Obstetrician and Gynaecologist, Dr B

General Surgeon, Dr C

A Private Hospital

A Report by the

Deputy Health and Disability Commissioner

(Case 06HDC17645)

Health and Disability Commissioner
Te Toihau Hauora, Hauātanga

Parties involved

Mrs A (dec)	Consumer
Mr A	Complainant/Consumer's husband
Dr B	Provider/Obstetrician and gynaecologist
Dr C	Provider/General surgeon
Dr D	Radiologist
Dr E	Endocrinologist
Dr F	Radiologist
A private hospital	Provider

Complaint

On 20 November 2006, the Commissioner received a complaint from Mr A about the services provided to his late wife, Mrs A, by Dr B and a private hospital (the Hospital) in 2005. Following review of a considerable amount of information, on 27 April 2007 the following issues were identified for investigation:

The appropriateness of the care provided to Mrs A by Dr B including:

- *the laparoscopic surgery performed by Dr B at the Hospital;*
- *the postoperative care provided by Dr B.*

The adequacy of information provided to Mrs A by Dr B during the preoperative period about the operation.

The appropriateness of the care provided to Mrs A by Dr C:

- *at the private Hospital;*
- *at a public hospital.*

The appropriateness of the care provided to Mrs A by the Hospital including:

- *whether there was an appropriate communication system between clinical staff at the Hospital to ensure the quality and continuity of services.*

This investigation has taken over 12 months to complete because of the complex issues involved, and the need to obtain three sets of independent expert advice.

Overview

Following routine gynaecological surgery, Mrs A developed a serious postoperative complication which went undetected for 13 days. Unfortunately, despite emergency surgery that was performed once the complication was diagnosed, treatment in two separate intensive care units, and two further emergency operations, Mrs A's condition deteriorated. She died 21 days after the original surgery.

This investigation focused on whether Mrs A's postoperative complication should have been diagnosed at an earlier stage, and whether Drs B and C made the appropriate management decisions. Also considered was the information provided to Mrs A prior to surgery, and the care given to her by other clinical staff at the Hospital.

Information was obtained from Mr A, Dr B, Dr C, the Hospital and the Coroner. In addition, Mrs A's clinical records from the private hospital and a public hospital have been reviewed. Independent expert advice was obtained from gynaecologist Dr Bernie Brenner, general surgeon Dr Bryan Parry, and intensive care specialist Dr Ross Freebairn.

Information gathered during investigation

Background

Mrs A, then aged 64, first consulted Dr B with a history of vaginal nodules and a pelvic floor prolapse. Dr B suggested that pelvic floor exercises be attempted first, as "it is always preferable to trial the least invasive treatment option first".

The exercises did not relieve Mrs A's symptoms and, following discussion between Dr B and Mrs A, it was agreed that she would have laparoscopic surgery to resolve her symptoms: a laparoscopic sacrocolpopexy.[1] As part of the preoperative assessment, a blood test was taken, which showed that Mrs A's blood sodium level was 139mmol/L (normal 135–145mmol/L).

Information provided to Mrs A

Prior to surgery, Dr B provided Mrs A with information relating to vaginal prolapse, pelvic prolapse, and details of surgical pelvic floor reconstruction. Dr B also provided a fact sheet describing laparoscopic sacrocolpopexy and information for patients undergoing vaginal hysterectomy.

[1] Sacrocolpopexy: An operation that reinforces the front and back walls of the vagina, and re-suspends the uterus high in the pelvis using permanent synthetic mesh.

After receiving these pamphlets, Mrs A asked further questions of Dr B by email, and Dr B responded by phone. Having had these queries answered, Mrs A consented to the operation.

First admission — 6th to 11th
On the afternoon of the 6th, Mrs A was admitted to the Hospital for the planned surgery.

On the following day, Mrs A's operation proceeded as planned. It commenced at 9.07am and was completed at 1.15pm. Dr B stated that the surgery was uneventful, "although it was marginally surgically difficult". She recorded the operation on DVD. Mrs A returned to the ward at 3.15pm, and recovered uneventfully.

On the 8th, the clinical record notes that Mrs A was independent, that the oral pain relief was having a good effect, and she had walked the length of the ward. She was eating and drinking well, with no nausea. Her blood sodium level was 133mmol/L.

In her response to the provisional opinion, Dr B stated that she found out that Mrs A's mother had a history of low sodium levels "as part of lengthy discussions on a very friendly basis" between Mrs A and Dr B.[2] There is no note in the clinical record made by Dr B of Mrs A's, or her mother's, history of low sodium levels.

Dr B also stated:

> "[Mrs A], having mentioned her mother's health and particular concern over hyponatraemia, described her own worries and said she had repeated tests at her GP to confirm that her levels were normal."

There is no record of this discussion in the clinical notes.

Dr B visited Mrs A on the 9th and noted that she was recovering well, and could be for discharge the following day. However, that evening, Mrs A experienced a sharp pain in one of the wounds caused by the laparoscopic surgery — the left iliac fossa[3] wound. The nurse recorded "?wound or wind pain".

The nurse on duty overnight recorded that Mrs A was nauseous, her abdomen had become hard and distended, and that a "hard lump" had appeared in her abdomen. Her blood sodium level was 133mmol/L.

On the 10th, Dr B reviewed Mrs A and discussed with her the abdominal pain. Mrs A's abdomen was still distended, she was nauseous, and the lump was described as an egg-sized "haematoma" in the muscle. Dr B stated:

[2] In the response to the provisional opinion, Dr B agrees that there is no record of any discussion on the 8th, but refers to the subsequent note made on the 11th by the nurse (see page 5).
[3] Left, lower part of the abdomen.

