she had taken around Australia'
> (Exhibit C10, p4)

After seeing her give evidence in court, Mrs Trimboli identified RM Scobie as the midwife who came into the room (T308).

2.7. Mrs Trimboli's version of these events was similar to the evidence of her sister, Mrs Christine Caminiti, who produced a telephone record (exhibit C2b) which confirms that she telephoned Mrs Trimboli at 11:12pm. She said that she arrived at the hospital 8 to 10 minutes later (she has re-enacted her trip twice since then and it has taken 7 and 8 minutes).

2.8. Mrs Caminiti was vague about what Mrs Trimboli told the midwife, and about how many times she rang the bell (T209), but she also positively identified the nurse who came into the room as RM Scobie (T205).

2.9. Registered Nurse (RN) Madeline Baker, a student midwife, was also present in the ward that night on 'work experience'. As part of her training, she was required to gain 'on the job' experience in managing childbirth.

2.10. RN Baker told the court that it was she, and not RM Scobie, who answered the bell, and went to Mrs Trimboli's room. She was adamant, though, that this happened between 11:50pm and midnight, not 11:30pm as alleged by Mrs Trimboli. RN Baker said that Mrs Trimboli informed her that it was past the time to take the CTG off, so she went and looked at the trace. She said that she noticed that there had been a 'dip' or deceleration in the foetal heart rate (bradycardia), which had since recovered to 120 beats per minute. She said she asked Mrs Trimboli if she had noticed it. Mrs Trimboli said she had when she rolled over to talk to Mrs Caminiti, and that she was going to ring the bell, but she didn't do it. (Exhibit C7a, p2).

2.11. RN Baker said she was concerned about the dip, so she went and informed RM Scobie, who was at the nurses station. She said that RM Scobie looked at the monitor, and commented that it looked as though there had been loss of

contact (between the machine and Mrs Trimboli's abdomen) at one point, and that the machine was then picking up the maternal rather than the foetal heart rate (T132).

2.12. RN Baker said that RM Scobie was waiting for the doctor to return from the operating theatre. In the meantime, RM Scobie instructed RN Baker to go and write on the trace:

> 'Called to take CTG off by patient – observed trace. CTG continued.'

This note appears at midnight on the time line.

2.13. RM Scobie's version of these events is considerably different from that of Mrs Trimboli and RN Baker. She confirmed that, at 10:45pm, RM Cowley told her that the monitor was on, that Mrs Trimboli was not contracting, and that the monitor was due to come off at about 11:15pm. Because everything seemed stable, RM Scobie decided that, since she was being monitored, Mrs Trimboli did not require 1:1 nursing care. Unfortunately, she then set off on her rounds, overlooking the fact that nobody was watching the monitor. She denied that she came into Mrs Trimboli's room in answer to a bell, or that the visit described by Mrs Trimboli and Mrs Caminiti occurred (T113).

2.14. RM Scobie said that a Registrar, Dr Vatani, was passing the nurses station, and, seeing the trace on the monitor, asked what was happening in Room 11. She said that she looked at the monitor, and saw that the trace was returning from a low reading to a more normal level, but was still showing an abnormal pattern. She identified the time by consulting the trace, at 2350 or 11:50pm (T117). Even on this version of the events, RM Scobie's observation of the monitors was deficient.

2.15. RM Scobie said she had no memory of RN Baker, and denied that she had any notice of Mrs Trimboli's condition prior to Dr Vatani's visit. Her estimation of the time must be incorrect, though, since Dr Vatani could not have been at the nurses station before about 12:15am, and most likely 12:20am. Dr Vatani had been assisting at the caesarean section, which, according to the operation record, did not conclude until 12:15am. (Exhibit C12a).

2.16. Dr Vatani's statement is as follows:

> 'I recall I came out from theatre and was on my way to Paediatric Emergency to help out. The theatres are within a few metres of the delivery suite and as I was walking past the station I stopped because a trace on the monitor caught my attention. I said to midwife Scobie who was present at the desk words to the effect of "Have you seen this trace?" I believe that I remember that she said she had not seen the trace and I advised her to send for Dr Sexton immediately. Dr Shivaraj also arrived at the nurse's station at about the same time I did. I was still present when Dr Sexton came which was within a few minutes.'
> (Exhibit C5a).

