

General surgeon, Dr A

Anaesthetist, Dr B

**A Report by the
Health and Disability Commissioner**

(Case 04HDC11777)



Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Parties involved

Dr A	Provider/General surgeon
Dr B	Provider/Anaesthetist
A private hospital	A private hospital
Mrs C	Consumer (deceased)
Mr C	Complainant/Consumer's husband
Ms D	Admitting nurse
Dr E	General practitioner
Dr F	General practitioner
Ms G	Anaesthetic nurse
Ms H	Circulating nurse
Ms I	Theatre nurse
Ms J	Registered nurse
Dr K	Ear, nose and throat surgeon
Ms L	Nurse
Dr M	Consultant anaesthetist
Dr N	Anaesthetist
Ms O	Hospital manager, the private hospital

Complaint

On 13 July 2004, the Commissioner received a complaint from Mr C about the services provided to his late wife, Mrs C, by general surgeon Dr A and anaesthetist Dr B. The issues investigated by the Commissioner arising from Mr C's complaint were identified as follows:

Dr A

- *The appropriateness of Dr A's care and treatment of Mrs C on 24 June 2003, including the decision to perform the colonoscopy/gastroscopy procedure.*

Dr B

- *The appropriateness and adequacy of Dr B's care and treatment of Mrs C on 24 June 2003, including the:*
 - *pre-anaesthetic assessment*
 - *administration of general anaesthetic*
 - *post-anaesthetic care.*

An investigation was commenced on 15 October 2004.

Information reviewed

- Letter of complaint from Mr C, including:
 - Histopathology report dated 13 July 2003
 - Mrs C's clinical records from the private hospital company
 - Report from a Police doctor
 - Report from Dr M, consultant anaesthetist

- Information from Dr B, including:
 - Report from Dr N anaesthetist

- Information from Dr A

- Information from the private hospital company, including:
Correspondence from Ms O, Hospital manager of the private hospital, including statements provided for purpose of Coroner's inquest by:
 - Ms O
 - Ms D
 - Ms I
 - Ms H
 - Ms G
 - Ms J
 - Ms L

- Information from ACC, including reports from:
 - Dr Vaughan Laurenson, anaesthetist
 - Dr Forbes Bennett, anaesthetist
 - Mrs C's clinical records from a District Health Board

- Information from the coroner.

Independent expert advice was obtained from Dr Joseph Sherriff, anaesthetist, and Dr Kenneth Menzies, general surgeon.

The following responses to my provisional opinion were received:

- The private hospital company, dated 5 December 2005
- Mr C, dated 8 December 2005
- Dr B, dated 12 December 2005
- Dr B's barrister on behalf of Dr B, dated 15 December 2005.

Information gathered during investigation

Overview

Mrs C, a generally healthy 48-year-old, was referred to Dr A for investigation of anaemia. She was booked to have a gastroscopy and/or colonoscopy (“the procedures”) performed by Dr A, a surgeon, under general anaesthetic at a private hospital.

On 24 June 2003, Mrs C was admitted to a private hospital. Dr B, an anaesthetist, administered a general anaesthetic to Mrs C. Dr B unsuccessfully attempted to intubate Mrs C on three occasions and on each occasion Mrs C became hypoxic. The procedures were cancelled by Dr A. A further airway crisis ensued and Dr B was unable to access Mrs C’s airway. Despite attempts by Dr A to establish an airway, he too was unsuccessful. However, Dr K, an ear nose and throat (ENT) surgeon, established a patent airway through surgical intervention.

Mrs C was transferred to a public hospital where she subsequently died.

The focus of my investigation has been on the anaesthetic provided to Mrs C by Dr B, and how it was administered.

Dr B

Dr B graduated MB MS overseas in 1961. She gained a diploma in anaesthetics in 1970, and in the same year she became a Fellow of the Faculty of Anaesthetists of the Royal College of Surgeons in England. In 1979 Dr B became a Fellow of the Faculty of Anaesthetists of the Australasian College of Surgeons, and in 1992 she became a Fellow of the Australian and New Zealand College of Anaesthetists. Dr B has been vocationally registered in anaesthetics with the Medical Council of New Zealand since 1977.

Dr B resigned from anaesthetic practice at the private hospital on 1 March 2004. She does not currently hold a practising certificate.

Dr A

Dr A qualified as a medical doctor (MB ChB) overseas in 1987. He qualified as a general surgeon in 1995 and in the following year he became a Fellow of the College of Surgeons, and began working in New Zealand. Dr A has full vocational specialist registration with the Medical Council of New Zealand.

The private hospital company

The private hospital company is the corporate entity that operates the private hospital. It gives surgical and anaesthetic specialists clinical privileges as visiting practitioners¹ to provide services at the private hospital.

¹ As visiting practitioners, doctors are granted visiting practitioners’ rights and privileges.

Referral for surgical investigation

On 2 April 2003, Mrs C consulted general practitioner Dr E, locum for Dr F. Following the consultation, Dr E wrote to Dr A, a surgeon, stating:

“I am referring this lady for colonoscopy +/- gastroscopy. She presented with a vague lower abdominal pain which began a few years ago but recent increase in frequency. No change in bowel habit or menstrual problems or UT [urinary tract] symptoms. Her abdo [abdomen] appeared a little distended but no mass palpable. Her Hb [haemoglobin] is 78 & she has an iron deficiency & low B12. LFTS [liver function tests] TFTS [thyroid function tests] & FBS [fasting blood sugar] normal. ?SOL [space-occupying lesion] in bowel. Please see & advise ...”

An ultrasound performed in April 2003 did not indicate any abnormalities.

Dr A saw Mrs C on 28 April 2003. Following the consultation, he wrote to Dr F stating:

“... On examination today she is not anaemic, there is no lymphadenopathy, no jaundice. Abdominal examination — no tenderness, no masses, no organomegaly, no evidence of any hernias. Femoral pulses palpable. Rectal examination — normal sphincter function, normal soft bowel motions and rectum ... She is not keen on further investigations. She claims she is feeling much better than a few weeks ago. I have explained to her that with her family history [of bowel cancer] as well as low haemoglobin evidence of iron deficiency, she needs to be investigated further and for these reasons I wish to do a colonoscopy/gastroscopy. We will do this for her in early June.”

The procedures were booked to be performed under general anaesthetic at the private hospital. Dr A advised me that “the choice to have a general anaesthetic was made by [Mrs C] herself. She was very nervous and would not have it done under local anaesthesia.”

Mrs C collected her bowel preparation for the impending procedures from the private hospital and discussed her anxiety about having a general anaesthetic. On 3 June 2003, Mrs C was admitted to the private hospital as planned. However, the procedures had not been booked to take place under a general anaesthetic. She was offered the choice of having the procedures under sedation only, but refused. The procedures were rescheduled for 13 June 2003.

Mr C stated to ACC that on 13 June 2003 “[Mrs C] was so upset [with worry and agitation about undergoing the procedures] that I had to telephone the hospital and say that she was unable to attend.” The procedures were cancelled and rescheduled for 24 June 2003.

Admission to the private hospital on 24 June 2003

At 11.00am on 24 June 2003, Mrs C was admitted to the private hospital by the admitting nurse, Ms D. Mrs C was very nervous about the anaesthetic and Ms D, the admitting nurse, spent time with her explaining the procedure. At 2.00pm, Mrs C had her pre-anaesthetic assessment by Dr B. Mrs C’s anaesthetic record noted the following information:

- No allergies. Own teeth. Non smoker.
- Previous history: tonsillectomy and adenoidectomy at the age of 5 years.
- Wisdom teeth removed under general anaesthetic at age 15 years. No anaesthetic problem.
- Blood pressure 124/86
- Pulse 102
- Oxygen saturations 99
- Weight 63kg
- Haemoglobin 125
- Sodium 139
- Potassium 4.3
- Cardiac system: Heart sounds normal. No murmurs.
- Respiratory system: Chest clear.
- American Society of Anaesthesiologists rating 1.

Dr B advised that when she examined Mrs C she found that Mrs C had normal mouth opening, a normal looking tongue, and her uvula (the small soft extension of the soft palate that hangs from the roof of the mouth above the root of the tongue) was clearly visualised. Dr B did not specifically measure and record thyromental distance (the distance from the inside of the mandible to the hyoid bone) as Mrs C's neck appeared to be a normal Mallampati (clinical sign used to predict difficult tracheal intubation) grade 1.

At 2.55pm, Ms D gave Mrs C midazolam (a short-acting hypnotic) 7.5mg and Maxolon (a drug to prevent or alleviate nausea and vomiting) 10mg. At approximately 3.00pm Ms G, anaesthetic nurse, went through Mrs C's preoperative check list with her.