> "[The lump] was found to be hard and relatively immobile, positioned in the sub-cutaneous tissue but deep to skin (in the muscle layer). It was found to be non-progressive in size, initially painful, and then settled. There was no skin bruising.
>
> [Mrs A] then began to develop nausea but her bowels were still working. There was a slow drop in her serum sodium levels. Her low sodium levels were considered in light of her history of having always had slightly low sodium levels, both pre- and post-operatively.
>
> It was thought at the time that what we were finding was a haematoma which was the most common reason for a lump being in that site at that time post operation. It was considered appropriate to manage this development conservatively.
>
> A 'wait and watch' approach was adopted, with management on the ward. I was pleased to see that [Mrs A's] health much improved such that it was decided after discussion with [Mrs A] that it was appropriate for her to [go] home on the sixth day post-operatively [i.e. the next day]."

The nurse on duty overnight recorded that Mrs A was experiencing no pain or nausea, but that the laparotomy site was "hard when touched", and there was bruising "next to umbilical".

Dr B assessed Mrs A at 1.15pm on the 11th. Dr B recorded that Mrs A's abdomen was soft, and that the lump was "decreasing in size". The clinical observations were normal, but she was still "vaguely nauseous".

It was agreed that Mrs A could be discharged home, but that the nursing staff would call her later that evening to check on her condition. Mr A was also advised to call if there were any problems. The discharge summary was signed by a registered nurse.

At 7.40pm, a nurse telephoned and spoke to Mr A. He reported that his wife was feeling nauseous, but had not vomited. Mrs A decided to stay at home, and it was agreed that her husband would call the ward the next morning to advise how she was feeling.

At 8pm Mr A called the ward, as his wife's nausea had become worse. It was agreed that Mrs A would be readmitted, and Dr B was informed of this by the nursing staff.

Second admission — 11th to 14th

Mrs A was readmitted to the Hospital at 9pm on the 11th. Following discussion between Dr B and the nursing staff, intravenous fluids were commenced, and a blood sample taken. Dr B did not assess Mrs A in person. However, Dr B stated that she had spoken to Mr and Mrs A three times prior to readmission, was satisfied that Mrs A would be seen by the

RMO,[4] and that the RMO would report back to her by telephone. Overnight, Mrs A was described as feeling "exhausted and miserable", but her clinical observations were satisfactory.

The clinical record made by the night nurse also states:

> "[Mrs A] advised that her mother was plagued [with] low [sodium] for a large part of her later life."

Dr B subsequently stated that she was concerned that Mrs A might have a bowel obstruction.

A chest and supine abdominal X-ray were performed on the 12th. Radiologist Dr D noted his report in the clinical record. In relation to the abdominal X-ray he reported:

> "No dilatation of bowel or free intraperitoneal air is seen. There is a subtle increased density overlying the lower sacrum and extending into the [left] iliac fossa raising the possibility of a collection. Please correlate with clinical findings."

Dr D subsequently stated to the Coroner that had he been advised of the possibility of bowel obstruction, he would have obtained an abdominal X-ray with Mrs A in a standing position. In her defence, Dr B stated that Dr D had the clinical notes available to him, as the X-ray report was written by Dr D in the notes. However, there is no entry in the clinical notes by the admitting RMO, or a reference to possible bowel obstruction prior to Dr D's written report.

Dr B reviewed Mrs A at 12.30pm on the 12th. Dr B considered that the X-ray was "not suggestive of obstruction", and noted that the lump was mildly tender. She stated that she was concerned by Mrs A's low sodium level (123mmol/L that morning), and asked for advice from endocrinologist Dr E. Treatment was commenced for the low sodium level.

In her response to the provisional opinion, Dr B stated that, from the time of her review of the X-ray, her first concern was of bowel obstruction. She added that she had bowel obstruction in mind, and fell back on the sodium levels when the X-ray was unhelpful. She stated that it was appropriate to consult an endocrinologist for this concern.

The treatment for low sodium levels continued on the 13th, and Mrs A was described in the nursing records as feeling better, although there was still "background nausea". However, the nurse recorded at 10.35pm that Mrs A had vomited 300ml of bile-stained fluid.

The nurse on duty during the night of 13th –14th recorded that Mrs A was still nauseous, and that Dr B was aware of the presence of the lump.

[4] The resident medical officer (RMO) is a junior doctor employed by the Hospital to provide clinical cover out of hours.

By the evening of 14th, Mrs A was feeling better, and was not requiring medication for nausea. Her abdomen was described as distended, but "soft to touch".

Following a further review by Dr E and Dr B in the late evening, Mrs A was discharged home. The discharge summary noted that Mrs A had been admitted for investigation of low sodium levels.

In her response to the provisional opinion, Dr B stated that the discharge summary was not written by her, and "cannot be correct". Dr B added that Mrs A's admission was for "investigation of her nausea, pain and vomiting. Low sodium levels became apparent only as the management progressed."

Third admission — 18th to 28th

Mr A telephoned Dr B on the evening of the 18th because his wife was feeling nauseous again.[5] Dr B organised Mrs A's readmission to the Hospital, but did not assess her in person. The doctor who admitted Mrs A found that her abdomen was mildly distended, that the "haematoma" had enlarged, and that she had been nauseous since the previous admission.

