



Western

Australia

RECORD OF INVESTIGATION INTO DEATH

Ref No: 12/07

*I, Alastair Neil Hope, State Coroner, having investigated the death of **Rachael Anne RASMUSSEN**, with an Inquest held at Perth Coroners Court on 11-13 April 2007 and 15-17 May 2007 find that the identity of the deceased person was **Rachael Anne RASMUSSEN** and that death occurred on 17 June 2003 at Joondalup Health Campus as a result of cerebral anoxia following on attempted intubation pre-surgery in a woman with torticollis in the following circumstances -*

Counsel Appearing :

Sergeant Geoff Sorrell assisting the State Coroner

Mr Droppert (instructed by Friedman Lurie Singh & D'Angelo) for the deceased's family

Ms Vernon (instructed by DLA Phillips Fox) for the Joondalup Health Campus and Dr Julian Casey and Nurse Richard Townsend

Mr Bourhill (Lavan) for Mr Grigori Dorfman and Dr Michael Beitz

Mr Tottle (Tottle Partners) for Dr Khoi Leong and Dr Neville Gibbs

Mr Tjhung (State Solicitors Office) for the Minister for Health (Sir Charles Gairdner Hospital)

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INTRODUCTION

Rachael Anne Rasmussen (the deceased) was a 31 year old mother of three children who died on 17 June 2003 at Joondalup Health Campus.

The deceased was in hospital for planned elective surgery for left inguinal hernia. Her surgeon was to be Mr Gregory Dorfman, a consultant surgeon with visiting privileges at Joondalup Health Campus.

Anaesthesia for the operation commenced at about 2:24pm. Atracurium, a medium term muscle relaxant, was given at about that time by anaesthetist Dr Khoi Leong, a consultant anaesthetist with visiting privileges at Joondalup Health Campus. As a result of receiving the muscle relaxant the deceased was unable to breath spontaneously and it was necessary for her to be ventilated. Initial attempts were made to ventilate her using a laryngeal mask airway, all of these attempts were unsuccessful. Later other medical practitioners became involved and a range of efforts were made to ventilate the deceased, all of which were unsuccessful. Mr Dorfman was called upon to assist in establishing an emergency surgical airway which he was unable to achieve and the deceased died without ever having been adequately ventilated.

A post mortem examination was conducted on the deceased on 19 June 2003 by forensic pathologist Dr K A Margolius who determined that the cause of death was cerebral anoxia following on attempted intubation pre-surgery in a woman with torticollis.

It is clear that the planned surgery, which was never commenced, was not urgent and was relatively minor.

The deceased died as a result of anaesthesia related problems and her death was both unnatural and preventable.

This inquest has been held in order to examine the circumstances surrounding the death.



It should be noted that it was ultimately conceded during the inquest by the anaesthetist, Dr Leong, that he had failed to fully identify the risks faced if anaesthesia was to be administered by way of general anaesthetic. In a statement dated 11 May 2007 Dr Leong made the following concession –

“I accept that my judgment that I would be able to ventilate Mrs Rasmussen’s lungs with certainty using an laryngeal mask airway was wrong” (para 37).

Subsequently in his statement Dr Leong expressed the view that, “I wish to stress that in my judgment, it was wrong to attempt to induce general anaesthesia at all without having established a secure and clear airway” (para 38).

In reviewing the evidence in this case it is important to take note of the very unusual physical characteristics of the neck of the deceased.

Photographs in evidence revealed that the deceased had almost no visible neck exterior to her chest. The forensic pathologist described her physical appearance in the following terms –

“The neck was significantly reduced in length with the left ear approximately 2cm below the left shoulder and the right ear lobe resting on the right shoulder. The neck showed no mobility and was deviated to the right”.

In addition to her obvious and manifest external deformities in relation to her neck, at post mortem examination it was noted that her trachea was deviated to the left and was covered laterally and anteriorly by a large thyroid gland.

Mr Dorfman in his assessment of the deceased noted the following co-morbidities which he considered represented an anaesthetic risk –



- dysmorphia
- torticollis of the neck
- flexion deformity of the neck, together with a history of cervical spinal fusion 15 years earlier.

In the above circumstances a matter of concern is the fact that Dr Leong administered a paralysing muscle relaxant to Mrs Rasmussen before ensuring that he could ventilate her. It is also a matter of concern that even after the administering of the relaxant, the problems which were subsequently encountered and Mrs Rasmussen's death, Dr Leong did not accept that he had made an error until the inquest was partially completed, almost four years after her death. It would appear self-evident that for a patient with the obvious unusual external physical features of the deceased, it was particularly important to not take any potentially hazardous action which could not be subsequently rectified. As one of the experts who gave evidence at the inquest, anaesthetist Dr Nicholas Thackray, stated in his evidence –

“...an adage in anaesthesia is that you should never take away something from a patient that you know that you cannot give back and that refers to the patient's ability to be able to breathe” (t.72).

In spite of her physical problems and her unusual neck the deceased was a very positive person. She had a husband and three children, two brothers and three sisters. She was described by her father as “... a very brave type of person who was determined to do something with her life” (exhibit “4”). Sadly her life ended on 17 June 2003. While these reasons focus on issues relating to the circumstances of her death, it is important that the tragic consequences of the mistakes which were made are not overlooked.

PRE-OPERATIVE ASSESSMENT

The deceased saw Mr Dorfman at his rooms at the Joondalup Health Campus on 10 March 2003.