Operating theatre

Mrs C was taken to the operating theatre at approximately 3.10pm and spoke to Ms H, circulating nurse. On arrival, a nurse inserted a Venflon² and commenced an infusion of normal saline. Dr B advised that Mrs C was anxious, and it was not possible to place the oxygen mask directly on her face prior to administering the anaesthetic. Therefore, the mask was held approximately one foot away from Mrs C's face.

Ms G, anaesthetic nurse, who had worked in the operating theatre at the private hospital as a theatre nurse since February 2001, assisted Dr B with Mrs C's intubation. Dr B induced Mrs C with fentanyl (an opioid analgesia of short duration) 100mcg, propofol (a short acting anaesthetic) 150mg and rocuronium bromide (a fast-onset relaxant of intermediate duration) 30mg. She was manually ventilated by Dr B with nitrous oxide (an anaesthetic gas inhaled in conjunction with oxygen), oxygen and isoflurane (a general anaesthetic administered by inhalation) via an oral airway for approximately two minutes. Mrs C's oxygen saturations fell to 67% and the airway was withdrawn. Following manual ventilation her saturations increased to 88%. The capnograph (an instrument that produces

² A catheter that is inserted into a vein for supplying medication directly into the bloodstream.

a tracing that shows the proportion of carbon dioxide in exhaled air) trace indicated that air was moving in and out of Mrs C's lungs.

Dr B noticed that Mrs C's mouth could not be opened very widely and gave Mrs C 10–20mg of the relaxant. She manually ventilated Mrs C with nitrous oxide and isoflurane, until Mrs C's saturations were between 94% and 95%. Dr B attempted to intubate Mrs C, without success.

This was followed by two further attempts at intubation. On each occasion, Mrs C's saturations dropped significantly. When the oxygen mask was applied, her saturations took longer to increase, eventually rising to 98%. Dr B advised that she continued to give nitrous oxide with the oxygen during all three intubation attempts, because she was aware that Mrs C was very nervous about waking during the procedure, and Dr B wanted to establish effective anaesthesia. Dr B stated that she adjusted Mrs C's head and neck in between intubation attempts and had one of the assisting nurses apply cricoid pressure. Dr B did not document these actions as they were usual practice. Dr B did not use a fast-trach laryngeal mask and explained that she did not change the laryngoscope blade as the model she used already had a blade that was longer than usual.

Dr A cancelled the procedures after the third unsuccessful attempt at intubation.

Dr B then inserted a size 3 LMA (laryngeal mask airway) and manually ventilated Mrs C with 100% oxygen. Atropine (a drug used to reduce salivary and bronchial secretions before surgery) 600mcg and neostigmine (a drug used to reverse the action of muscle relaxants) 2.5mg was given by Ms I. Dr B also administered a further 600mcg of atropine. By this time, Mrs C was breathing spontaneously and responding to commands. She was transferred onto a trolley and positioned on her side to prevent regurgitation and to aid her breathing.

Recovery room

Mrs C was transferred to the recovery room (recovery) at 3.55pm by Ms L, a nurse, and Dr B. In recovery Mrs C started gagging on the LMA, so Dr B applied suction to her pharynx and removed the LMA. Dr B emphasised that the only reason she removed the LMA was because Mrs C was gagging on it. In the context of a failed intubation and deterioration in oxygen saturation the foremost concern was to maintain ventilation. At the ACC review hearing, Dr B accepted under cross-examination that she did not reassess the effect of the muscle relaxant at the time she removed the LMA, as Mrs C was quite pink. She also advised the ACC reviewer that she did not complete a head-lift test to assess the neuromuscular condition before taking out the LMA, because Mrs C was responding to commands and was gagging spontaneously. Dr B later stated that a formal assessment of the degree of neuromuscular blockade by a peripheral nerve stimulator was not feasible in this situation given that it was an emergency and there was no anaesthetic technician to assist her.

At approximately 4.03pm Mrs C's saturations fell to 83%. She became discoloured and was experiencing breathing difficulties. Dr B inserted a size 3 airway. Dr B advised ACC that she did not attempt to reinsert the laryngeal mask as Mrs C's teeth were clenched and

Dr B had trouble inserting an oral airway to ventilate Mrs C with an Ambu-bag (a resuscitator bag used to assist respiratory ventilation).

No recording from the anaesthetic machine is available as the data was automatically cleared when the machine was turned off. Ms H informed Ms O, the private hospital manager, about what had happened.

Return to operating theatre

Mrs C was moved back to the operating theatre and Dr B attempted to manually ventilate her with an Ambu-bag and mask through an oral airway. The anaesthetic nurse helped to connect the anaesthetic machine tubing and a 100% oxygen flush was delivered through the airway. Mrs C's saturations kept falling and she was repositioned on her side. Dr B advised that due to the low level of Mrs C's oxygen saturations she did not have time to consider passing a bougie (a thin cylindrical flexible instrument used for insertion into the airway canal, in order to dilate the canal) although these instruments were available in the "difficult intubation" trolley.

At approximately 4.10pm Dr A came to assist Dr B. He placed an 18G needle into Mrs C's trachea, and oxygen was blown through the needle. Dr B did not take part in the needle insertion. Mrs C's saturations fell to 45–47% and she looked cyanotic (bluish discolouration of the skin, fingernails, and mucous membranes caused by a deficiency of oxygen in the blood). Ms I obtained the tracheostomy equipment from recovery.

At approximately 4.12pm Dr A inserted a mini tracheostomy (a temporary tracheostomy using a needle or fine-bore tube inserted through the skin), with the assistance of Ms J, registered nurse. The mini tracheostomy tube was then connected to oxygen. There was no tracing on the capnograph, Mrs C's saturations remained low, and she developed surgical emphysema (when air escapes into the tissues of the chest and neck from leaks in the lungs or oesophagus, and occasionally into other tissues, during surgery) in her neck and upper eyelids.

Because a pneumothorax (a collection of air or gas in the pleural space causing the lung to collapse) could not be excluded, Dr A inserted two 18G needles into Mrs C's chest cavities; however, her condition did not improve. Dr A removed the No. 8 tracheostomy tube at 4.18pm, and reinserted a mini tracheostomy tube connected to 100% oxygen.

Mrs C's heart rate dropped to 31–45 beats per minute and her oxygen saturations did not register on the monitor. Ms G commenced cardio-pulmonary resuscitation (CPR) upon the orders of Dr A, and Mrs C was placed on her back. Ms I replaced Ms G in giving CPR after a few minutes. At approximately 4.21pm Mrs C's saturations were in the 70% range, she was cyanosed, her pulse rate was 112–113 beats per minute, and she had dilated non-reactive pupils. According to Dr B, Mrs C's ECG tracing showed regular QRS complexes (series of wave forms on an ECG that represent depolarisation of ventricular muscle cells).

Dr K, an ENT surgeon, entered the operating theatre and removed the mini tracheostomy tube. He inserted a No. 8 tracheostomy tube and manually ventilated Mrs C with oxygen delivered at 8 litres per minute. An airway was established, her condition improved, and

the capnograph showed a tracing. Mrs C's saturations increased to approximately 90%, her pulse to 90 beats per minute, and her blood pressure was 113/60–130/60mmHg. By 4.30pm her pupils were smaller and reactive to light.

Ms H collected the emergency chest-drain kit from recovery, and between 4.25pm and 4.35pm Dr A inserted an intercostal drain into the right side of Mrs C's chest. New Venflon cannulas were inserted into Mrs C's arms, and she was given rocuronium 40–50mg intravenously (the exact dosage of the relaxant administered is unknown), Hypnovel (a short acting hypnosedative) 5mg intravenously and 100% oxygen by Ms J. Dr K ordered that Mrs C be given Rocephin (an antibacterial) 1g and Gentamicin (an antibacterial) 240mg (the exact time of administration is unknown). An intercostal tube (a tube inserted between two ribs) was inserted into the left side of Mrs C's chest at 4.45pm.

The operating theatre monitor had a memory, but it was not turned on, and so no data was captured during this time. Dr B advised that a formal theatre record could not be maintained owing to the level of activity in theatre. An anaesthetic technician was not available to record the data of the anaesthetic administration as the private hospital did not provide one; however, Ms G was appointed timekeeper during the situation and later completed a time line of events and recordings.

Transfer to ICU

Arrangements were made to transfer Mrs C to the intensive care unit at a public hospital. At 6.00pm, prior to her transfer, Mrs C was given rocuronium 10mg and she was taken off the ventilator³ and ventilated with an Ambu-bag for the transfer. Dr A and Dr B accompanied Mrs C in the ambulance.

Mrs C received mechanical ventilation and supportive therapy; however, she developed intractable seizure activity that could not be controlled with anti-convulsant therapy. Due to the severity of Mrs C's brain injury and prognosis, a decision was made to stop all active treatment and provide comfort and palliative care. Mrs C subsequently died.

Post-mortem

A post-mortem was held. The pathologist identified pulmonary atelectasis⁴ as the primary cause of Mrs C's death. He identified hypoxic encephalopathy⁵ as the secondary cause of death.