The admitting doctor discussed Mrs A with Dr B by telephone. Dr B subsequently stated that her working diagnosis was bowel obstruction, and she consequently ordered a chest and abdominal X-ray to be performed. There is no record of this diagnosis in the clinical record of Mrs A's admission. The clinical indication given for the investigation stated:

> "Complications following gynaecological surgery with abdominal distension and a left flank swelling."

The report from radiologist Dr F stated:

> "Appearances in the abdomen are consistent with an ileus. A proximal small bowel obstruction cannot be confidently excluded."

The admitting doctor noted that Mrs A's pulse and temperature were raised at 7.40am (120bpm and 38.3ºC), and that although Mrs A had no nausea, the pain in her abdomen was constant.

A CT scan was arranged by Dr B, and this was performed at 9.30am on the 19th. The clinical indication given for the investigation stated:

> "11 days post-op from gynaecological surgery. Significant abdominal ileus and abdominal wall haematoma."

[5] Dr B advised in her response to the provisional opinion that she had assessed Mrs A on the 16th. There is no record of this assessment.

The report from radiologist Dr F stated:

> "Moderate small bowel ileus. No intra abdo collection or free fluid but extensive abdo wall swelling and fluid consistent with abdo wall haematoma. This contains air which at 10 days post op raises the possibility of infection rather than due to surgery."

Dr B's note at midday stated:

> "When [Mr A] rang last night at my home at 7pm, I re-admitted [Mrs A] [with] dehydration and nausea.
>
> Requested plain X-ray abdo — showed moderate central ileus, nil else major.
>
> No bowel obstruction/perforation. Then [sodium] ++ found [decreasing to] 129 mmols!! Requested CT this am."[6]

Dr B consulted general surgeon Dr C, who was present at the Hospital. Dr C stated:

> "My clinical impression after examining [Mrs A] confirmed the results of the CT scan which identified an infected abdominal wall haematoma at the site of the left lateral port wound, related to her laparoscopic surgery. I agreed with [Dr B's] initial treatment of intravenous antibiotics and close observation."

Intravenous antibiotics were prescribed, and regular clinical observations were performed. The clinical record notes that Dr B was telephoned at least twice by the nursing staff to update her on Mrs A's condition. In particular, Dr B was advised of a drop in Mrs A's blood pressure to 90/65mmHg at 9.30pm. The nurse also advised that Mrs A's abdominal pain had increased.

On the morning of the following day, the 20th, Mrs A was described by the nurse as "still feeling lousy", with a distended abdomen and a raised temperature. Dr B ordered an urgent CT scan, which raised the possibility that there might be a herniated loop of the bowel.

Following the second CT scan, Mrs A was immediately reviewed by both Dr B and Dr C, and it was decided she should have an emergency operation. The operation was performed by Dr C with Dr B assisting. It commenced at 1.13pm, and ended at 3.40pm. During the operation, it was found that a loop of the ileum had herniated through the laparoscopic incision site located in the left iliac fossa.

Following surgery, Mrs A was transferred to the Hospital intensive care unit, where her condition gradually improved. However, on the evening of the 21st, her condition

[6] In her response to the provisional opinion, Dr B stated that "the discussions with Dr F were conducted by Dr C". It is noted that Dr C was not consulted until after the chest and abdominal X-rays of the 18th and the CT scan of the 19th had been performed.

deteriorated. Although she was already receiving oxygen, she became increasingly short of breath, and the flow rate was increased.

When Mrs A was reviewed on the morning of the 22nd, it was decided to commence ventilation using continuous positive pressure ventilation. Although Mrs A's condition appeared to be improving, it was decided to transfer her to the intensive care unit at the public hospital. However, prior to transfer, Mrs A's breathing deteriorated to the point where she required resuscitation, intubation and further ventilation.

On arrival at the public hospital, a further CT scan was performed, which suggested a small bowel intussusception.[7] Dr C performed a further operation, after which Mrs A was transferred back to the intensive care unit.

Unfortunately, Mrs A's condition continued to deteriorate and, despite a further operation performed by Dr C on the 27th, Mrs A died on the morning of the 28th.

Coroner's inquest

The Coroner held an inquest into Mrs A's death. During the inquest, Dr B stated that Mrs A had "a pre-existing tendency to [low blood sodium levels]". Dr B advised the Coroner that there was also a family history of low sodium levels, with Mrs A's mother similarly suffering. However, the only reference in the clinical record of any such family history is the note by the nurse on the night of the11th, and there is no evidence of Mrs A having low blood sodium levels prior to the 8th — two days after surgery.

The Coroner obtained expert advice from obstetrician and gynaecologist Dr Digby Ngan Kee (see Appendix). Dr Ngan Kee stated in the summary of his report:

> "This is obviously a very unfortunate case. A relatively well woman is admitted for laparoscopic treatment of a benign condition and succumbs 21 days following her initial surgery. Given the information available to me, I have no specific criticism of the intra-operative care during her laparoscopic procedure. However, in my opinion the diagnosis of a bowel incarceration from a port site hernia should have been entertained at a much earlier stage. Earlier surgical intervention, in my opinion, may well have averted mortality."

The Coroner found that the cause of Mrs A's death was "shock and sepsis due to perforated bowel, secondary to strangulated internal hernia of bowel following laparoscopic sacrocolpopexy".

The Hospital

[7] Intussusception is a disorder in which part of the intestine — either the small intestine or colon — slides into another part of the intestine. This "telescoping" often blocks the intestine, preventing food or fluid from passing through. Intussusception also cuts off the blood supply to the part of the intestine that is affected.