On physical examination Mr Dorfman confirmed the diagnosis of the left inguinal hernia. The deceased was keen to have the hernia repaired and Mr Dorfman considered that this was a sensible decision.

Although young patients would not routinely be referred for pre-operative anaesthetic assessment merely for undergoing hernia repair, Mr Dorfman considered that it was important in her case that there should be such an assessment as he was concerned that there would be a potential for increased anaesthetic risks and specifically requested that she be seen for pre-operative anaesthetic assessment.

At the pre-admission clinic of the Joondalup Health Campus the deceased saw anaesthetic registrar Dr Julian Casey on 16 June 2003, the day before the procedure. Dr Casey was in the process of obtaining a graduate diploma in rural general practice in anaesthesia and was working on an anaesthetic rotation for that purpose. In that capacity Dr Casey had approximately five months experience of working in anaesthetics.

Dr Casey completed a Joondalup Health Campus Anaesthetic Record Form which contained a section for Pre-Operative Anaesthetic Assessment. In that form he noted that the deceased suffered from scoliosis and it was impossible to extend her cervical spine. He noted that she had a class 4 Mallampati airway (scores are from one to four). This indicated that the soft palate was not visible at all with the mouth open. Dr Casey noted that a potential problem for the deceased would be a “potential difficult intubation”.

Although Dr Casey assessed the patient as being at “high risk” he did not take any steps to ensure that the specialist anaesthetist who would be involved at the time of the procedure would be alerted to the problems in advance of the day of the procedure.



Dr Casey was told by the deceased that she had previously had procedures done under anaesthesia but did not take any steps to obtain access to the previous records. In evidence Dr Casey stated that he had never been told to obtain medical records for past anaesthesia and did not do so on this occasion. This was significant because the records would have revealed the fact that there had been problems encountered on previous occasions.

PRE-ANAESTHETIC ASSESSMENT BY DR LEONG

In the context of Dr Leong's decision to use Atracurium prior to ensuring that ventilation was possible which he now concedes was wrong, it was important at the inquest to determine the extent and quality of Dr Leong's pre-anaesthetic assessment of the patient at which time that decision was made.

It was clearly Dr Leong's responsibility, as the anaesthetist responsible at the procedure, to ensure that an appropriate plan for anaesthesia was in place and that any risks for the patient were minimised. It was also clearly his responsibility to conduct his own comprehensive pre-anaesthetic assessment and not to rely on the assessment of the inexperienced registrar, Dr Casey. In the event that appropriate arrangements could not be put in place in time it was incumbent on Dr Leong to advise the surgeon that the procedure should not go ahead as planned and should be delayed until the time when all necessary investigations were completed.

A written response dated 22 August 2003 to the police officer conducting the investigation into the death signed by Dr Leong contained the statement, "I did assess Mrs Rasmussen at approximately 1300hrs on 17/6/2003 in the day ward". The same document later contained the statement "I saw Mrs Rasmussen on the day ward at approximately 1300hrs on 17/6/2003".



A letter dated 19 May 2004 addressed to the investigating officer signed by Dr Leong contained the assertion, “I saw Mrs Rasmussen in the day ward at approximately 1300hrs on 17/6/2003”.

According to the Joondalup Health Campus Anaesthetic Record pre-operative medication, Zantac and Losec, was written up to be given at 1315hrs. It was clear, therefore, that on Dr Leong’s original accounts to the coronial investigator his opportunity for conducting a pre-anaesthetic assessment of the patient at 1300hrs was limited.

In a statement dated 11 May 2007 provided during the course of the inquest and in his evidence at the inquest Dr Leong claimed that he did not have a “perfect recollection” of his pre-operative assessment and stated that his evidence as to what occurred was based in part on his recollection and in part was reconstructed based on his usual practice and what was contained in the notes. He claimed in that statement that he saw Mrs Rasmussen in the day ward at approximately 12noon on 17 June 2003.

Dr Leong stated that his recent claim that he saw Mrs Rasmussen at 12noon rather than at 1pm resulted from his having checked records, including his diary records (exhibit “46”), which indicated that he had finished seeing patients on that day at Glengarry Hospital in the morning and would have had sufficient time to arrive at Joondalup Health Campus prior to 12noon.

Dr Leong was asked why his report and answer to questions provided earlier to the Coroner’s Court referred to his seeing the patient at 1pm rather than 12noon. Dr Leong stated that he hand wrote the answers and the report and his secretary had typed the final documents from his handwritten version. He initially claimed that she must have made typographical errors (t.357), but when it was pointed out that it seemed difficult to accept that his secretary could have misread his writing of 1200hrs and typed 1300hrs on two



different documents, he accepted that he may have made a mistake which he said was a “genuine mistake”.

During the period when Dr Leong attended the deceased prior to anaesthetising her the only entries which he had made on the Anaesthetic Record were to write the words “torticollis” and “LMA”, to circle the words “potential difficult intubation” and to add three asterisks against entries already made on the document. The entries made by him were, therefore, extremely limited and did not address a number of the important issues which other specialist anaesthetists who gave evidence at the inquest considered were fundamental to an adequate pre-anaesthetic assessment.