Coroner's inquest

A coroner's inquest has not been held, although statements have been obtained from witnesses. The coroner has advised that Mr C did not wish an inquest to proceed until the HDC investigation was completed.

³ Machine that maintains a flow of air into and out of the lungs of a patient who is unable to breathe normally.

⁴ Incomplete lung expansion.

⁵ Brain dysfunction resulting from low oxygen.

ACC

On 3 July 2003, Mr C lodged a claim for medical misadventure on behalf of Mrs C. Independent advice was provided to ACC by anaesthetists Dr Forbes Bennett and Dr Vaughan Laurenson. Dr Laurenson identified four errors in the management of Mrs C and one instance of substandard care.

1. The lack of a proper anaesthetic record with the timing and doses of drugs given by Dr B was substandard.
2. There was no suggestion of potential airway difficulties in Dr B's pre-anaesthetic.
3. After the induction of anaesthesia, while waiting for the onset of the muscle relaxant, the oxygen saturation is reported as dropping to the seventies. Despite this Dr B continued to ventilate Mrs C with nitrous oxide and oxygen rather than oxygen alone. This drop in saturation represents a failure of ventilation, despite the capnography trace, and failure to change ventilation to 100% oxygen represents an error of management.
4. The next probable error is the management of the neuromuscular blockade (medication used to relax a patient during the administration of anaesthetic). A dose of reversal was given at a time that appears to have been less than 30 minutes after the initial dose of the neuromuscular blockade and certainly less than that after the top-up dose. Despite it being very unlikely that this dose of reversal would have reversed the amount of muscle relaxant given so soon after the doses, no neuromuscular monitoring appears to have occurred. Dr Laurenson further commented that when Mrs C gagged on the laryngeal mask in recovery, this was the symptom of inadequate reversal of muscle relaxant, and this symptom was not recognised as such by Dr B.
5. The most significant error was management of the airway after the laryngeal mask was removed. Despite Mrs C being hypoxic and moribund, no attempt appears to have been made to reinsert the laryngeal mask, which had previously provided an adequate airway. That relatively simple manoeuvre may have been life-saving.

Dr Bennett advised ACC that Dr B's failure to ascertain an anatomical airway problem when paralyzing agents were being administered in an elective procedure, is below the standard of care reasonably to be expected in the circumstances and constituted error.

Dr Philip Wong, a gastroenterologist and endoscopist, advised ACC in his letter dated 15 November 2003: "Gastrointestinal endoscopic procedures can be safely performed under either conscious sedation or general anaesthesia. The choice of 'sedation' varies from centre to centre and country to country, as well as the endoscopist's preference."

On 5 February 2004, ACC issued a decision finding medical error on the part of Dr B, and on 6 May 2004 Dr B sought review of the decision.

A review hearing was held on 13 December 2004. Dr M, anaesthetist, provided evidence in support of the estate of Mrs C, and Dr N, anaesthetist, provided a report to ACC in support of Dr B.

The finding of medical error by Dr B was upheld on review. The ACC reviewer found that Dr B's failure was causally linked to the hypoxia brain injury Mrs C suffered. The failure was in the administration and management of the muscle relaxant rocuronium which, on the balance of probabilities, led to the airway crisis. Dr B's subsequent failure to re-establish an airway was also below the standard of care and skill reasonably to be expected in the circumstances. It was found that there was no evidence that Dr B overlooked an abnormal airway in her pre-anaesthetic assessment, and this aspect of her care did not amount to medical error.

Independent advice to Commissioner

Surgical advice

The following expert advice was obtained from Dr Kenneth Menzies, general surgeon:

“Medical/Professional Expert Advice — 04HDC11777

1. I have been requested to provide an opinion to the Commissioner on Case No: 04HDC11777. The purpose of my report is to provide independent expert advice about whether [Dr A] provided an appropriate standard of care to [Mrs C] (DEC).

2. **Summary CV:**

I graduated with MB BS from the University of New South Wales, Sydney, Australia, in 1967. I subsequently undertook training in general surgery and qualified with the Fellowship of the Royal College of Surgeons of England and Fellowship of the Royal Australasian College of Surgeons. I obtained vocational registration in General Surgery with the Medical Council of New Zealand in 1975. I am currently employed as a General Surgeon at Wellington Hospital. I am also the Clinical Leader for General and Vascular Surgery for Capital and Coast District Health Board. I have been a member of the American Society of Colon and Rectal Surgeons since 1994. I have been accredited by the New Zealand Conjoint Committee for recognition of training in gastrointestinal endoscopy to practice gastroscopy and colonoscopy.

I have performed more than 5000 colonoscopies and in excess of 1500 gastroscopies.

3. Documentation of referral instructions from the Commissioner.

Expert Advice Required

1. Please comment on the care provided by [Dr A] and whether it was appropriate. If not, please explain why, and in what way.

2. In addition, please advise whether it was appropriate to schedule [Mrs C] for:
 - (i) gastroscopy
 - (ii) colonoscopy
 - (iii) these two procedures together.
3. Would it have been appropriate to have performed a tracheostomy instead of inserting an 18G needle? If so, on what basis? Please comment on the risks and benefits of this alternative.

If, in answering any of the above questions, you believe that [Dr A] did not provide an appropriate standard of care, please indicate the severity of his departure from that standard.

To assist you on this last point, I note that some experts approach the question by considering whether the provider's peers would view the conduct with mild, moderate or severe disapproval.

Are there any aspects of the care provided by [Dr A] that you consider warrant additional comment?

4. This report is based on the following information provided to me by the Health & Disability Commissioner.
 - 4.1 Letter of complaint to the Health & Disability Commissioner from [Mr C], dated 11 July 2004.
 - 4.2 An independent report from [Dr M], Consultant Anaesthetist of [...] and accompanying documentation.
 - 4.3 A report from [Dr A] to the Health & Disability Commissioner dated 26 October 2004.
 - 4.4 Information provided by [the private hospital].

5. **Expert Advice Required**

- 5.1 *Please comment on the care provided by [Dr A] and whether it was appropriate. If not, please explain why, and in what way.*
 - 5.1.1 [Mrs C] was referred to [Dr A] by [Dr E] (locum for [Dr F]). The letter of referral was dated 28 April 2003. The referral states specifically 'I am referring this lady for colonoscopy +/- gastroscopy.' The referral letter goes on to say 'she presented with a vague lower abdominal pain which began a few years ago but recent increase in frequency'. Results of recent blood investigations are then annotated, in particular it states 'her haemoglobin is 78 and she has an iron deficiency'. These results are confirmed by the diagnostic lab report from 27 March 2003 where the haemoglobin was noted to be 78g/l. MCH and MCHC

were significantly below the normal range and the laboratory report states ‘the features are compatible with **iron deficiency anaemia**’.

5.1.2 [Mrs C] was seen by [Dr A] on 28 April 2003. At the time of this consultation [Dr A] noted that, in addition to [Mrs C] having iron deficiency anaemia and abdominal pain, there was a family history of bowel cancer.

5.1.3 [Dr A] recommended a gastroscopy and colonoscopy. This was entirely appropriate. A gastroscopy is required to diagnose or exclude chronic peptic ulceration or tumours of the oesophagus, stomach or duodenum. Colonoscopy is required to diagnose or exclude tumours, including cancer, of the large bowel and other chronic bowel diseases, including inflammatory bowel disease.

5.2 *In addition, please advise whether it was appropriate to schedule [Mrs C] for:*

- (i) gastroscopy*
- (ii) colonoscopy*
- (iii) these two procedures together.*

5.2.1 In my opinion it was appropriate to schedule the two procedures, namely gastroscopy and colonoscopy, to be performed together. It is my own practice to schedule gastroscopy and colonoscopy together in those patients referred to me with iron deficiency anaemia.

5.2.2 In my opinion it was **inappropriate** to book [Mrs C] for a gastroscopy and colonoscopy under **general anaesthesia**. In appendix 5 of the report to the Commissioner by [Dr A], he states ‘the choice to have a general anaesthesia was made by herself. She was very nervous and would not have it done under local anaesthesia.’

5.2.3 It is probable that hundreds of gastroscopies and colonoscopies are performed in New Zealand each day. Very few of these are performed under either general anaesthesia or local anaesthesia. The majority of patients having gastroscopy and colonoscopy in New Zealand have these procedures performed under **intravenous sedation**. The intravenous sedation may be administered by the proceduralist (ie surgeon or gastroenterologist) or it may be administered by an anaesthetist. Most patients having gastroscopy and colonoscopy are nervous but this in itself is not an indication for them to have a general anaesthetic. The vast majority of patients can have gastroscopy and colonoscopy performed very satisfactorily under intravenous sedation. Intravenous sedation does not involve placing a tube in the patient’s airway. Under intravenous sedation patients continue to breathe spontaneously. The patients are usually administered oxygen via nasal prongs, and their vital signs including pulse, blood pressure and oxygen levels are monitored.