In his complaint, Mr A raised concerns about the communication between clinicians, and the Hospital's responsibility to ensure an appropriate standard of care was being delivered. The Director of Nursing stated:[8]

> "[The Hospital] places high importance on clear communication, appropriate consultation, and coordinated care …
>
> **Credentialing**: Following a credentialing process, specialists are granted clinical privileges on the basis of their qualifications, skills, and experience. Once a specialist has been granted clinical privileges, he or she is expected to provide services in accordance with legal, ethical, and professional standards. This includes an expectation that the specialist will communicate with colleagues, seek second opinions, and refer patients to other specialists as appropriate.
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> …
>
> **Communication with other clinical staff**: Sufficient patient information must be given by each practitioner to [the Hospital] staff to assure the clinical safety of the patient … All request forms for radiology and pathology must contain the required clinical data … In addition to the information recorded in the clinical record, clinicians frequently communicate with nursing staff and other specialists in person or by telephone.
>
> …
>
> **Audit of communication**: [The Hospital] has an active quality assurance programme. Communication is monitored and audited amongst all specialists at [the Hospital]. In particular this has been the focus of the Medical Advisory Committee who have been auditing patient clinical records on an ongoing basis in the past year."

Dr B

Later that month, Dr B obtained expert advice from obstetrician and gynaecologist Dr Howard Clentworth. He advised that he did not "perform the particular procedure that [Mrs A] underwent".

Dr Clentworth noted:

> "[On the 8th] a history that [Mrs A's] mother suffered from low sodium levels that required lifelong treatment was obtained."

Dr Clentworth also stated:

> "My own statement to patients in relation to most surgery is that if there is vomiting on day 1 it probably relates to the anaesthetic and if it is not improving on day 2 it is

[8] Letter dated 23 May 2007, responding to notification of the complaint.

probably the surgery. When laparoscopic surgery is undertaken bowel injury must be considered if recovery is not as anticipated."

Having reviewed the clinical notes and the DVD of the operation, he concluded:

"With hindsight it is clear that an earlier second operative procedure may have avoided such a tragic outcome. Prospectively the decisions taken with the support of a senior physician and surgeon as well as radiologists and laboratory scientists were understandable and decisions constantly reviewed when the outcomes of treatment for the changing working hypothesis failed to produce the expected outcome."

Dr B stated:

"I am very sincerely sorry for [Mr A's] loss and I continue to feel deeply for his loss and that of his family. Not a single day passes without my thinking of her and her family, and wishing that we had been able to make the diagnosis earlier … I continue to express my sorrow, my deep regret at the sad outcome for them and my confirmed support for the family and for [Mr A]."

Independent advice to Commissioner

Gynaecological surgery expert advice
The following expert advice was obtained from obstetrician and gynaecologist Dr Bernie Brenner:

"I have been asked to provide an opinion to the Commissioner on case number [06/17645].

I have read and agree to follow the Commissioner's Guidelines for Independent Advisors.

I am a Fellow of the Royal Australian and New Zealand College of O and G and a Fellow of the Royal College of O and G. I have been in Specialist practice for 26 years and am a founder member of the Australian Gynaecological Endoscopy Society and a member of the American Society of Gynaecological Laparoscopists. I am in active clinical practice and have extensive experience in advanced laparoscopic surgery.

I have been asked to provide my professional opinion to the Commissioner, on the matter regarding the adequacy and standard of care provided by gynaecologist Dr B to [Mrs A].

I have reviewed the following documents and DVD:

[At this point, Dr Brenner sets out the list of documents sent to him, a précis of the facts gathered, and the questions asked of him, which he repeats in his advice. This section of Dr Brenner's report has been omitted for the purpose of brevity.]

1. General comments on the standard of care provided by [Dr B] to [Mrs A] from [7th to 22nd].

[Dr B] is an experienced gynaecological laparoscopic surgeon. She practices advanced laparoscopic procedures and often works in conjunction with a urologic colleague. In particular she has a large experience with laparoscopic sacrocolpopexy. Her preoperative workup, operative technique and communication generally appears to be exemplary. There are however some major concerns regarding the post op management. Dr Digby Ngan Kee in his detailed report to the Coroner[9] has expertly highlighted these issues. I fully concur with his entire report. In addition there appears to have been inadequate communication with the Imaging Services. This possibly contributed to radiological misdiagnoses. There was a failure to diagnose bowel port site herniation and hence a delay in seeking the relevant 2nd opinion. (General Surgeon) The preoperative documentation is excellent and the operative technique as seen on DVD reveals a high level of skill. [Dr B] portrayed a deep sense of sadness for the tragic outcome. In her subsequent communication and dealings with the family ([Mr A]), she has demonstrated a very sensitive and caring professionalism that is commendable. All these issues will be discussed in detail below.

2. General comments on the standard of care provided by [the Hospital] to [Mrs A] from [the 7th to the 22nd].

[Mr A] has expressed concerns about possible shortcomings in processes at [the Hospital]. In particular he felt that the hospital should somehow provide a consultative structure across areas of medical specialization. He felt that this would act as a safeguard against any individual consultant who failed to exercise appropriate discretion in seeking timely wider consultation. He has also expressed concern at apparent shortcomings in keeping notes together and circulating them for consultation by other medical staff (eg Radiologists).