In his statement of 11 May 2007 at paragraph 26 Dr Leong stated that the deceased could open her mouth “quite wide” and for that reason it appeared to him that he would be able to insert a larangeal mask airway without difficulty (para 27). This evidence was challenged by counsel representing the family and was inconsistent with the evidence of Dr Casey who said that she had “poor mouth opening” (Dr Casey’s statement at paragraph 15). Dr Leong did not make any entry in the notes to effect that the deceased could open her mouth “quite wide” and did not refer to that claim in his correspondence with the coroner’s investigator or in any other information provided prior to the inquest.

I note that Specialist Anaesthetist, Dr Michael Beitz, who assisted with the emergency attempts to achieve ventilation, described his attempts to use a larangeal mask airway in the following terms : “I then called for a size 3 and size 4 LMA and with great difficulty (poor mouth opening) I passed a size 4 LMA” (statement exhibit “34”). This was consistent with the account of Clinical Nurse Anne Vakis whose statement contained the observation that the deceased’s jaw was “fairly immobile” (exhibit “11”).

I do not accept Dr Leong’s evidence that the deceased could open her mouth “quite wide” and accept the evidence of



Dr Casey to the effect that the deceased had poor mouth opening.

Dr Leong in his statement of 11 May 2007 and in his oral evidence claimed that during the pre- anaesthetic assessment he examined the deceased's trachea which was quite central. Again this was not recorded in any of the notes or in Dr Leong's reports to the coroner's investigator or any other information provided prior to the inquest.

During the resuscitation attempts of 17 June 2003 Mr Dorfman and Dr Webb both attempted to locate the trachea without success.

Mr Dorfman observed that an emergency tracheotomy is a difficult procedure at the best of times and in this case it was particularly difficult due to the deceased's particular anatomy, namely her flexed neck deformity, torticollis, dysmorphia, flexed tracheal deviation and large goitre.

It is clear that in fact the trachea was deviated to the left as determined by Dr Margolius at post mortem examination and was difficult to locate in the circumstances.

During the time when efforts were being made to locate the trachea by Dr Webb and Mr Dorfman during the emergency attempts to ventilate the deceased, Dr Leong at no stage suggested that he had previously been able to locate the trachea or made any comment as to where it was located and whether or not it was deviated. Had Dr Leong previously located the trachea as he claimed, I would have expected him to have informed those doctors where he had found it particularly at the stage when according to Dr Beitz "... those of us conducting the medical resuscitation concluded the trachea was deviated from the expected anatomical site" (statement exhibit "34").

I accept the evidence of Dr Margolius and Mr Dorfman that the trachea was in fact deviated and I do not accept



Dr Leong's claim that he identified its location in his pre-anaesthetic assessment or that it was "quite central".

There is nothing in Dr Leong's notes which suggests –

- that he conducted a comprehensive assessment of the deceased's likely internal neck structure;
- that he took any steps to determine whether her condition had deteriorated since her past anaesthesia; *or*
- adequately assessed the potential problems which might be encountered in ventilating the deceased.

It is clear from the evidence of all of the anaesthetists who gave evidence that in this case intubation was likely to be difficult if not impossible in the event that ventilation could not be achieved by other means.

In my view it is likely that Dr Leong's flawed approach in paralysing the deceased prior to ensuring that he would be able to achieve ventilation was due, at least in part, to inadequate pre-anaesthetic assessment conducted by him. Dr Leong's account prior to the inquest that he saw the deceased at about 1pm is more likely to be correct than his recent reconstruction in which he claimed that he saw her approximately one hour earlier. Dr Leong's mistaken view that he would be able to open her mouth "quite wide" could only have resulted from an inadequate assessment and his claim that the trachea was "quite central" was not accurate.

DR LEONG'S ANAESTHETIC PLAN

Dr Leong's anaesthetic plan for the deceased was to anaesthetise her for the hernia operation using an intermediate acting muscle relaxant, Atracurium, and then to ventilate her using a laryngeal mask.

I accept the submissions on behalf of the family that it ought to have been clear to Dr Leong from the first time he saw the deceased on 17 June 2003 that –



- the deceased would be difficult or virtually impossible to intubate;
- he should not paralyse the deceased given that intubation would be nigh on impossible; *and*
- as much information as possible was required in relation to this patient prior to formulating an anaesthetic plan.

In my view it should have been obvious from the outset that ventilation would be difficult and that an intermediate acting muscle relaxant should not have been used prior to establishing that the patient could be ventilated.

There were a number of alternative approaches which could have been taken to using an intermediate muscle relaxant from the outset and these were described by the various witnesses at the inquest and include –

- awake intubation before the introduction of anaesthesia;
- use of a regional block;
- use of an introduction technique which would allow the patient to continue breathing during the onset of general anaesthesia by administering drugs slowly or by using a gaseous technique; *or*
- use of a shorter acting relaxant such as suxamethonium.

It is not necessary to discuss the possible benefits or detriments associated with using each of these techniques in these reasons, in my view it is clear that the immediate use of a relatively long acting relaxant was clearly wrong.

I accept the evidence of Dr Wilkinson, a Specialist Anaesthetist retained by lawyers representing Dr Casey, in this regard who commented that having seen a photograph of the deceased “...it is quite obvious I think to any competent anaesthetist looking at that [the photograph] would think it wise not to paralyse her. There are multiple anatomical reasons for that” (t.195).

Dr Wilkinson subsequently stated in his evidence, “Your



Honour, it is standard anaesthetic teaching that if you are very concerned about the airway – being able to control it – you should not paralyse people” (t.195).