5.2.4 The point made by [Dr A] was that the patient chose to have a general anaesthetic. The question I would raise is: — was she fully informed of the

effectiveness of intravenous sedation for these procedures at the time of her consultation?

- 5.2.5 Generally speaking it is safer to perform gastroscopy under intravenous sedation rather than under general anaesthesia. Under intravenous sedation the patient actively swallows as the scope is passed through the crico-pharyngeus (this is the sphincter muscle between the pharynx and the oesophagus). Under general anaesthesia the scope has to be pushed through this sphincter which may slightly increase the risk of perforation occurring.
- 5.2.6 There are specific indications for gastroscopy to be performed under general anaesthesia. These include (1) when a surgical procedure is being performed concurrently, (2) in children and (3) in patients who are intellectually handicapped or psychiatrically disturbed. Obviously [Mrs C] did not come into any of these categories.
- 5.2.7 In summary therefore it is my opinion that it was unfortunate that [Dr A] arranged to perform the gastroscopy and colonoscopy under general anaesthesia. However, in defence of [Dr A], I note the comments of two nurses to the coroner's inquest. [Ms O] (Principal Nurse at [the private hospital]) states '[Mrs C] discussed her anxiety about having the procedure, and in particular the general anaesthetic. I explained to her the possibility of having the procedure under sedation. [Mrs C] declined this alternative after we had discussed the matter and I had answered some of her questions.' [Ms D], who was employed as a Staff Nurse at [the private hospital] on 24 June 2003, states 'I discussed the possibility with [Mrs C] of having the procedure under sedation rather than a general anaesthetic. Despite her anxiety [Mrs C] was adamant that she wanted to have a general anaesthetic.'
- 5.3 *Would it have been appropriate to perform a tracheostomy instead of inserting an 18G needle? If so, on what basis? Please comment on the risks and benefits of this alternative.*
- 5.3.1 Most general surgeons would be faced with performing an emergency tracheostomy in a hypoxic patient only once or twice in their entire surgical career. This is a very stressful situation and performing a tracheostomy can be extremely difficult unless conditions are optimal.
- 5.3.2 It takes time to perform a tracheostomy and during this time further hypoxia is likely to occur. In my view it would have been appropriate for the anaesthetist to re-insert a Laryngeal Mask Airway (LMA) prior to the surgeon attempting any form of tracheal intubation. With an LMA in situ oxygen saturations could have been optimised before attempting tracheal intubation.
- 5.3.3 I now wish to refer to the statement of [Dr M] (Consultant Anaesthetist [...]) which is attached to the submission of [Mr C] to the Health & Disability Commissioner, dated 4 November 2004. Paragraph 6.3.2 of [Dr M's] statement

states when [Mrs C] was returned to the operating theatre she ‘should have been placed on her back at this stage, to allow good access to her airway’.

- 5.3.4 [Mrs C] had been placed on her side in the recovery room because of concern regarding the risks of *aspiration*. However by the time [Mrs C] was returned to the operating theatre the risk of aspiration was minimal compared to the need to secure an adequate airway. It is extremely difficult to perform any type of tracheal intubation with the patient lying on her side. Optimal access to the trachea is obtained with the patient lying on her back with the head and neck extended.
- 5.3.5 In answer to the question *would it have been appropriate to have performed a tracheostomy instead of inserting an 18G needle?* In my view it would be virtually impossible to perform a tracheostomy in a patient lying on her side. It would be difficult even to attempt to insert an 18G needle. In his report to the Medical Misadventure Unit dated 22 December 2003, Dr Forbes Bennett in paragraph 25 states ‘in attempting to cannulate the trachea, it seems that the 18G needles used have only entered the mediastinum and the subsequent insufflation of oxygen has compounded the deteriorating situation by obscuring anatomical landmarks.’
- 5.3.6 It was not inappropriate to insert an 18G needle into the trachea and this can be effective in supplying oxygen to the lungs for a limited time. However a correctly positioned Laryngeal Mask Airway would be more effective.
- 5.3.7 Even in the best hands and in optimal conditions it takes several minutes to perform a surgical tracheostomy. As stated in [Dr M’s] report ‘significant brain hypoxia will occur in the time taken to perform a surgical airway’.
- 5.3.8 In other words it is not possible to give a simple yes/no answer to the question *would it have been appropriate to have performed a tracheostomy instead of inserting an 18G needle?* The provision and maintenance of an airway is the responsibility of the anaesthetist (not the surgeon).
- 5.3.9 I accept that it is easy to be wise in retrospect and very difficult to make decisions in an emergency situation. Perhaps ideally when the patient was returned to the operating theatre she should have been placed on her back. The trachea could then be more readily palpated and an 18G needle could be inserted into it in less than a minute to provide oxygen while the anaesthetist was inserting a Laryngeal Mask Airway. Then with the Laryngeal Mask Airway in situ an emergency tracheostomy could be performed.
6. In conclusion therefore, though the procedures performed by [Dr A] on [Mrs C] when she returned to the operating theatre were unsuccessful, I do not believe that the standard of care which he provided was inappropriate in the circumstances.”

Anaesthetic advice

The following expert advice was obtained from Dr Joseph Sherriff, anaesthetist:

“[...] I have been asked to provide a report to the Health and Disability Commissioner regarding [Dr B] (ref: 04/11777). I have read and agree to follow the Commissioner’s Guidelines for Independent Advisors.

A brief CV is attached. In summary, I have been a Specialist Anaesthetist since 1983, practicing for 8 years in UK and for the past 13 years in New Zealand. Throughout this time I have provided anaesthesia for a wide range of specialties in both public and private practice. Currently I work 6 sessions per week in Southland Hospital where I am the Australia New Zealand College of Anaesthetists Supervisor of Training. The remaining four sessions I work in private practice in the Southern Cross Hospital. Though not a regular session I fairly frequently give anaesthesia for upper GI endoscopy, usually in children or the mentally handicapped.

I am currently a Senior Instructor for the Royal Australasian College of Surgeons Early Management Severe Trauma programme. I have been instructing on this course for the past 10 years.

This report is based on information received from the Health and Disability Commissioner namely:–

Background information provided by Health and Disability Commissioner. [...]

Letter of complaint by [Mr C] (this includes correspondence from [Dr A], report by [Dr B] to the coroner dated 18/8/03, letter by [a Police doctor] to [a Police inspector], post mortem report, report by [Dr B] dated 25/6/03, hospital notes by [Dr K] (ENT surgeon) and nurses, letters by [Ms O], hospital manager, [Dr B’s] anaesthetic record and the Death Certificate.

Notification letters to the parties.

Information supplied by [Mr C]:–

Letter by [Mr C] dated 4/11/2004

Statement by [Dr M] with supporting literature and CV.

Copies of photos, presumably of the deceased.

ANZCA Policy documents on the Anaesthetic Record and Assistance for the Anaesthetist.

Information by [Dr B].

Information from [the private hospital]

I have taken the Background information supplied by the Health and Disability Commissioner as fact, and used this as the basis of my report, referring from time to time to the individual reports by those involved with the case.

1. Was [Dr B's] pre-anaesthetic assessment of [Mrs C] adequate and appropriate?

[Dr B] saw [Mrs C] for pre-anaesthetic assessment an hour prior to the procedure. Her record of this assessment is reasonably comprehensive but does not include an assessment of anticipated airway problems. [Dr B] has noted in other reports that she did examine [Mrs C's] mouth and did not anticipate problems. Though ANZCA (Australia New Zealand College of Anaesthetists) recommends assessment of the airway a record of this is often omitted when it appears normal. The photos of [Mrs C] support Dr B's presumption that she would not expect difficulty with intubating her larynx.

In short I consider that [Dr B's] pre-anaesthetic assessment was adequate and appropriate.

2. Did [Dr B] administer [Mrs C's] general anaesthetic, and manage her initial ventilation, appropriately and adequately? If not, please explain why, and advise as to how this should have been achieved.

During anaesthesia for endoscopy the airway can be managed in a variety of ways. It can be kept open by the anaesthetist controlling the position of the patient's head and neck, a Laryngeal Mask Airway can be placed over the laryngeal opening or an endotracheal tube can be inserted through the larynx.

Whilst I would have probably used a laryngeal mask, the endotracheal tube is a perfectly acceptable technique for upper GI endoscopy.

I can find no record of [Mrs C] receiving any extra oxygen prior to or during induction. If still nervous despite her preoperative midazolam, she may have refused to have a mask over her face; however one can usually get a few breaths in, as the patient goes off to sleep.

Whilst pre-oxygenation is not an absolute requirement before anaesthesia, it is good practice and 'buys time' if airway problems are encountered.