2.17. RM Scobie said she went into Mrs Trimboli's room, and spoke to her and looked at the entire trace. She asked Mrs Trimboli whether she had pain, whether her water had broken, whether she had moved. She denied that she was answering the bell and denied that the monitor was still low when she went in. She said that Mrs Trimboli told her that she had heard the trace go down (decelerate), but she did not ring the bell to call a nurse (T107).

2.18. RM Scobie said that she would not have simply assumed that they had been getting the maternal heartbeat rather than the foetal heartbeat without calling a doctor. She said she would have called an emergency if the reading was low when she was in the room (T120).

2.19. Dr Sexton told Detective Mildren in their interview (Exhibit C3a) that he was summoned to the nurses station at about 12:30am. He immediately noticed that there had been an unprovoked, prolonged deceleration of the foetal heartbeat, which had returned to normal. He examined Mrs Trimboli and conducted an ultrasound.

2.20. Dr Sexton discussed the matter with Dr Elinor Atkinson, the consultant in charge of the ward, on the telephone. In view of the fact that the trace had returned to a normal rate, it was decided to take a conservative approach and continue with the CTG.

2.21. Dr Sexton said that although the heart rate was acceptable, the pattern on the trace was unusual as there were no accelerations and decelerations, and he remained concerned that there may have been an arrhythmia in the foetal heart, possibly a congenital abnormality. (Exhibit C3a, p11).

2.22. Dr Sexton telephoned Dr Atkinson again at 4:00am, but again a conservative approach was adopted. An unsuccessful attempt was made to rupture the membranes at 6:00am. At about 8:30am they ruptured spontaneously, and it was noted that the liquor was stained with meconium (foetal bowel contents) which can be an indication that there has been foetal distress.

2.23. In her statement, Dr Atkinson confirmed that a conservative approach was taken because the 'episode of abnormality had apparently resolved'. (Exhibit C4a, p3). She also confirmed, having reviewed the trace personally since, that Dr Sexton had described the situation accurately to her over the telephone and 'I would have managed Mrs Trimboli in the same way'. (Exhibit C4a, p3).

2.24. Jayden was born at 1:23pm the next afternoon, after what was a relatively routine labour.

2.25. Conclusion

It is not easy to reconcile the evidence of Mrs Trimboli, Mrs Caminiti, RM Scobie and RN Baker. I was not convinced that Mrs Caminiti's evidence supported Mrs Trimboli greatly – her recollections were vague and the incident has obviously been reconstructed in their minds repetitively.

2.26. RM Scobie's evidence, on the other hand, was substantially damaged by that of RN Baker. She clearly acknowledged that it was she who responded to the bell. There had only been one bell, and she thought it was between 11:50pm and 12:00am. She noted the time on the trace almost contemporaneously. I prefer RN Baker's evidence to that of Mrs Trimboli and Mrs Caminiti as to the time, and accept all three of them that the bell was rung and answered. I therefore find that it was between 11:50pm and 12:00am that RN Baker went to Mrs Trimboli's room.

2.27. The other body of evidence which throws doubt on RM Scobie's version is the operation record and the evidence that Dr Vatani did not notice the trace until after midnight, perhaps as late as 12:15am or 12:20am.

2.28. In all the circumstances, I reject RM Scobie's evidence where it conflicts with that of Mrs Trimboli and RN Baker. I find that Mrs Trimboli rang the bell between 11:50pm and midnight, that RN Baker answered it and went to the room, was concerned at the trace, and reported it to RM Scobie. RM Scobie

did nothing, concluding that there had been a loss of contact and that the low rate was maternal and decided to wait for the doctors to return.

2.29. I am unable to accept the evidence of Mrs Trimboli and Mrs Caminiti that it was RM Scobie who entered the room in answer to the bell. I think they must be mistaken about that. I accept that RM Scobie did not know about the trace until RN Baker drew it to her attention.

2.30. I make these findings reluctantly, as RM Scobie is an experienced midwife who was well-qualified to take whatever action was called for. She undertook responsibility for checking Mrs Trimboli's monitor after 10:45pm when RM Cowley left the unit (T75), and failed to discharge that responsibility. When a patient is being monitored on a CTG, the fact that the monitor was not checked between 10:45pm and midnight, was a gross departure from proper care.