RESUSCITATION EFFORTS

On 17 June 2003 the assigned anaesthetic nurse who was to work with Dr Leong on Mr Dorfman’s operating list for the afternoon was Registered Nurse Richard Townsend. The staff who made up the theatre team were –

- Mr Dorfman – surgeon
- Dr Leong – anaesthetist
- Allison Brayshaw – scout nurse
- Kristin Foster – new graduate nurse
- Cynthia Schouter – new graduate nurse

According to Mr Townsend he asked Mrs Rasmussen if she had ever had a problem with anaesthetics before to which she stated that she could recall no problems. This was consistent with her response when questioned about the same matter by Dr Casey and may have resulted from her not being adequately informed as to the events which had taken place when she had undergone past procedures.

Dr Leong and Nurse Townsend discussed the potential for a difficult intubation and Dr Leong indicated that this was potentially a problem airway.

Oxygen was provided to the face of the deceased using a face mask attached to a breath circuit successfully for one to two minutes after which Dr Leong gave her the induction anaesthetic drugs. Dr Leong gave Atracurium because, according to his statement of 11 May 2007, he thought that would provide the smoothest induction of anaesthesia and facilitate the insertion of the airway.

According to Nurse Townsend’s evidence, at the time when the laryngeal mask airway was inserted Dr Leong experienced



difficulty ventilating the patient. In his earlier statements Nurse Townsend had claimed that it was when he got ready to hand Dr Leong the laryngeal mask airway that Dr Leong experienced difficulty ventilating the patient. In my view Nurse Townsend's current recollection is more likely to be accurate and it is likely that it was the insertion of the laryngeal mask airway which produced problems which resulted in the difficulty in ventilation.

Dr Leong's recollection was also that he first realised that there was serious difficulty in ventilating the deceased's lungs when he inserted the laryngeal mask airway (statement of 11 May 2007 para 46).

Dr Leong removed the laryngeal mask airway and tried to reposition it but was still unable to ventilate the deceased. Dr Leong then asked for a Guedel airway which he inserted but was still unable to ventilate the deceased. Dr Leong then asked for a disposable No. 3 laryngeal mask airway but was still unable to ventilate the deceased.

At that stage Dr Leong accepted that he needed help and Dr Sleator, anaesthetist, was asked to come in assist. A "difficult intubation trolley" was also brought into the theatre.

Dr Sleator was also unable to obtain an airway and Nurse Townsend pressed the arrest alarm. The arrest alarm was pressed approximately eight to ten minutes after the deceased had been given the induction anaesthetic drugs.

The cardiac arrest team arrived shortly afterwards and provided assistance.

Shortly after arrival of the cardiac arrest team the deceased started to become hypoxic and the arrest button was pressed. In response to the alarm Dr Somerville and Dr Beitz, both specialist anaesthetists, came into the theatre.

Dr Beitz called for a size 3 and size 4 laryngeal mask airway



and with great difficulty (because of the poor mouth opening) passed a size 4 laryngeal mask airway and attempted to ventilate the patient, however, no effective airway could be maintained.

Following this a conventional size 3 laryngeal mask airway in which the fenestrating bands had been cut off was passed. Once again the airway could not be maintained.

Dr Somerville continued with cricoid-thyrotomy. All attempts at this, however, failed as the lumen of the trachea could not be located.

Dr Beitz then undertook to attempt fibre-optic intubation via the patient's nose, however, as a result of the blood and secretions in the pharynx he could not identify any anatomical structures.

Dr Beitz then tried to pass a size 14G cannula into the trachea. Jet ventilation was then undertaken, however, this produced surgical emphysema.

Dr Webb, Duty Consultant for the Intensive Care Unit, came into the theatre and attempted a crico-thyrotomy. He was also unsuccessful in locating the trachea.

Mr Dorfman was then asked to undertake a tracheostomy with as much haste as possible. Mr Dorfman made an incision in the deceased's neck but was unable to locate the trachea by touch and was unable to visualise that area of her neck due to the neck deformity and rigidity present.

As a result of the fact that the trachea could not be located surgically, the doctors conducting the medical resuscitation concluded that the trachea was deviated from the expected anatomical site.

Following this Dr Beitz attempted a blind nasal intubation. The tube went down but was assessed to be in the oesophagus



and was, therefore, removed. Dr Leong then made a further attempt at a blind nasal intubation, which was assessed to be in the trachea. Manual ventilation was then undertaken using this trachea tube.

Suction was applied to the end of the trachea tube a number of times, suctioning out a large amount of secretions. Ventilation was continued using the endotracheal tube, however, the electrical pattern on the ECG deteriorated and it became obvious that the patient was dieing.

Eventually resuscitation was called off by doctors managing the resuscitation and the electrical activity of the patient's heart ceased. The patient was then declared to be dead.

In respect of the resuscitation attempts I have nothing but praise for all of the doctors involved in what were desperate attempts to save the life of the deceased. Tragically at the stage when it was clear that the deceased was not able to be ventilated the time available to achieve effective resuscitation was limited and as Mr Dorfman observed in respect of the failed attempts which he made to perform an open tracheotomy, "...any attempts to obtain surgical airway in this particular case would have been extremely difficult due to the patients anatomical features" (statement of 22 August 2006).

I agree with the submissions made on behalf of the family of the deceased that "...there is no evidence at this inquest to suggest that the considerable efforts of Drs Beitz, Sleator, Somerville and Webb were in any way short of the standard required of them when they became involved in what was a dire and irreversible emergency".