Propofol 150mg and fentanyl 100mcg were given for induction of anaesthesia, and the muscle relaxant rocuronium 30mg was given to facilitate endotracheal intubation. This is a reasonable choice of drugs and dosage. I presume that [Dr B] chose rocuronium because of its rapid onset. Personally I would have chosen mivacurium which while slower in taking effect is eliminated totally and spontaneously in around 15 minutes, so avoiding the need for neostigmine for reversal.

Once [Mrs C] was asleep she was ventilated with nitrous oxide, oxygen and isoflurane. The proportion of each is not recorded. Though the use of nitrous oxide during

induction is still acceptable I have not used it in this situation for over 20 years. If there is an airway problem, the patient will become hypoxic very much more rapidly if they have received nitrous oxide and oxygen than if they have had oxygen enriched air or oxygen alone.

Despite apparently adequate ventilation as judged by the capnograph tracing [Mrs C] became hypoxic very soon after induction. If nitrous oxide was acceptable up to this point, it was not from here on. [Dr B] should have immediately turned off the nitrous oxide and used a high flow of oxygen. The isoflurane could have been left on to ensure that the patient did not wake up during attempts at intubation.

I consider this to be a major failure in the standard of care expected of a specialist anaesthetist.

Having brought the oxygen saturation to a level that was just about acceptable, Dr B attempted to intubate the trachea. The tube entered the oesophagus and this was recognised immediately. This is not uncommon and a situation which any anaesthetist should be able to handle.

The patient should be ventilated by bag and mask with 100% oxygen. One can presume that [Mrs C] was ventilated, but there is no record of her getting 100% oxygen.

There are a number of measures one can take to improve the likelihood of success at the second attempt at intubation.

[Dr B] did give a further dose of muscle relaxant and used an acutely angled introducer. There is no record of her attempting to improve the patient position (more flexion of neck on body and extension of neck on head), considering the use of a long bougie instead of the introducer, application of cricoid pressure by the anaesthetic assistant, use of the 'fast-trach' laryngeal mask or a different laryngoscope blade.

It is very, very rare to come across a patient who appears to have a normal airway and is impossible to intubate. Of course [Mrs C] could have been one of those, but I believe it highly likely that if the above simple measures had been used she could have been intubated successfully.

Whilst a skilled anaesthetic technician or nurse is extremely useful in a difficult situation such as this, it is the responsibility of the anaesthetist to ensure that aids to a difficult intubation are available.

[Dr B] failed to demonstrate that she met the standard of skill in coping with a difficult intubation, expected of a specialist anaesthetist.

3. Was [Dr B's] monitoring of [Mrs C] adequate and appropriate?

The anaesthetic record indicates that monitoring comprised ECG, Non invasive blood pressure, pulse oximetry and capnography. There is no indication of measurement of

inspired oxygen concentration, or agent analyzer. The Datex S/5 monitor does include these parameters, however if they were not used it represents a major departure from ANZCA recommendations (policy document PS18).

Other than occasional observations of oxygen saturation there is no record of any of the above monitoring. This is regrettable but not unusual in a crisis situation. In theory the data could have been obtained from the monitor after the events, however it was switched off before [Dr B] could access the data. Again this is regrettable but not unusual.

In short it would appear that [Dr B's] monitoring was probably adequate and appropriate.

4. Were [Dr B's] actions in inserting the LMA, ordering atropine and neostigmine, and providing manual ventilation, consistent with standard anaesthetic practice?

The insertion of a Laryngeal Mask Airway was entirely appropriate following failed intubation as was manual ventilation. It is a pity that we don't have recordings of oxygen saturation during this period but it would appear from the reports by nursing staff that oxygenation was adequate.

It is usual to reverse the action of the muscle relaxant, rocuronium, at the end of a procedure. The drugs and doses ordered were appropriate (neostigmine 2.5mg and atropine 1.2mg). Neostigmine reverses the action of the muscle relaxant and atropine is given to counter the side effects of the neostigmine, principally bradycardia and bronchospasm. Nurse I reports that she only gave atropine 0.6mg. [Mrs C] would have been at risk of the side effects but I doubt if this contributed to the clinical situation.

[Mrs C] had received a standard intubation dose of rocuronium sometime after 15.10 when she arrived in theatre. Let us assume it was given at 15.15 at the earliest. Further doses amounting to 30mg were given after the first attempt at intubation, say at 15.20.

[Mrs C] was transferred to recovery at 15.55 so the reversal drugs must have been given well before this. With this dose of rocuronium and reversal after a maximum of 30 minutes I would have been very suspicious that reversal would be incomplete and hence that [Mrs C] would be at risk of breathing difficulty on removal of the LMA.

When a muscle relaxant is partially reversed, the patient will make some respiratory effort and, if awake, will respond to commands but may not have sufficient muscle power to maintain adequate ventilation.

Had [Dr B] tested the extent of neuromuscular block with a nerve stimulator she would have had a much better indication of the adequacy of reversal. She could then have delayed removing the LMA until it was safe to do so.

5. Was it appropriate to position [Mrs C] on her side?

It is not unusual to place patients on their side for recovery. They can often maintain their own airway more easily than when supine and are at less risk of aspiration of gastric contents should they vomit. However if intervention is needed to improve the airway and breathing, it is easier if the patient is supine. Personally I would have kept her in the supine position.

6. Was it appropriate for [Dr B] to remove the LMA in the recovery room, and was her management of [Mrs C's] airway thereafter adequate and appropriate? Please comment on the absence of any record of anaesthetic monitoring during this time.

When an LMA is used for maintaining the airway during a surgical procedure it is usual to transfer the patient to the recovery ward with the LMA in situ and remove it as they are waking. This situation was very different in that the LMA had been used to establish a patent airway following three failed attempts at intubation, with profound hypoxia after each attempt.

[Mrs C] should have remained in theatre attached to the Datex S/5 monitor until she was awake, breathing spontaneously and maintaining adequate oxygen saturation.

Having removed LMA [Dr B] was faced with a hypoxic patient with breathing difficulty. She inserted a size 3 airway, presumably a Guedel oropharyngeal airway rather than an LMA. Whilst this was a reasonable first step it did not improve the situation and [Dr B] could have reinserted an LMA, used a nasopharyngeal airway or had another attempt at endotracheal intubation. There is no guarantee that these measures would have been effective but they should have been attempted.

In addition she did not exclude airway obstruction due to regurgitated stomach contents or foreign material of any sort. Nor did she consider the possibility of bronchospasm caused by neostigmine.

The possibility of incomplete reversal of the muscle relaxant does not appear to have been considered at all.

[Dr B's] management of the airway from the time of removal of the LMA was inadequate.

The absence of any record of anaesthetic monitoring at this stage is regrettable but not surprising in the circumstances. Had [Mrs C] remained in theatre rather than being transferred to recovery there would have been a greater chance of the data being recorded from the theatre monitors.

7. What was [Dr B's] role and responsibility in terms of managing [Mrs C's] condition after her return to the operating theatre? Were her actions at that time adequate and appropriate in terms of what is accepted as 'standard' practice?

[Mrs C] was moved back to the operating theatre at 16.04. [Dr B] tried to manually ventilate her with an Ambu-bag and mask through the oropharyngeal airway. There is no indication that this was successful in terms of improved oxygenation or measurement of expired carbon dioxide. It was clearly not successful so again I would have expected her to attempt other airway management techniques.

Having failed to oxygenate [Mrs C] with conventional airway management techniques a surgical airway was attempted. This was an appropriate decision. This situation arises very rarely, sometimes never, in the whole career of an anaesthetist. Likewise I doubt if [Dr A] had vast experience in emergency surgical airway techniques.

It was reasonable for [Dr A], as a surgeon, to attempt the surgical airway while [Dr B] continued with conventional techniques. As a general surgeon [Dr A] would have had experience in performing tracheostomy, however [Dr B] would have received training in surgical airway techniques on her Early Management Severe Trauma (EMST) course. This would have included performing both needle cricothyroidotomy and surgical cricothyroidotomy on an animal model [...]. It is thus possible that Dr B was better trained in the techniques than [Dr A].

[Dr A] had difficulty with both needle cricothyroidotomy and tracheostomy. A larger needle (at least 14 gauge) should have been used. It would appear that he attempted to gain access to the trachea between tracheal rings rather than through the cricothyroid membrane as taught by EMST. This may account for some of the difficulties he encountered. The mini tracheostomy tube is notoriously difficult to place in an emergency.

Once tracheostomy had been achieved by [Dr K], [Dr B] administered appropriate drugs, monitoring and ventilation in preparation for transport to Intensive Care [at the public hospital].

In summary [Dr B] could have taken a more active part in establishing a surgical airway, I do not however criticize her for this. I am however, highly critical of the lack of further attempts at conventional airway management on her return to theatre. By this time hypoxia would have ensured relaxation of the jaw and enabled a further attempt at endotracheal intubation. In this regard she fell well below the standards expected of a Specialist Anaesthetist.