These two points are in fact related. As is noted in the coroner's report, [Mrs A] was at all times under the care of [Dr B]. She was not an employee of the Trust responsible for the operation of the Hospital. [Dr B] has operating privileges at the hospital. The surgical and medical care was provided by [Dr B]. As far as I am aware this is the same situation in all the private hospitals in New Zealand. The private practitioner assumes overall responsibility for patient management while the hospital provides facilities, operating theatres and nursing care. The hospital provides the infrastructure to allow the private doctor to practice. This includes the maintenance of the clinical record. The use

[9] See Appendix 1.

of the notes in regard to the dissemination of relevant medical information remains the responsibility of the doctor concerned.

I am unable to find any evidence that the hospital in its provision of facilities and nursing staff failed to meet acceptable standards of care. I have noted that [the Hospital has] a comprehensive credentialing system and that there is a Medical Advisory Committee that regularly reviews consultants' practice. Where there is failure to consult with colleagues in a timely fashion then the matter is addressed through the advisory committee. It appears to operate when adverse outcomes are noted. As in most private hospitals in New Zealand, the patient is under the care of the private specialist who assumes responsibility for care. There is no real provision for competency assessment while the patient is under the care of the private specialist. The hospital and indeed the patient relies on the integrity of the attending specialist to provide competent medical care and to consult with relevant other specialists as needed. If this does not occur, the responsibility ultimately lies solely with the attending specialist.

My review of the hospital records leads me to believe that the standard of care provided by [the Hospital] was appropriate, comprehensive and reasonable.

3. Comment on whether [Dr B] reacted appropriately to [Mrs A's] postoperative signs and symptoms.

Dr Digby Ngan Kee in his report to the Coroner points out that it is an axiom of minimally invasive gynaecological surgery that patients should make a very rapid recovery. In addition bowel perforation has a high mortality rate which is often related to a delay in diagnosis. Both he and I are of the opinion that port herniation and bowel obstruction should have entered the differential diagnosis as soon as [Mrs A] was noted to have vomiting and a mass under the port site. An abdominal ultrasound at this stage may have been very useful in differentiating a haematoma from bowel herniation. There also appears to be no significant drop in Haemoglobin which often occurs with port site bleeds. Although the lab results were in the clinical notes, there is no mention of the fact that the Hb had NOT decreased thus casting doubt on a working diagnosis of a haematoma. Dr Ngan Kee has stated that surgical intervention was probably warranted on the [11th] when [Mrs A] was readmitted. I totally concur with this opinion. This implies also that an opinion from a general surgeon was warranted at this time and should have been arranged by [Dr B] as a matter of urgency. Of course with the benefit of hindsight this would have been the correct course of action. [Dr B] herself acknowledges this. Dr Howard Clentworth in his statement also points out that bowel injury must be considered if the patient's vomiting is not improving on day 2 post op. As an abdominal X-ray was ordered, the diagnosis of possible bowel damage must have been entertained. Given this, it is difficult to understand why a surgical opinion was not obtained at this time as well (when [Mrs A] was readmitted on the [11th]). Dr Clentworth has suggested from his review that [Dr B] considered bowel injury and that

appropriate investigations and consultation was undertaken with other health professionals. I am at odds with this opinion as I feel it inappropriate to consult an endocrinologist for a possible bowel injury. I acknowledge however that the low sodium which instigated the endocrinologist opinion distracted [Dr B]. In my opinion it would have been appropriate at this stage to consult with a general surgeon. Dr Ngan Kee makes the point that 'one would expect someone who is trained adequately to perform advanced laparoscopy to be fully aware of the possible complications of this procedure, including port site herniation'. Again I fully concur with this view. On this particular point and relying also on Dr Ngan Kee's report to the coroner I would view the fact that [Dr B] did not seek a surgical opinion at an early stage ([11th]) as a moderate to severe departure from standards expected from a gynaecologist performing advanced laparoscopy.

I will now deal with the question of radiology in the context of the suspicion of a bowel injury. There is some question as to whether [Dr D] was aware of the possible diagnosis when an X-ray abdomen was requested by [Dr B]. [Dr D] in his evidence to the coroner stated that when he asked for a request form he was told that it was not available. He could not recall being told there was concern about a possible herniation. He would have expected the surgeon, if there was a possibility of an obstruction, to discuss the need for imaging. Even though he had the clinical notes there was no record that bowel obstruction had been queried. He recorded the fact that he did not arrange for an X-ray in the standing position as an indication of him not knowing that a bowel perforation had been queried. This raises the question of whether the request for just an X-ray abdomen without detailing erect and supine as made by [Dr B], was indeed appropriate. In my view an X-ray abdomen standing and supine would have been the appropriate request. It is true that this may not have altered the radiological report. The fact that [Dr D] was not aware of the clinical concern about bowel perforation is of concern. It is the responsibility of the attending surgeon to ensure all clinically relevant information is conveyed to the radiologist so that an optimal result may eventuate. There is unfortunately no documented request form from [Dr B] and no mention in the notes up to this time of concern about bowel perforation. The only inference that bowel peroration was entertained was the ordering of an X-ray abdomen. It is acknowledged that even if a standing abdominal X-ray had been performed it may not have excluded a bowel perforation. On the other hand it would have been a more complete X-ray study which if signs had been detected would have been most useful in directing further management. The coroner found that there was insufficient communication between [Dr B] and the radiologists. I fully agree that better communication between [Dr B] and the radiologists would have been in the best clinical interests of [Mrs A]. I must however stress that my observations here are made in hindsight. Nevertheless I do feel that there could have been better communication between the surgeon and the radiologist and the failure for this communication 'hitch' can be regarded as a mild to moderate departure from standards expected from a gynaecologist performing advanced laparoscopy.