## 3. Jayden's progress after birth

3.1. On the way to the Neonatal Intensive Care Unit ('NICU'), Jayden suffered a seizure. He was sedated, and the next day showed signs of severe neurological dysfunction in the form of encephalopathy (cerebral irritation). A cranial ultrasound showed evidence of generalised oedema (swelling). His kidneys and liver were also showing signs of damage.

3.2. Dr Andrew McPhee, the Director of NICU, told Mr and Mrs Trimboli that Jayden had suffered a hypoxic-ischaemic injury, and that further tests were required to confirm the cause. (Exhibit C15, p2).

3.3. A CT scan of the brain on Monday, 21 September 1998 showed marked cerebral oedema consistent with extensive and severe brain damage. An electro-encephalogram (EEG) showed negligible brain activity. Dr McPhee told Mr and Mrs Trimboli that recovery was unlikely, and that Jayden was likely to die soon. (Exhibit C15, p2).

3.4. Mrs Trimboli said that she was visited by Dr Ross Sweet, the Medical Chief at WCH, and he told her that he had been very unhappy and concerned about the prolonged period of bradycardia demonstrated by the changes on the CTG, commencing at 11:10pm and lasting for 45 minutes or so. Dr McPhee told her that he had also been informed that the result of the investigations by

Associate Professor MacLennan and Dr Sweet identified this event as the likely cause of the hypoxic-ischaemic event. (Exhibit C15, p3).

3.5. Jayden's condition deteriorated over the next few days. Dr McPhee discussed the options for continued care with the family on 22, 23 and 24 September 1998, by which time he advised them that survival was unlikely, and intact survival impossible. A plan to provide 'nurture care' only was put in place, so that warmth, cuddling, feeds and suction were provided, but care would not be escalated in the event that Jayden deteriorated.

3.6. As expected, Jayden's condition continued to deteriorate, and he died at 1353 hours on Friday, 25 September 1998 in the arms of his family. Mrs Trimboli described it as the 'saddest and most tragic day of our lives'. (Exhibit C10, p8).

3.7. As I have already mentioned, the autopsy confirmed that Jayden had suffered profound brain injuries, as well as an agonal pneumonia which Dr McPhee said was related to his poor coughing reflex and inability to clear secretions from his lungs (Exhibit C15, p4).

3.8. On 12 November 1998, Dr McPhee met with Mr & Mrs Trimboli and a friend to discuss the autopsy outcomes. He told them that no other cause for Jayden's death was identified, and that in his opinion the bradycardia commencing at 11:10pm on 18 September 1998 indicated the time of the injury, but that the cause of the injury remained unknown.

## 4. Issues arising at the inquest

4.1. A report has been obtained from Professor Roger Pepperell, formerly Professor of Obstetrics and Gynaecology at the University of Melbourne. Professor Pepperell continues to practise as a consultant obstetrician and gynaecologist, and is widely experienced and extremely well-qualified to comment upon the issues which have arisen in this case. His evidence was taken by video-link with Melbourne.

4.2. What caused the fatal episode of hypoxia?

Professor Pepperell said that there is no easy explanation for this occurrence. He offered a number of alternatives, including:

- placental inefficiency (unlikely in view of the size and apparent health of the baby);
- a long, unrelieved contraction of the uterus interfering with placental functioning (not evident on the CTG trace);
- compression of the umbilical cord caused by the position of the foetus;
- caval compression, or compression of the major maternal blood vessels in the anterior part of the abdominal cavity, caused by the weight of the uterus when Mrs Trimboli was lying on her back.

4.3. Upon reviewing the CTG trace (exhibit C14), Professor Pepperell said that the initial abnormality at 11:10pm corresponded with a contraction which lasted 3 minutes. The foetal heart rate did not recover after the contraction ceased and cord compression and/or caval compression were among the likely explanations for that (T302).

4.4. Professor Pepperell said that Jayden's condition at birth, and the subsequent events were consistent with the hypoxic event having been of recent origin, within the last 24-48 hours. The fact that the CTG was normal before the prostaglandin gel was inserted at 10:00pm suggests that the deceleration between 11:10pm and 11:50pm was the catastrophic event (T276).