An additional point is that there is no indication whatever that either [Dr B] or the other personnel involved made any attempt to summon another anaesthetist to assist. There may not have been anyone available but the attempt should have been made.

8. Are [Dr B's] clinical records of an appropriate standard? If not, why not?

As indicated above, the record of the preoperative consultation is satisfactory. It would have been surprising if she had made any recordings while coping with the airway difficulties. Her note on the anaesthetic record, presumably written contemporaneously, gives an adequate account of events. As indicated above, it is

regrettable that readings from the monitors in recovery and theatre were not recorded. This however was not totally within [Dr B's] control.

In summary, I have the greatest sympathy for the situation in which [Dr B] found herself. Her preoperative assessment, monitoring and record keeping were acceptable given the circumstances. Her chosen technique, whilst in my opinion not ideal, does fall within a range of acceptable alternatives. The transfer to [the public hospital] was also satisfactory. Unfortunately her airway management was substandard when difficulty was encountered with intubation. She also had a totally inadequate strategy for dealing with the breathing difficulty once [Mrs C] had been taken to recovery.”

Further anaesthetic advice — 2 November 2005

Dr Sherriff provided further advice on 2 November 2005 regarding the use of anaesthetic technicians and anaesthetic nurses. He explained that an anaesthetic technician is someone who is qualified to assist the anaesthetist in providing anaesthetic care. A technician may or may not be a nurse who has completed training in anaesthetic care. An anaesthetic nurse may not have completed anaesthetic training, but often has a specific role in assisting anaesthetists.

Dr Sherriff advised that the College of Anaesthetists recommends that fully trained technicians are available to assist anaesthetists; however, there have been practical difficulties in recruiting and retaining technicians, especially in private practice. Dr Sherriff said that it is fairly widespread practice, especially in the private sector, for an anaesthetist to work without the assistance of a qualified technician.

Dr Sherriff acknowledged that his views on the presence of an anaesthetic technician differ from those of Dr M and Dr N. He said that Dr B did not need a technician to assist her as the care she was providing Mrs C was routine, and she should also have been able to manage the crisis that arose. He further explained that Dr B should have been aware of the experience of Ms G, the anaesthetic nurse who assisted her, and that the assistance of a trained technician would not have made any difference to the outcome.

Further anaesthetic advice — 15 January 2006

Dr Sherriff provided the following additional advice on 15 January 2006:

“I have been asked to provide a further report regarding [Dr B]. You already have my CV, background information and list of documents provided for my consideration on file. You have asked me to consider the information provided by [Dr B] in her response to the Commissioner's provisional opinion.

I will take the points raised by [Dr B] in the same order as in her letter.

I have great sympathy for [Dr B] and fully appreciate the severe stress she must be enduring.

She describes how she was the only anaesthetist available in [the area] at the time, which does explain why she did not seek help from a colleague, as I suggested in my previous report.

In response to the numbered paragraphs.

- 1 [Dr B] removed the laryngeal mask because [Mrs C] was gagging. This was a reasonable judgement but it should have been done in the operating theatre with full monitoring still attached. It may well be that formal assessment of the degree of neuromuscular blockade was not feasible for a variety of reasons. My major concern was not the lack of assessment but the lack of any consideration that incomplete neuromuscular blockade was a possibility.
- 2 As indicated in my report I do not criticise [Dr B] for her role in the attempts at tracheostomy.
- 3 With regard to [Mrs C's] position I refer to para 5 in my previous report. Personally I would have kept [Mrs C] in the supine position, especially when the need for airway intervention became obvious on removing the LMA.
- 4 It is generally taught that a patient's jaw will relax if they become profoundly hypoxic. This may or may not be true, but either way does not alter the comments in my report. Both simple airway manoeuvres and a surgical airway would have been achieved more easily had [Mrs C] not been taken to recovery.
- 5 I stand by my criticism of [Dr B] for failing to administer 100% oxygen as soon as [Mrs C] became hypoxic during the first attempts at intubation.
- 6 She is entirely correct in her view that the need for a surgical airway is extremely rare. She had a hypoxic patient whom she could not ventilate, or intubate, so a surgical airway was the correct course of action.
- 7 It is reassuring to hear that [Dr B] did try to improve the patient's position between attempts at intubation. A more detailed description in her original report would have given me more confidence that all reasonable options had been attempted.
- 8 It is also reassuring to hear of [Dr B's] confidence in her laryngoscope however I still believe it possible that conventional airway techniques could have achieved oxygenation after the removal of the laryngeal mask.
- 9 I am grateful for the explanation of the dose of atropine. As stated in my previous report, I doubt if it would have affected the course of events whether 0.6mg or 1.2mg had been given.
- 10 The apparent position of the larynx changes with the patient's position. If the neck is extended it always appears to be anterior. Thus it is impossible to comment on [Dr K's] observations. Whether or not the anatomy contributed to the difficulties encountered there were still deficiencies in the management of the problem.
- 11 The presence of a trained anaesthetic technician can make the management on a crisis easier. However, a nurse who spends much of her time providing anaesthetic

assistance should be just as competent. Ultimately the buck stops with the anaesthetist whoever might be the assistant.

In summary [Dr B] has gone some way to provide an explanation for some of my criticisms. However the principal points remain, namely:-

Not changing to 100% oxygen soon enough.

Failing to consider incomplete reversal of the muscle relaxant.

Not using the full range of adjuncts to assist with difficult intubation.

Transferring [Mrs C] to the recovery room with the LMA in situ.

A limited range of techniques to secure oxygenation between removal of the LMA and the attempted tracheostomy.

I hope that I may be permitted to add a personal opinion. [Dr B] has clearly suffered deeply as a result of this incident. She did her best at the time but the outcome was tragic. She has now fully retired from medical practice. I can see nothing to be gained by subjecting her to further proceedings.”

Responses to provisional opinion

The private hospital company

Ms O responded to the provisional opinion on behalf of the private hospital. She noted Dr Sherriff's comment that there was no indication whether an attempt was made to summon another anaesthetist. Ms O advised that this possibility was considered but that no attempt had been made to call another anaesthetist as Dr K's proximity to the private hospital meant that he was able to attend within six minutes. The nearest anaesthetist would have been at the public hospital and would have taken at least 10 minutes to get there. Ms O stated that “the only feasible option to ensure an immediate response was to request the assistance of [Dr K]”.

Ms O advised that the practice at the private hospital is that an anaesthetic assistant is assigned to the anaesthetist whenever a general anaesthetic is administered to a patient. All registered nurses who work in the operating theatre have had training and experience in assisting with anaesthetic procedures. Ms O stated that using theatre nurses as anaesthetic assistants is common practice in most New Zealand hospitals, especially in smaller provincial hospitals where it is difficult to attract anaesthetic technicians. In 2005 the private hospital recruited an anaesthetic technician.

Dr B

Dr B explained that the day in question was usually her day off but she agreed to work because there were no other anaesthetists available.

Dr B advised that she asked Dr A to perform the tracheostomy as she knew he had performed a successful one previously in an emergency situation. Dr B considered that Dr A was therefore better equipped to perform a successful tracheostomy. She was involved in the tracheostomy as well as managing the emphysema that arose and the problems from the failed tracheostomy.

Dr B stated that she strongly disagreed with Dr M's statement that Mrs C should have been placed on her back rather than on her side. In Dr B's view it is standard teaching to position a patient on his or her side as it often produces an improvement in the airway as well as reducing a very real danger of regurgitation and aspiration of acid gastric contents.

Dr B noted that Dr K's laryngoscopic findings showed a very anteriorly placed larynx with an overhanging epiglottis,⁶ which may have contributed to the difficulties encountered with manual ventilation and the difficulty in intubation.

The private hospital is "a small peripheral centre", and in Dr B's view it must be borne in mind that there were no trained anaesthetic staff to help her in an emergency situation. Although Ms G is very experienced in surgical procedures she has no definitive anaesthetic training. With the benefit of hindsight, Dr B considers that the assistance of a trained anaesthetic technician would have been very helpful.

Dr B stated that the anaesthetists who have provided advice on this matter have had the benefit of hindsight and time to "intricately review" and comment. In her view it is easy to make judgements about what should have been done, when not actually facing the stress of an emergency situation.

Dr B has nothing but the utmost sorrow and regret at Mrs C's death, and wishes that the outcome for Mrs C's family had been very different.

Dr B's barrister also provided a response on behalf of Dr B. She advised that Dr B has no intention of resuming practice. Dr B was working in an emergency situation, whereas the experts commenting on the matter had the considerable benefit of hindsight. It also needs to be recognised that the events took place in the context of a peripheral private hospital rather than a tertiary setting.

Dr B's barrister submitted that in his report Dr Sherriff judged matters with reference to his own practice rather than advising on accepted practice within the profession. She queried whether the benefit of hindsight and the emergency nature of the situation had been given full weight.