I also agree with the submissions made on behalf of the family in respect of Mr Dorfman to the effect that "His inability to obtain a surgical airway does not reflect any lack of skill or care by him in what was a dire and irreversible emergency".



THE EVIDENCE OF DR NEVILLE GIBBS

Dr Neville Gibbs, Head of Department of Anaesthesia, Sir Charles Gairdner Hospital and Chairman of the West Australian Anaesthetic Mortality Committee, was retained by lawyers representing Dr Leong and he provided a report dated 10 October 2005 to them and subsequently, after the inquest had commenced, a statement to the Court dated 14 May 2007. Dr Gibbs also gave evidence in respect of his overview assessment of the incident, particularly from the point of view of Dr Leong.

It should be stated in regard to expert evidence in this case that the inquest was greatly assisted by extensive expert evidence in respect of procedures, standards, techniques, equipments and medication provided by specialist anaesthetists Drs Riley, Thackray, Wilkinson and Beitz. In respect of these expert witnesses their evidence was not identical, but in the case of each witness was helpful and impartial.

It should be noted that each of these witnesses accepted the general proposition that in this case steps should have been taken to ensure that ventilation was possible prior to administering a medium term muscle relaxant.

The evidence of Dr Gibbs falls into a different category. In Dr Gibb's initial report of 10 October 2005 he expressed the opinion that –

- awake fiberoptic intubation under local anaesthesia prior to induction was not required and there was a “reasonable expectation” that it would be possible to ventilate the deceased post induction;
- that the choice of intravenous induction was made on the “very reasonable assumption” that it would be possible to ventilate the deceased;
- that the technique chosen was “very reasonable”;
- that the choice of Atracurium was in the circumstances “reasonable”; *and*



- ultimately concluded: “my opinion, from the information provided to me is that Dr Leong’s management of Mrs Rasmussen cannot be criticised. it may even be commended, as he made every attempt to obtain an airway under extremely difficult circumstances, and followed recommended protocols in relation to the “inability to ventilate” and the resuscitation situations. it is true that if he had chosen a different technique, the outcome may have been different”.

After the evidence of Drs Beitz, Thackray and Wilkinson had been received at the inquest, Dr Gibbs expressed somewhat different views in a statement dated 14 May 2007.

In that statement Dr Gibbs made the following observation at paragraph 6 –

“Having seen the photographs of Mrs Rasmussen, I now consider that the assumption that it would be possible to ventilate Mrs Rasmussen post induction may have been less reasonable. On this basis, I now consider that Dr Leong’s assumption that he would be able to ventilate Mrs Rasmussen post induction may have been somewhat optimistic”.

Dr Gibbs further expressed the view that while awake fiberoptic intubation prior to intubation may not have been absolutely required, he now considered that after intravenous induction of anaesthesia, it would have been prudent to ensure that ventilation was possible prior to administering a muscle relaxant.

In my view the opinions expressed by Dr Gibbs in his report of 10 October 2005 were not objective and were essentially an effort to advocate on behalf of Dr Leong. It is particularly surprising that in the context of what had occurred Dr Gibbs suggested that Dr Leong’s management of the deceased “may even be commended”.

I was not satisfied that Dr Gibbs’ evidence at the inquest was objective and formed the view that he still attempted to



mitigate the extent of errors made by Dr Leong in passages such as the following –

“With the benefit of hindsight an awake intubation may have precluded any of the other problems that transpired which, as we know, were very tragic and, yes, I would like to think that I would have chosen an awake intubation from the outset. However, it does not follow that I would necessarily criticise someone else for choosing a general anaesthetic, under the circumstances chosen by Dr Leong” (t.281).

In my view any objective assessment of the approach of Dr Leong should have contained some criticism of his flawed decision in this regard.

It was not necessary to view the photographs of the deceased in order to form the view that there were likely to be problems in ventilating the deceased, the peculiar physical structures of her neck were clearly described in a number of the documents which had been provided to Dr Gibbs on 29 September 2005 such as the post mortem report. In addition it was not necessary to rely on hindsight to conclude that awake intubation might have precluded the problems which transpired in this case; as a number of the expert witnesses pointed out, the potential problems were manifest.

In my view the report provided by Dr Gibbs was not balanced and did not comply with the Position Statement of the Australian Society of Anaesthetists in the document Guidelines for Expert Witnesses, Qualification and Testimony, an excellent document which provides guidance for anaesthetists in giving expert evidence. According to the Position Statement, expert witnesses are expected to be impartial and must not adopt a position of advocacy and should review and become familiar with all of the pertinent data of the particular matter at hand prior to giving an expert opinion. In addition the Position Statement requires expert witnesses to recognise and correctly represent the full standard of anaesthetic care and with reasonable accuracy to indicate whether a particular action was clearly within, clearly



outside of, or close to the margins of the standard of anaesthetic care (ASA-PS09).

Submissions made on behalf of Dr Gibbs included the contention that –

“Any consideration of Dr Gibbs’ evidence must start with a consideration of the letter of instruction he received from Clayton Utz dated 29 September 2005 (part of exhibit “43”). Dr Gibbs was not asked to prepare an expert report for the purposes of the inquest or for litigation. He was asked for “... advice on the matter generally but also, specifically as to whether there was appropriate management of the deceased’s airway and whether the standard difficult airway algorithm was followed” (see page 2 of the letter).