4.5. <u>What should have happened at or just after 11:10pm?</u>

Professor Pepperell said that, obviously, the sooner remedial action was taken, the better the outcome might have been. An episode of hypoxia can have drastic results after only 3-5 minutes. As soon as the problem was discovered, the appropriate course should have been:

1) check that the machine was properly contacted with the patient;
2) change the position of the patient – this may have reversed cord compression or caval compression;
3) if the mother was contracting, remove the gel – this would have required an experienced midwife or doctor;

If these steps did not result in a quick improvement in the trace, call for medical attention leading to the following action:

4) infuse the patient with Salbutomol or some other agent to inhibit contractions;
5) consider urgent caesarean section.

4.6. Of course, the outcome of each of the above steps would determine the need for further action. In view of the fact that Mrs Trimboli did not suffer a long and unrelieved contraction, action as simple as changing her position may have been sufficient.

4.7. Professor Pepperell pointed out that urgent caesarean section could have taken 30-40 minutes to achieve. He agreed with an article written by Professor MacLennan and Dr Spencer produced by Mr Stratford , Counsel for the WCH, which demonstrated that the time from decision to delivery varied in a survey from between 17 and 86 minutes, with a mean of 42 minutes (T281). He also agreed that:

> 'However, recent studies suggest that fast decision to delivery times do not necessarily prevent neurological deficit, nor do slower delivery times necessarily have a measurable impact on neonatal outcome.' (T283).

4.8. Obviously the above statement does not imply that, when hypoxia is suspected, there is no need to hurry. It is just that a better outcome is not guaranteed.

4.9. <u>Monitoring</u>

As for monitoring of the foetal heart rate after insertion of the prostaglandin gel, WCH midwifery policy at the time indicated that such monitoring should take place for 20 minutes before and 30 to 60 minutes after insertion of the gel (exhibit C13c, p2). This is longer than is recommended in the medical standard (20 minutes before and 20 minutes after) (see exhibit C13d). However, as RM Judith Coffey, head of the WCH delivery suite, explained:

> 'But the fact that women actually are required to remain in bed for 45 minutes to an hour afterwards, midwives, being midwives we often try to demonstrate a nice, long normal trace, so the practice is that it sometimes remains for 30 to 60 minutes which is what it states in the midwifery standard.'
> (Exhibit C13, p3)

In fact, Mrs Trimboli was monitored from 8:50pm to 9:10pm, and the gel was inserted at 10:05pm. RM Cowley intended that the monitor be removed at 11:00pm or 11:15pm at the latest.

4.10. RM Coffey told Detective Senior Constable Mildren, who investigated this matter, that there would have been up to four other CTGs, or five including Mrs Trimboli's, being monitored that night (exhibit C13a, p1). Of these, only two were in established labour, and a third had suffered a fall, so these three patients were being monitored. With a total establishment of eight midwives and a supernumerary student on duty that night (exhibit C13a), there was no reason why Mrs Trimboli's CTG should not have been monitored.

4.11. It was clearly RM Scobie's role, as Shift Coordinator, to arrange this. RM Coffey said:

> 'The role of the S/C [Shift Coordinator] is to oversee and coordinate the care within the DE [Delivery Suite], reallocate staff if indicated to facilitate appropriate care to the women based upon their acuity, organise meal breaks/relief and liaise with the primary care givers (midwives) in relation to the status of the women in their care. The degree of input of the S/C into individual patient care is negotiated and depends on the knowledge, skills and experience of the other midwives on duty who are giving primary patient care, and also individualised by the S/C according to overall workload .'
> (Exhibit C13a, p2)

4.12. The plain fact is, as RM Coffey so honestly acknowledged, it was 'unacceptable' that no member of staff was keeping track of Mrs Trimboli's CTG monitor while it was activated (T239). I note that Dr McPhee agreed (exhibit C15, p4). It is not the point to say that the monitor should have been removed before 11:10pm. Who can now say what might have happened if it had been disconnected earlier? Mrs Trimboli may have been allowed to get up and go to the toilet, or whatever, and the compression may have been relieved, and the hypoxia may not have occurred.

4.13. <u>Conclusions</u>

In summary, then, I find on the balance of probabilities that:

- the episode of hypoxia which led to Jayden Trimboli's death occurred between 11:10pm and 11:50pm on 18 September 1998;
- the episode was recorded unambiguously on a CTG which was monitoring his heart rate at the time;

- the clear evidence thus provided was not noticed until it was far too late to take remedial action, due to a failure by RM Scobie to check the monitor at any relevant time, or to direct another midwife to do so;
- the failure to take any such remedial action at the appropriate time deprived Jayden Trimboli of the chance of a better outcome, including the chance that he could have been born without injury (see the evidence of Professor Pepperell at T298 and Dr McPhee's statement, exhibit C15, p4).