In any event, as Dr Ngan Kee has pointed out, sometimes radiological signs are not seen if the (bowel) obstruction is incomplete or sub acute. 'Undue reliance on negative radiological findings may have contributed to the delay returning [Mrs A] to theatre'. This reinforces my view earlier that a surgical opinion should have been sought on the readmission of [Mrs A] on the [11th].

4. Comment on the appropriateness of [Dr B's] decision to perform a laparoscopic sacrocolpopexy.

Laparoscopic sacrocolpopexy is a recognised surgical treatment for pelvic organ prolapse. The decision to proceed to this by a gynaecologist trained and experienced in the technique is sound. [Dr B] is obviously well trained in this and she reports having performed [hundreds] of this procedure. I am of the opinion that her decision was appropriate and sound.

5. Comment on the standard of surgery for this procedure, performed on the [7th].

I have had the opportunity to view the DVDs of the part of the operation performed by [Dr B]. The DVDs provided included 48 minutes of part of the laparoscopic sacrocolpopexy operation, 3 minutes of the post operative cystoscopy and 18 seconds of the lateral port placement (12mm Verastep radially expanding port). The DVDs provided valuable insight into the surgical techniques employed by [Dr B]. Unfortunately it did not include the end of the operation where port removal would have been performed. It is unclear whether the DVDs are edited versions of the operation or whether recording started well after the operation commenced and ended prior to the removal of the ports. In any event it is not universal practice to record a DVD of the operation and I feel that having such a record available is most commendable. Laparoscopic sacrocolpopexy is advanced level laparoscopic surgery and the DVD reveals a competent and skilled surgeon and I was unable to fault any of the technical aspects of the operation as displayed on the portion provided. It would have been ideal if the port removal had been recorded but [Dr B] in her report to the coroner mentioned that it was her usual practice to maintain visual observation during trocar withdrawal and that she did not rapidly disinflate the abdomen. This would be considered the correct practice. Overall the standard of surgery for laparoscopic sacrocolpopexy as performed by [Dr B] appears to be high. She had followed the manufacturer's recommendation regarding lateral port closure of the Verastep port.

6. Comment on the appropriateness of [Dr B's] management decisions on [the 9th].

I have reviewed the integrated progress notes for this day. There are no written notes by [Dr B] on this day. There is however an annotation on the [11th] that [Dr B] had attended at 9:15 am. The notes indicate that [Mrs A] had slept well. She was tolerating diet and fluids well and no nausea was reported. Only at 2230 was there a note to the effect that ++ abdominal left lower side pain had developed. There was obviously no great concern on this day and there were no management decisions recorded.

7. Comment on the appropriateness of [Dr B's] management decisions on [the 10th].

There is a record that [Mrs A] felt uncomfortable and was troubled by nausea all day. The left laparoscopic site felt hard to touch with no obvious bruising apparent. Her observations were satisfactory and she had a good nights sleep. There was obviously no great concern on this day either and there were no management decisions recorded.

8. Comment on the appropriateness of [Dr B's] management decisions on [the 11th], in particular, the decision to discharge [Mrs A].

[Dr B] reviewed [Mrs A] at 1:15 pm. She noted that the observations were normal and that the left muscle haematoma at upper lap port was decreasing in size. The abdomen was soft and bowel sounds were heard ++. A decision was made to discharge [Mrs A] and based on the above findings seems to be appropriate and reasonable. There is a nursing note a little later that afternoon that [Mrs A] wanted to go home but was still not feeling 100%. A decision was made to phone the patient in the evening to find out how she was doing and to pass on the information to [Dr B]. This was carried out with the result that as the nausea was getting worse [Mrs A] was advised to return to hospital and [Dr B] was informed. These were all appropriate management decisions.

9. Comment on the appropriateness of [Dr B's] management decisions from [Mrs A's] readmission on the evening of [the 11th], to her discharge on [the 14th].

On [Mrs A's] readmission there was note made of her being miserable with nausea. There was communication with [Dr B] by phone. It appears that [Mrs A] was not seen by [Dr B] on the evening of readmission. The nursing notes from the nightshift written at 2310 indicates that the serum Na was 119 and that [Dr B] was rung with this result. The notes conclude that 'unsure if any anti-emetic effective — only really gets relief after a vomit. ? needs review by medical team'. It is unclear whether this sentiment was passed onto [Dr B].

In any event if a patient is sick enough for readmission then it would seem reasonable that the surgeon would attend in person to physically reassess the patient. I believe that this would have been the correct course of action at this time. I would regard the physical non-attendance of the doctor as a moderate departure from standards expected

from a gynaecologist performing advanced laparoscopy. I do however acknowledge once more that this view is from the benefit of hindsight.

The next entry into the integrated progress notes is by the radiologist. The question of communication with the radiologist has largely been dealt with above. The interpretation by [Dr B] was that the X-ray was not suggestive of obstruction. [Dr B] admits that she was distracted by the low sodium issue. It addition the abdominal X-ray was falsely reassuring. I feel that this is somewhat extenuating and was probably the reason that she did not seek a surgical 2nd opinion but rather that of an endocrinologist. Dr Digby Ngan Kee in his review of the literature quotes 'a high degree of suspicion for an incarcerated hernia … should be exercised when a patient presents with symptomatic evidence of small bowel obstruction within 2 weeks of laparoscopy'. He further states that someone who is trained adequately in carrying out advanced laparoscopy should be fully aware of the possible complications of the procedure, including port site herniation. [Dr B's] failure to obtain an appropriate 2nd opinion from a surgical colleague has been dealt with above. This was an error of judgement. As has already been stated I believe that that this error of judgement would be considered by [Dr B's] peers with moderate to severe disapproval.