There is no evidence to suggest that Dr Gibbs knew that his “advice” was going to be published more widely than to Clayton Utz and MDA National. There is certainly no evidence to suggest that Dr Gibbs knew that his advice was going to be submitted to the Coroner’s Court. There is no evidence that Dr Gibbs knew that his report had been submitted to the Coroner’s office”.

In respect of this submission, while it may explain why Dr Gibbs would not have considered it necessary to review or update his opinions prior to the commencement of the inquest, it is still my view that it was appropriate for the report to be balanced and to comply with the Position Statement of the Australian Society of Anaesthetists referred to above.

Dr Gibbs must have realised that he was being approached by the lawyers of Dr Leong to give advice in respect of his treatment of the deceased in a context where the actions of Dr Leong had undoubtedly caused the death of the deceased. It was clearly a very serious matter and it was likely that Clayton Utz and MDA National would be relying on advice which he gave in respect of some form of litigation, even if he did not have specific contemplation of the likelihood of his advice being submitted to the Coroner’s Court.

While I was unimpressed with the evidence of Dr Gibbs in so far as it related to Dr Leong’s involvement for the reasons



given above, I do not consider that it constituted misconduct such as might result in a reference to the Medical Board of Western Australia.

THE PROBLEM WHICH RESULTED IN THE INABILITY TO VENTILATE

In my view it is obviously likely that problems which were experienced in attempting to ventilate the deceased resulted from her manifest neck structure problems. These problems included her fixed neck deformity, torticollis and short thick neck, dysmorphia, fixed tracheal deviation and large goitre.

The deceased had undergone past procedures which were noted by Dr Casey in the pre-operative anaesthesia assessment conducted on 16 June 2003. In particular the deceased had posterial spinal fusion and Harrington Rods inserted at Royal Perth Hospital on 28 June 1989 and breast surgery conducted at Sir Charles Gairdner Hospital on 25 October 2000. In addition the deceased had given birth to three children, in 1995, 1997 and 1998, and in respect of the two younger children a spinal block had been successfully used for caesarean deliveries.

In respect of both procedures conducted in 1989 and 2000 there had been anaesthetic problems.

In 1989 the anaesthetic record indicated that there had been a difficult intubation and a “valve effect” had been noted when the epiglottis had applied firmly to the posterior pharangeal wall. The epiglottis had gone to the back of the throat closing the airway.

It appears that a fiberoptic laryngoscope had been obtained but the arytenoids suddenly came into direct view and intubation was achieved.

On 25 October 2000 at Sir Charles Gairdner Hospital the



records indicate that mask ventilation had been difficult and that when a laryngeal mask airway was used no ventilation had been achieved and there was a difficult insertion. It was noted that there was “no neck movement at all” and that a sharp angle introducer had been needed to insert an endotracheal tube.

Pethadine and propofol had initially been used, following which suxamethonium was used and eventually it appears that when ventilation had been achieved, Atracurium was given.

It is clear from the above information that anaesthetic difficulties had been experienced at both Sir Charles Gairdner Hospital and Royal Perth Hospital where anaesthetists had proceeded with greater caution than Dr Leong did in 2003.

Unfortunately none of the information relating to the anaesthetic difficulties experienced in 1989 or 2000 was available to Dr Leong on 17 June 2003 at the Joondalup Health Campus.

It was suggested by Dr Wilkinson that bronchospasm was part of the reason for the inability to ventilate the deceased. He suggested that there could have been a “... calamitous combination of an unrecognised episode of severe bronchospasm and a difficult airway” (report of 13 January 2007; exhibit “36”). A bronchospasm is an excessive and prolonged contraction of the smooth muscle of the bronchi and bronchioles, resulting in an acute narrowing and obstruction of the respiratory airway.

In this case Dr Wilkinson suggested that as the deceased had suffered from asthma (which was apparently mild) and had been given Atracurium, it was possible that the Atracurium had caused an anaphylactic (acute allergic) reaction. The deceased had a previous contact with Atracurium in 2000 which according to Dr Wilkinson would have made her vulnerable to anaphylaxis.



In my view it is far more likely that there was a mechanical obstruction which caused the problems in achieving ventilation in the deceased. The deceased clearly had a very unusual internal neck structure and mechanical problems had been encountered on the two previous occasions when she had received general anaesthetic. In addition it appeared that her neck structures had deteriorated from the time of her last anaesthesia in 2000.

In this context I note that there were numerous observations made by the various experts as to the potential for problems in the case of the deceased, for example, Dr Riley stated –

“... if a patient has severe deformity with the ear as near the shoulder (sic), and there is no space between the chin and the sternum, to me that spells trouble” (t.428).

It is possible that, as Dr Gibbs suggested, the initial insertion of the laryngeal mask “pushed” the epiglottis closed over the glottic inlet and the combination of the fixed flexion deformity of her neck and the substantial thyroid gland enlargement was such that the epiglottis became “jammed” in the closed position, even after removal of the laryngeal mask. This would be one explanation why ventilation remained ineffective in spite of all the efforts made and would be in accord with past experience when the epiglottis had posed a less significant problem in 1989. This possible explanation would also be consistent with the circumstances in which Dr Leong said he first experienced serious difficulty with ventilating the deceased, i.e. when he inserted the laryngeal mask airway.