Mr C

Mr C expressed concern about the private hospital's failure to have a specifically qualified anaesthetic assistant available. He referred to guidelines published by the Australian and

⁶ A thin leaf-shaped flap of cartilage situated immediately behind the root of the tongue.

New Zealand College of Anaesthetists which state that “The presence of a trained assistant for the anaesthetist is essential for the safe and efficient conduct of anaesthesia.”⁷

Code of Health and Disability Services Consumers’ Rights

The following Rights in the Code of Health and Disability Services Consumers’ Rights are applicable to this complaint:

RIGHT 4

Right to Services of an Appropriate Standard

- 1) *Every consumer has the right to have services provided with reasonable care and skill.*
 - 2) *Every consumer has the right to have services provided that comply with legal, professional, ethical, and other relevant standards.*
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Opinion: Breach — Dr B

Under Right 4(1) of the Code of Health and Disability Services Consumers’ Rights (the Code), Mrs C had the right to have services provided with reasonable care and skill. I have considered the reports of five anaesthetists who have commented on the anaesthetic care Dr B provided to Mrs C: Dr Laurenson (who also provides expert advice to the Health and Disability Commissioner) and Dr Bennett provided reports to ACC; Drs M and N provided reports on behalf of Mr C and Dr B, respectively, at the ACC review hearing; and Dr Sherriff provided an independent report to the Commissioner.

Although there is some variation in the reports, in particular Dr N’s advice, there is consistent comment regarding Dr B’s anaesthetic practice and behaviour. Having carefully considered all of the reports and the information provided by the parties during my investigation, and taking into account the risk of hindsight bias and the rare emergency that the anaesthetist faced, I have formed the opinion that Dr B failed to provide appropriate anaesthetic care to Mrs C at the private hospital on 24 June 2003, and therefore breached Right 4(1) of the Code. My reasons are set out below.

Oxygen

Dr B induced Mrs C and ventilated her with nitrous oxide, oxygen and isoflurane via an oral airway. However, Mrs C became hypoxic and was manually ventilated until her

⁷ *Guidelines on the Assistant for the Anaesthetist*, PS8 (2003).

oxygen saturations reached 94–95%. Dr B then attempted to intubate Mrs C without success. Dr B made two further, unsuccessful attempts at intubation but on each occasion Mrs C's oxygen saturations fell. Despite the falling saturations, Dr B continued to use nitrous oxide to ventilate Mrs C.

My expert, Dr Sherriff, explained that pre-oxygenation of a patient prior to the induction of anaesthesia is good practice, as it “buys time” if airway problems are encountered. He further explained that a patient will become hypoxic more quickly if nitrous oxide is used rather than oxygen or oxygen-enriched air. Dr B should have discontinued using the nitrous oxide and ventilated Mrs C with 100% oxygen as soon as Mrs C became hypoxic. Dr Sherriff's comments are consistent with the view of Dr Laurenson that “a failure to change ventilation to 100% oxygen represents an error of management”. Dr M also considered that delivery of oxygen “must be at 100%”. Dr B explained that she continued to use nitrous oxide to avoid Mrs C (who was an anxious patient) waking up. However, Dr Sherriff advised that this effect could have been achieved with the isoflurane. Having considered the explanation put forward by Dr B, Dr Sherriff remained of the view that Dr B should have administered 100% oxygen as soon as Mrs C became hypoxic.

The adequate ventilation of the patient is a fundamental part of anaesthetic practice. It was imperative that Dr B administer 100% oxygen to Mrs C. There is no evidence that 100% oxygen was delivered prior to or at any time when Mrs C's saturations dropped. Dr B's failure to initially ventilate Mrs C with high-flow oxygen, and her subsequent omission to discontinue the nitrous oxide when Mrs C's saturations fell, highlights a major deficiency in Dr B's practice. Dr Sherriff considered this to be “a major failure in the standard of care expected of a specialist anaesthetist”.

Recovery room

Dr B transferred Mrs C to the recovery room but she did not assess the effects of the reversal of the muscle relaxant drugs before doing so.

Dr Sherriff explained that due to the difficulties that had confronted Dr B when she attempted to intubate Mrs C in the operating theatre, Mrs C should not have been transferred. Dr Sherriff would also have been very suspicious that the effects of the muscle relaxants had not been completely reversed. The possibility of incomplete reversal of the muscle relaxant does not appear to have been considered by Dr B at all.

Dr Laurenson advised ACC that it was “very unlikely” that the dose of reversal administered would have reversed the amount of muscle relaxant given, while Dr M considered that the “reversibility of the muscle relaxant should have been formally assessed”. On the other hand, Dr N said that “the muscle relaxant was allowed to wear off” and “was then reversed”. However, the subsequent difficulties encountered when the LMA was removed — discussed below — lead me to believe that the relaxant was still working.

Dr B stated that while it may be easy in hindsight to recommend a formal assessment of the degree of neuromuscular blockade, it was not feasible in an emergency situation without the assistance of an anaesthetic technician. However, her earlier statements to ACC

indicated that she did not carry out such an assessment as she did not consider it necessary given Mrs C's colour and the fact that Mrs C was responsive. Furthermore, on Mrs C's move to the recovery room, it was not an emergency situation (otherwise she would not have been moved). In any case, even if a formal assessment was not possible, the point remains that there is no evidence that Dr B considered the possibility of an incomplete reversal of the muscle relaxant when making decisions about Mrs C's care.

Airway crisis

While in recovery, Mrs C started gagging on the laryngeal mask airway (LMA), and Dr B removed it. Mrs C's oxygen saturations dropped, she became discoloured, and she experienced breathing difficulties. Dr B moved Mrs C back to the operating theatre. However, Dr B did not attempt to re-insert the LMA, which had effectively maintained the patency of Mrs C's airway prior to her transfer to recovery.

Dr Sherriff explained that due to an incomplete reversal of the muscle relaxant drugs, Mrs C would have been at risk of developing breathing difficulties on removal of the LMA, as she may not have had sufficient muscle power to ensure adequate ventilation. Dr Sherriff was also critical of the lack of any further attempts at conventional airway management techniques by Dr B on Mrs C's return to the operating theatre, as by then Mrs C's jaw would have relaxed, due to hypoxia, enabling Dr B to attempt to intubate her.

Dr Laurenson advised ACC that "at some stage prior to her death, Mrs C would have relaxed enough to allow [a] laryngeal mask [to] be inserted again", a view shared by Dr M. However, Dr B stated that she could not reinsert the LMA because Mrs C's teeth were clenched. Dr N supported Dr B's actions, stating that it was understandable she was reluctant to give further relaxant in order to insert another LMA.

Dr Sherriff explained that Dr B could have adopted several simple measures to ensure Mrs C was successfully intubated. Dr B later clarified that she had taken some of these measures (namely adjusting Mrs C's head and neck between intubation attempts and applying cricoid pressure) but did not record these actions as she regarded them as "normal practice". Dr Sherriff identified other steps that could also have been taken — considering the use of a long bougie instead of the introducer, and using the "fast-trach" laryngeal mask. Dr B could also have tried to re-insert an LMA using a naso-pharyngeal airway or made another attempt at endotracheal intubation. There is no evidence that she excluded the possibility that Mrs C's airway was obstructed or that Mrs C had sustained bronchospasm caused by neostigmine.

Dr B advised that due to the low level of Mrs C's oxygen saturations she did not have time to even contemplate passing a bougie, although these instruments were available to her in the "difficult-intubation" trolley.

There is a conflict of expert opinion as to whether it was appropriate for Dr B to place Mrs C on her side. Dr Laurenson advised ACC that "the continued use [of the left lateral position] in the absence of some method of maintaining flexion of the cervical spine is likely to contribute to the loss of the airway". Dr M's advice to the ACC reviewer was that relaxation of the jaw always occurs with hypoxia and that Mrs C should have been placed

on her back to allow access to her airway. However, Dr N and Dr B state that it is standard practice to place patients on their side as it often produces an improvement in the airway. Dr Sherriff agreed that it is not unusual to place a patient on his or her side for recovery, but noted that intervention to improve the airway and breathing is easier if the patient is supine. I have concluded that, although it may have been reasonable to place Mrs C on her side initially, she should have been placed in the supine position when she was returned to the operating theatre. As Dr Menzies commented, by this time the risk of aspiration was minimal compared to the need to secure an adequate airway.

In my view Dr B's management of Mrs C's airway following cancellation of the procedures was inadequate. Having unsuccessfully attempted to intubate Mrs C on three occasions, Dr B should not have moved her to recovery. Mrs C should have remained in the operating theatre, where she would have been appropriately monitored. Dr B could then have undertaken a thorough assessment of the effects of the reversal of the muscle relaxant drugs. If such an assessment had occurred, Dr B could then have appropriately assessed Mrs C's ability to maintain her respiratory status. Only following a thorough assessment and evaluation of Mrs C's respiratory status should Dr B have decided whether it was appropriate to remove the LMA.