[Dr B] sought the opinion of [Dr E] who assessed the patient on [the 12th]. [Mrs A's] low sodium was managed and she seemed to be improving a little on [the 13th]. [Mrs A] had an episode of bile stained vomiting in the evening. [Dr B] acknowledges she was distracted by the low sodium levels. In retrospect the continuing episodes of vomiting and nausea should have alerted [Dr B] to a surgical cause for the suboptimal post operative course [Mrs A] was experiencing. This aside, the negative X-ray findings, [Dr E's] involvement and the slight clinical improvement of [Mrs A] obviously reassured [Dr B] who made the decision to discharge her on [the 14th]. In retrospect this was the wrong decision but at the time this must have seemed a reasonable approach and I would accept that this decision would not necessarily be viewed with disapproval by [Dr B's] peers.

10. Comment on the appropriateness of [Dr B's] management decisions on [the 18th].

On [the 18th] [Mrs A] was readmitted with nausea and vomiting. She was seen by the RMO who noted an enlarging haematoma and also possible ileus. Findings were discussed with [Dr B] and imaging was arranged for the following day. There is no indication that [Dr B] actually came in to see [Mrs A]. Given this continuing nausea in a patient who had undergone laparoscopic surgery a very high index of suspicion to a possible bowel complication should have been entertained at this time. While an infected haematoma can of course cause the patient to be very unwell, the recurring theme is clearly one of nausea and vomiting. In any event it is my view that if [Dr B] readmitted the patient a clinical assessment by herself or a senior doctor at the time of readmission should have occurred. This non-attendance I feel is an error of judgement & would be

considered by [Dr B's] peers with mild disapproval. It is however noted that the night shift nursing notes indicate that [Mrs A] was satisfactory and that she slept reasonably well. There was no further nausea during the night duty and it is possible that the communication with [Dr B] by the RMO was reassuring enough as not to warrant her personal attendance. Even if this was the case I still feel that [Dr B] should have clinically assessed [Mrs A] herself.

11. If [Dr B's] working diagnosis on [the 18th] was bowel obstruction, what actions should she have taken?

It appears that the working diagnosis at this time was not bowel obstruction. The notes by [Dr B] on [the 19th] clearly show that she was considering an incision and drainage of the haematoma. If the working diagnosis on [the 18th] had been bowel obstruction, appropriate imaging should have been arranged immediately and an urgent surgical opinion organised. In hindsight it is now easy to see what the appropriate course of action should have been. As [Dr B] was obviously focusing on a diagnosis of an infected haematoma bowel obstruction was not the working diagnosis.

12. Comment on the appropriateness of [Dr B's] management decisions on [the 19th].

The CT on [the 19th] had suggested findings consistent with an abdominal wall haematoma. This no doubt falsely reassured her so that a working diagnosis seemed to remain an infected haematoma. As has already been pointed out, sometimes radiological signs are not seen if the obstruction is incomplete or subacute. The undue reliance on negative radiological findings may have again contributed to a further delay in returning [Mrs A] to theatre but at this time there was consultation with a general surgeon [Dr C] and a joint decision was made to remain conservative in management. Despite the eventual tragic outcome, I feel that the involvement of the general surgeon was not only appropriate but also essential. [Mrs A] was at this time obviously very ill and her further management from this point on appears to have been entirely satisfactory given the very adverse situation that she was now in.

13. Was [Dr B's] documentation of an appropriate standard?

The pre-operative information, operation notes, DVD of operation and clinical notes are all of a very high standard. [Dr B] is to be commended for her thoroughness and attention to detail. In addition her communication with the GP of [Mrs A] and subsequently her very sensitive and sincere communication with [Mr A] portray a caring thorough doctor with excellent communication skills and an ability to maintain clear documentation again of a very high standard.

14. Was [the Hospital's] documentation of an appropriate standard?

The integrated progress notes were detailed and thorough. They provided useful insight into [Mrs A's] progress. In addition the admission records with consent form were noted to be detailed and appropriate. The anaesthesia and operating room notes were likewise comprehensive and well recorded. Special investigations and laboratory results were well collated and easy to follow. The medication sheets were all well documented. Overall I would assess the documentation as maintained by [the Hospital] to be of a high standard.

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

Dr Digby Ngan Kee highlighted in his report to the coroner a possible problem with [Dr B's] operation technique relating to port site management. [Dr B] had stated that 'since the operation and prior to it, (she has) certainly diagnosed port site hernias in patients promptly and with little difficulty'. Port site herniation is a very rare complication. It should not be occurring at regular intervals and if [Dr B] was implying by her statement that she has encountered this problem on several occasions, then I would view this as alarming. Dr Digby Ngan Kee suggested that it would be useful for [Dr B] to present an audit of her incidence of port site herniation and have it reviewed by her peers. My view is that an urgent review of all her port site herniation be undertaken with urgency and that it be reviewed by expert opinion to ensure there is no technique problem in this regard. In my view it would also be useful if she were able to digitally record (DVD) her port site canula removal for future reference.

16. Are there any aspects of the care provided by [the Hospital] that you consider warrant additional comment?

There are no other aspects of the care provided by [the Hospital] that I feel warrant further comment.