Whatever the precise cause of the problems which prevented ventilation in the deceased’s case, it is clear that the unusual physical structure of her neck was at least a major contributor and the fact that it was unusual was obvious to all concerned. At most, Dr Wilkinson’s opinion raised the possibility that bronchospasm may have been one of a combination of factors contributing to the deceased’s airway



problems and he did not discount the significance of mechanical problems. He emphasised that the deceased was a person at high risk and the possibility of bronchospasm in her case, where intubation was unlikely to be successful, was another factor which should have been taken into account as an additional risk factor in considering the appropriateness of using the muscle relaxant Atracurium.

REFERENCE TO THE MEDICAL BOARD OF WESTERN AUSTRALIA

Section 50 of the Coroners Act 1996 provides as follows –

“(1) A coroner may refer any evidence, information or matter which comes to the coroner’s notice in carrying out the coroner’s duties to a body having jurisdiction over a person carrying on a trade or profession if the evidence, information or matter –

- (a) touches on the conduct of that person in relation to that trade or profession; and
- (b) is, in the opinion of the coroner, of such a nature as might lead the body to inquire into or take any other step in respect of the conduct apparently disclosed by the evidence, information or matter so referred”.

It is clear from the above section that such a reference may be made if I am of the opinion that the evidence at the inquest might lead the Medical Board of Western Australia to inquire into or take any other step in respect of the conduct of any of the medical practitioners involved.

In this case I do consider that there should be a reference in the case of Dr Khoi Leong.

In my view it was as a result of Dr Leong’s flawed approach in paralysing the deceased prior to ensuring that he would be able to achieve ventilation which resulted in her death. The deceased had attended the Joondalup Health Campus for a relatively minor procedure, surgical mass repair of inguinal hernia. The deceased was paralysed by Dr Leong



using the intermediate acting muscle relaxant, Atracurium, after which he was unable to ventilate her which resulted in her death.

Also, as indicated previously in these reasons, I am of the view that Dr Leong's pre-anaesthetic assessment was inadequate in the circumstances and did not adequately assess the potential problems which might be encountered in ventilating the deceased.

In addition, it ought to have been clear to Dr Leong from the first time he saw the deceased that she would be difficult or virtually impossible to intubate and that ventilation could be difficult and that an intermediate acting muscle relaxant should not have been used prior to establishing that the patient could be ventilated.

It is a matter of great concern that even after the tragic events of 17 June 2003 it was not until after the inquest had commenced and with the benefit of the opinions of consultant colleagues whose views he respected, that Dr Leong finally recognised that it had been wrong to attempt to induce general anaesthesia at all without having established a secure and clear airway with this patient.

In making findings as to the involvement of Dr Leong I have applied the high standard of proof referred to in **Briginshaw v Briginshaw (1938) 60 CLR 336** (see also **Anderson v Blashki [1993] 2 VR 89 at 95-96** and **Commissioner of Police v Hallenstein [1996] 2 VR 1 at 19**).

In this context I accept the evidence that it is extremely rare for an anaesthetist to be unable to ventilate a patient at all after administering a muscle relaxant and I accept Dr Leong's claim that he had never previously experienced any difficulty in establishing an airway using the laryngeal mask technique. This evidence explains Dr Leong's actions, but does not excuse them. While it may be rare for problems to be experienced of this type, the patient in question was a very



rare patient. Statistics provided by Dr Gibbs in respect of the occurrence of problems of this type based on patients with normal neck structures had no relevance to the present case. Usual practises were not appropriate in the case of this patient who, as Dr Margolius described her, had a neck so short that the left ear was approximately 2cm below the left shoulder and the right ear lobe rested on the right shoulder.

Dr Leong, as a visiting anaesthetist specialist at the Joondalup Health Campus, should have approached the case with great care and proceeded in a cautious and conservative manner, which in my view he did not do.

CONCLUSION

Rachael Anne Rasmussen was a 31 year old married mother of three who died unnecessarily on 17 June 2003 as a result of cerebral anoxia.

The deceased had been admitted to the Joondalup Health Campus to undergo surgical repair of a minor nature for a left inguinal hernia. She was given a medium term muscle relaxant, Atracurium, which paralysed her and prevented her from breathing on her own. In the absence of adequate ventilation that step caused her death.

The deceased suffered from a number of physical deformities and problems in her neck area and it should have been obvious that she would present anaesthetic problems. The decision to give her a medium term muscle relaxant without first ensuring that adequate ventilation could be achieved was clearly a wrong one and resulted in her death.

I find that the death arose by way of Misadventure.



COMMENTS ON PUBLIC HEALTH AND SAFETY ISSUES

Communication of information about prior anaesthetic problems

Dr Leong in his statement of 11 May 2007 and in his evidence claimed that his anaesthetic plan for the deceased involving the use of a laryngeal mask was made on the assumption that he would be able to ventilate the lungs and if he had been aware of the previous failed ventilation attempt using a laryngeal mask in 2000 at Sir Charles Gairdner Hospital he would have planned his management quite differently. He said that his options would have been to cancel the operation and refer her to a colleague with special interest in the very difficult airway, or to invite such a colleague to attend at Joondalup Health Campus in order to assist him. In either event, he stated that his plan would have been to establish a secure and clear airway by awake intubation before introduction of general anaesthesia.

In this case the records of Sir Charles Gairdner Hospital were not provided to Dr Leong and neither he nor Dr Casey sought access to those records.