Conclusion

I recognise that I and the expert advisors have the benefit of hindsight in considering the appropriateness of Dr B's care. Dr B's care must be assessed in light of the circumstances she faced at the time. I am confident that the advisors have taken appropriate account of the pressured situation in which Dr B had to make decisions, and have not imposed unreasonably high standards.

Although the difficulties Dr B encountered in managing Mrs C's airway were rare and unexpected, Dr B had worked as an anaesthetist for many years. She should have been aware of, and competent in the use of, a variety of strategies to enable her to effectively manage Mrs C's intubation, monitor the reversal of the muscle relaxants, and respond to the airway crisis following removal of the LMA in recovery. As guardian of Mrs C's airway, Dr B was charged with the responsibility of providing effective anaesthetic care to Mrs C. I acknowledge Dr N's comments that Dr B faced a situation that is "every anaesthetist's nightmare". That does not, however, excuse the poor care she provided. The evidence is overwhelming that Dr B failed to keep her patient safe. In these circumstances, Dr B breached Right 4(1) of the Code.

Opinion: No Breach — Dr A

As noted above, the primary focus of my investigation has been on the anaesthetic care provided to Mrs C. However, my investigation also sought to determine whether it was appropriate to arrange for the gastroscopy and/or colonoscopy to be performed, including whether it was appropriate to proceed with the procedures under general anaesthetic.

It is undisputed that Mrs C was anxious about having the procedures, and that there was some discussion between Mrs C and Dr A preoperatively about the anaesthesia under which the investigations would be performed. Clearly, an agreement was reached between Dr A and Mrs C that a general anaesthetic would be used. The choice of which anaesthetic to administer then became Dr B's responsibility.

There is no evidence of inadequate care by Dr A, notwithstanding Dr Menzies' comments regarding the inappropriateness of such procedures occurring under general anaesthetic.

There was an option to perform the procedures under sedation, but the evidence indicates that Mrs C chose to have a general anaesthetic. The information from Mr C and the private hospital is that Mrs C was very concerned about the procedures. Dr A has consistently advised that Mrs C did not want the investigations under sedation. In the circumstances I am satisfied that Dr A's actions were appropriate.

Dr A has not provided any clinical notes from his consultations with Mrs C prior to the procedures. In particular, he has not recorded the discussions he had with Mrs C regarding the anaesthetic under which the procedures would be performed, and Mrs C's anxiety about having the procedures. There is no documentary evidence to answer Dr Menzies' question "Was [Mrs C] fully informed of the effectiveness of intravenous sedation for these procedures?"

In my view, Mrs C's obvious anxiety, coupled with her decision to have a general anaesthetic, should have been clearly documented by Dr A in his clinical notes and in his follow-up letter to Mrs C's referring doctor. Dr A should specifically have noted that he had informed Mrs C of the increased risk of general anaesthesia rather than intravenous sedation and that Mrs C wanted to proceed nonetheless.

Opinion: No Breach — The private hospital company

Vicarious liability

In addition to any direct liability for a breach of the Code, employers are responsible under section 72(3) of the Health and Disability Commissioner Act 1994 for ensuring that agents of an employing authority comply with the Code. Under section 72(5) it is a defence for an employing authority to prove that it took such steps as were reasonably practicable to prevent the agent from doing or omitting to do the things that breached the Code.

Dr A and Dr B were visiting practitioners at the private hospital. In some situations, private hospitals may be liable for breaches of the Code by visiting practitioners if they have not taken reasonable steps to prevent the relevant acts or omissions.

In this case, no issue of vicarious liability arises in respect of the actions of Dr A. However, Dr B breached Right 4(1) of the Code. Her failure to provide an appropriate standard of care to Mrs C results from her individual clinical decision-making. There is

nothing to indicate that the private hospital was aware of any previous complaints or concerns regarding Dr B's competence to practise anaesthesia. Audit and credentialling processes at the private hospital had apparently not revealed any concerns. In these circumstances the private hospital is not liable for Dr B's breach of the Code.

Further comment

Role of anaesthetic technician

Should an anaesthetic technician have been present during Mrs C's procedures? This question is relevant to both the appropriateness of the services provided by Dr B and the responsibilities of the private hospital.

Ms O advised that the practice at the private hospital was that nurses working in the operating theatre had training and experience in assisting with anaesthetic procedures. They then act as an anaesthetic assistant to the anaesthetist whenever a general anaesthetic is administered to a patient. Ms O stated that using theatre nurses as anaesthetic assistants is common practice in most New Zealand hospitals, especially in smaller provincial hospitals where it is difficult to attract anaesthetic technicians.

I note that guidelines published by the Australian and New Zealand College of Anaesthetists in 2003 state that "[t]he presence of a trained assistant for the anaesthetist is essential for the safe and efficient conduct of anaesthesia". The existence of a professional guideline does not, of itself, indicate whether the guideline is a mandatory professional standard, enforceable via Right 4(2) of the Code. I note the strong language of the College guideline. However, the expert evidence on this point, discussed below, suggests that the presence of an anaesthetic technician is not uniform in operating theatres in New Zealand, and that safe care can be provided with the assistance of a properly trained anaesthetic nurse.

Dr M advised that "a qualified anaesthetic assistant should always be present when anaesthesia occurs". She also commented that in the two private hospitals in the provincial city where she works the anaesthetic teams are assisted by registered anaesthetic technicians. Dr N advised that there were several ways in which an anaesthetic technician could have assisted Dr B, and that the outcome may have been different if a trained technician had been available.

My expert advisor, Dr Sherriff, acknowledged that his views on the presence of anaesthetic technicians differ from those of Dr M and Dr N. Although it is recommended that a trained technician is available to assist an anaesthetist, this is not always possible. In private hospitals, anaesthetists often provide care without the assistance of technicians. Dr Sherriff explained that the circumstances in which Dr B was to provide anaesthetic care were routine, and, therefore, Dr B should have been able to provide appropriate care without the assistance of a trained technician. Dr B should also have been aware of the experience of Ms G, the anaesthetic nurse who assisted her. In Dr Sherriff's opinion the assistance of a trained technician would not have made any difference to the outcome.

I note that Dr Wong advised ACC that gastroscopy and colonoscopy can be safely performed under conscious sedation or general anaesthesia.

There is no evidence that the procedures were complex surgical investigations, or that they were to be performed in an acute setting. The anaesthetic care to be provided by Dr B was routine. Dr B should have been able to provide anaesthetic care to Mrs C with the assistance of Ms G only. I am satisfied that it was appropriate for Dr B to administer anaesthetic care to Mrs C at the private hospital without the assistance of an anaesthetic technician. Equally, I do not consider that the absence of an anaesthetic technician excuses Dr B's omissions in this case. It was ultimately Dr B's decision to proceed with Ms G's assistance, and I have not been provided with any information indicating that she had previously raised concerns about the absence of anaesthetic technicians at the private hospital.

The private hospital should ideally have had an anaesthetic technician available. However, in light of the difficulties in recruiting anaesthetic technicians and the nature of the procedures in question, I consider that in this case it was reasonable to have nurses with training and experience in anaesthetics acting as assistants to Dr B. This is not to suggest that the absence of an anaesthetic technician will always be acceptable. Hospitals clearly have an obligation to have appropriately trained staff in the operating theatre and to provide safe anaesthetic services.

Recommendation

Dr B currently does not have a practising certificate. If, in the future, she applies for a practising certificate, I recommend that the Medical Council of New Zealand undertake a competence review.

Follow-up actions

- A copy of my final report will be sent to the Medical Council of New Zealand, the Australian and New Zealand College of Anaesthetists, and the Royal Australasian College of Surgeons.
- A copy of my final report, with details identifying the parties removed, will be sent to the New Zealand Society of Anaesthetists and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

Non-referral to Director of Proceedings

In a case where the provider's care falls significantly below professional standards, with such tragic circumstances for a patient, I am bound to consider whether the public interest requires referral of the provider to the Director of Proceedings.

Mr C supports further proceedings. His views are a factor that I must consider but are not decisive. Dr B's barrister submits that Mrs C's death and the subsequent investigations have exacted a significant physical and psychological toll on Dr B, and has provided supporting medical evidence. This evidence has been taken into account.

These events occurred in the twilight of Dr B's career as an anaesthetist. In my deliberations as to the appropriateness of a referral to the Director of Proceedings, a significant factor is that Dr B retired from medical practice two years ago, has no intention of practising again and would be unlikely to do so given her age. In the unlikely event that she regains her health and wishes to resume practice, the Medical Council will need to be satisfied as to her competence and fitness to practise. Dr B has been held accountable in this investigation, and I do not consider that there is any public interest in subjecting her to further proceedings for purposes of accountability or setting standards. For these reasons, I have not referred Dr B to the Director of Proceedings.