## 5. Recommendations

5.1. Section 25(2) of the Coroner's Act 1975 empowers me to make recommendations following an inquest if, in my opinion, such a recommendation may 'prevent, or reduce the likelihood of, a recurrence of an event similar to the event that was the subject of the inquest'.

5.2. RM Coffey did comment that the system at WCH for investigating such tragic events, and dealing with the family who have been devastated by loss, is inadequate. She said:

> 'I would love to see one person to coordinate; I would like to see one person responsible for coordinating an approach to the woman for documenting her concerns, agreeing to be the person to follow it up, and give her good accurate information about what happened. Also, for the staff as well, because it is a tragedy for everyone. It's very uncoordinated.' (T255).

5.3. Mr Rau urged me to make recommendations on this topic, but Section 25(2) does not give me that power, since the issue does not relate to prevention of similar events. However, it is obviously an important issue and one which requires close analysis. Of course, these situations are always complicated by the prospect of litigation. The role of litigation in preventing proper communication between the hospital and the patient in a situation such as this is a matter which calls for close analysis. Whether such communication could have taken place on a 'without prejudice' basis is not a matter which I can comment on.

5.4. All the policies and procedures in the Delivery Suite have been reviewed by RM Coffey:

- soon after this incident, RM Coffey wrote to all staff in the Communication Book (exhibit C13j) reminding them that:

  'If a CTG is in progress, someone must be responsible for observing same either by presence in the room, or by OBMS (the remote display at the nurses station). If you can't be there continuously, ask for help to watch the CTG, or return at regular intervals, eg 10 minutes.' (T256);

- a new foetal monitoring surveillance system has been installed in all 16 rooms. The system has both audible and visual alarms – a visual alarm in the patients room and both audio and visual in the nurses station;

- unless continuous foetal monitoring is clinically indicated, the CTG monitoring is to cease after 20 minutes. (Exhibit C13d).

5.5. If staff comply with RM Coffey's direction, and the new alarmed monitoring system functions correctly, I accept that the chances of a recurrence of the circumstances leading to Jayden Trimboli's have been reduced.

5.6. It appears ironic that the standard time for CTG monitoring is now shorter than it was prior to Jayden's death. However, I accept that the standard has been set in good faith, and reflects current medical thinking (see Exhibit C13e). RM Coffey explained:

> 'Mrs Trimboli's CTG was on for over an hour and it displayed all the features of a normal reactive trace, at which point it should have been removed. What the consultants are saying is if we changed the policy, based on what happened in Mrs Trimboli's case, that we would be unnecessarily intervening in the management of other women, so they went to the evidence to see how other people manage and if there was anything new to say that there's benefit in leaving a CTG on longer after the introduction of prostaglandins, and the recommendation is still that they monitor for 20 minutes.' (T258).

As I have observed, it is possible that, if Mrs Trimboli had only been monitored for 20 minutes, and nothing clinically arose that demanded longer monitoring, she would have been allowed to ambulate and the bradycardia may not have occurred.

5.7. I am not prepared to recommend, as Mr Rau urged me to do, that foetal monitoring should occur throughout the entire period from insertion of the gel

until delivery, or for at least 60 to 90 minutes. I do not think that the evidence before me justifies such a radical departure from medical opinion. Professor Pepperell did not advocate such a course.

5.8. One recommendation which I think can be usefully made is that there seems no reason why the function of the CTG could not be explained to the mother, so that in the event that the alarm is not answered, she should ring the emergency bell. In this case, Mrs Trimboli was confused by the change in the trace, but did not realise its significance. There was no reason why she should have. If she had known that bradycardia was occurring, and had rung the bell earlier, the damage could have been avoided.

5.9. Accordingly, I recommend that when a CTG monitor is being attached, the patient should be advised, in general terms, how to read it or how to recognise the significance of the alarm light if it activates, so that staff can be summoned if they do not react to the alarm.

*Key Words: Hypoxia; Birth Accident; Hospital Treatment; Foetal Monitoring.*

*In witness whereof the said Coroner has hereunto set and subscribed his hand and Seal the 13 th day of July, 2001.*

……..……
*Coroner*

Inq.No. 11/01