I agree with the observation of a number of witnesses, particularly Dr Riley and Dr Wilkinson, that seeing the deceased in person should have been the most obvious indicator that there was likely to be difficulty in her airway management and it was not necessary to view the records in order to make that assessment. I also note that Dr Leong did not consider obtaining the deceased's previous anaesthesia records because he assumed that it must have been possible to establish a clear airway at her previous anaesthesia and was confident that he would be able to ventilate her using a laryngeal mask.

It is clear, however, that it would be helpful for an anaesthetist in Dr Leong's position to have ready access to information about past anaesthesia, particular when problems had been encountered.



Dr Casey said in his evidence that he had never been told to obtain medical records of past anaesthesia and although he assessed the deceased as being a patient at “high risk” he did not obtain the anaesthetic records on this occasion. Dr Leong, as indicated above, did not consider that it was necessary for him to delay the procedure in order to obtain the records because of his assumption that he would be able to ventilate the lungs.

While the deceased was asked by both Dr Casey and Dr Leong about whether she was aware of any past problems with anaesthesia and she replied that she was not, it is clear from the evidence that it would be unsafe to place any reliance on a patient’s understanding as to whether or not problems had been encountered with past anaesthesia. This is because patients are often not advised of such problems by the anaesthetist, or if they are advised, the advice takes place in circumstances where they are not likely to adequately retain the information which they have been given.

Dr Thackray, a consultant anaesthetist at Sir Charles Gairdner Hospital, gave evidence that the problems encountered in 2000 at Sir Charles Gairdner Hospital were not so severe that he would have expected that either the patient or her general practitioner would have been provided with a letter advising them of the problems which had been encountered. He also advised that the Med-Alert system, which has been created in order to provide a centralised system to alert medical staff to conditions of a life threatening nature that are likely to be recurrent, would not normally have recorded the difficulties encountered on that occasion. This is because the intubation was not a “difficult intubation” as defined for the purposes of the Anaesthetic Categories Alert and the failed attempted placement of the laryngeal mask airway would also not be notified as a “difficult intubation”.

According to Dr Thackray it was not incumbent on the anaesthetist involved in 2000 to inform the deceased or her



general practitioner about the problems which had been encountered.

The evidence revealed a further communication problem in relation to this matter in that even if the problems which occurred in 2000 had been entered on the Med-Alert system which formed part of the public hospitals' computer system known as TOPAS, that system was not available to the Joondalup Health Campus. The Med-Alert system is exclusively available to government hospitals.

In my view this case has highlighted a need to review the guidelines in place for recording and making available information about anaesthetic difficulties.

I make the following recommendations –

Recommendation No. 1

REPRESENTATIVES OF ANAESTHESIA WESTERN AUSTRALIA AND THE HEALTH DEPARTMENT MEET TO REVIEW REPORTING GUIDELINES AND TO CONSIDER THE LEVEL OF RECORDING OF ANAESTHETIC DIFFICULTIES IN THE PRESENT TOPAS SYSTEM WITH A VIEW TO IMPROVING THE CONSISTENCY WITH WHICH ANAESTHETIC DIFFICULTIES ARE RECORDED IN THE SYSTEM AND TO INCLUDE ENTRIES IN THE TOPAS SYSTEM FOR PATIENTS WHERE DIFFICULTY HAS BEEN EXPERIENCED WITH VENTILATION DURING ANAESTHESIA AND IN CASES WHERE INTUBATION DIFFICULTIES ARE LIKELY TO ARISE IN THE FUTURE.



Recommendation No. 2

THAT THE DEPARTMENT OF HEALTH GIVE URGENT CONSIDERATION TO REVIEWING THE PRESENT SYSTEM RELATING TO ACCESS TO THE MED-ALERT SYSTEM, CURRENTLY OPERATING AS PART OF TOPAS IN THE PUBLIC HOSPITAL SYSTEM, SO THAT IT CAN BE AVAILABLE TO PRIVATELY OPERATED HOSPITALS AND TO ALL ANAESTHETISTS IN THE STATE SO THAT POTENTIAL LIFE SAVING INFORMATION IS READILY AVAILABLE AND CAN BE ACTED UPON.

In this case it appears that neither the deceased nor her general practitioner were made aware of the problems which had been encountered at either Royal Perth Hospital or Sir Charles Gairdner Hospital with anaesthesia. In my view it would have been extremely helpful if both had been informed, particularly in respect of the problems which occurred at Sir Charles Gairdner Hospital.

In a helpful letter provided for the purposes of the inquest by a recently retired general practitioner the following observation was made –

“Patients are often informed of how a procedure went and any problems encountered immediately after an operation but their ability to recall details, even important details, is markedly impaired by the effects of anaesthetic drugs. I wonder if there needs to be a formal process to advise patients of adverse events at a subsequent date. Patients generally see the attending surgeon at a later date post-operatively but not usually the anaesthetist so anaesthetic difficulties may well be overlooked by the surgeon in discussions with the patient” (exhibit “42”).



Recommendation 3

I RECOMMEND THAT ANAESTHETISTS BE ENCOURAGED TO ADOPT A PRACTICE OF REPORTING DIFFICULTIES WITH THE VENTILATION OR INTUBATION OF PATIENTS DURING ANAESTHESIA TO THEIR REFERRING PHYSICIAN AND THE PATIENT IN WRITING AND TO PLACE A COPY OF THE LETTER IN THE PATIENT'S MEDICAL RECORD.

STATE CORONER
8 June 2007