B Brenner
FRCOG, FRANZCOG, FRACMA"

Further advice from Dr Brenner
Dr Brenner was subsequently contacted to clarify his advice, in particular when he referred to hindsight in his report.

In his report, Dr Brenner stated: "Of course with the benefit of hindsight [referring [Mrs A] on [the 11th] to a general surgeon] would have been the correct course of action". Dr Brenner stated in his further advice that, setting hindsight aside, [Dr B] should have referred [Mrs A] to a general surgeon on [the 11th], and failure to do so was a moderate to severe departure from standards.

In his advice relating to [Dr B's] communication with the radiologists, Dr Brenner stated that "better communication between [Dr B] and the radiologists would have been in the interests of [Mrs A]. I must however stress that my observations here are made in hindsight." Dr Brenner stated in his further advice that there was "no evidence of adequate communication with the radiologists". He added: "There is no doubt in my mind that there was an unacceptable departure from standards." Dr Brenner stated that, setting hindsight aside, there was insufficient communication by [Dr B] with the radiologists, and this was a mild to moderate departure from standards.

Dr Brenner advised that "the physical non-attendance of [[Dr B] at [Mrs A's] readmission on the 11th] was a moderate departure from standards ... I do however acknowledge once more that this view is from the benefit of hindsight." In his further advice, Dr Brenner stated that, given [Mrs A's] symptoms, he would have expected [Dr B] to assess [Mrs A] in person. Dr Brenner advised that, setting aside hindsight, this failure to assess in person by [Dr B] would be viewed as a moderate departure from standards.

In relation to [Mrs A's] second readmission on [the 18th], Dr Brenner advised that [Dr B's] peers would view with "mild disapproval" her failure to assess [Mrs A] in person. On consideration, in his further advice, Dr Brenner advised that, setting hindsight aside, this failure to review was probably more severe, and would be viewed with moderate disapproval by [Dr B's] peers.

Dr Brenner advised that, if [Dr B's] working diagnosis had been bowel obstruction, "appropriate imaging should have been arranged immediately and an urgent surgical opinion organised. In hindsight it is now easy to see what the appropriate course of action should have been." Dr Brenner stated in his further advice that, setting hindsight aside, if [Dr B's] working diagnosis had been bowel obstruction, she should have arranged appropriate imaging and arranged for an urgent general surgical review; failure to do so was a moderate departure from standards.

Dr Brenner stated in his further advice that the accumulation of errors made by [Dr B] amounted overall to a moderate to severe departure of standards.

General surgery expert advice
The following expert advice was obtained from general surgeon Dr Brian Parry:

> "Thank you for your invitation to provide an opinion to the Commissioner on this case. I have read and agree to follow the Commissioner's Guidelines for Independent Advisors.
>
> I am Professor of Surgery in the Department of Surgery in the Faculty of Medical and Health Sciences of the University of Auckland. I have clinical appointments at Auckland City Hospital as a Consultant Colorectal Surgeon in the Colorectal Unit in the Department of Surgery. I am also the Clinical Director of the Nutrition Support team of Auckland City Hospital.

I graduated MBChB (Otago) in 1970, obtained a Diploma in Obstetrics and Gynaecology (Auckland) in 1973, became Fellow of the Royal College of Surgeons in Edinburgh (1979) and the Royal Australasian College of Surgeons (1988) respectively, and graduated MD (Otago) in 1987. I am a Member of the Colorectal Surgical Society of Australia and New Zealand, and a Member of the Section of Colon and Rectal Surgery of the Royal Australasian College of Surgeons. I am a senior and experienced Colorectal Surgical Consultant in the New Zealand surgical community, and am active in teaching, training and research in this field. The Colorectal Unit of which I have recently relinquished the headship, is at the forefront of colorectal surgery in this country. My practice includes some laparoscopic procedures in colorectal surgery.

I received instructions from the Commissioner as follows:

[At this point, Dr Parry sets out the list of documents sent to him, a précis of the facts gathered, and the questions asked of him, which he repeats in his advice. This section of Dr Parry's report has been omitted for the purpose of brevity.]

1. **Please comment generally on the standard of care provided by [Dr C] to [Mrs A] from [the 19th to the 22nd].**

Dr C's attendance to [Mrs A] began upon her third admission to [the Hospital] at the invitation of [Dr B]. [Mrs A] was very ill with the Systemic Inflammatory Response Syndrome (SIRS, generalised sepsis). She had a painful swollen abdomen with a tender mass on the left side, and bowel obstruction. [Dr C's] assessment of [Mrs A's] condition agreed with the lead clinician's ([Dr B]) view that this was an infected haematoma from a lateral port site from the original laparoscopic surgery 12 days previously. [Dr C] was concerned rightly to rule out necrotising fasciitis (gangrene of the muscles) in this lady's case. He came to the conclusion on clinical and radiological grounds that this was not the case. However on reviewing the patient and a further CT scan the next day with the finding of a complicated small bowel herniation, he acted decisively and appropriately to take her to the operating theatre and undertake debridement (wound cleaning), small bowel resection, and a formal laparotomy to exclude other damage. Post operatively he kept surgical oversight of the patient while she was in [the Hospital's] Intensive Care Unit under the supervision of [two] Anaesthetists.

I consider that [Dr C]'s management of [Mrs A] was competent and professional once the correct diagnosis was made on the CT scan of the morning of [the 20th]. The condition of small bowel herniation through a port site is an unusual one and I think the delay of 12 hours or so in reaching this diagnosis, bearing in mind his review of the patient and the arranging of the appropriate investigation, is within the bounds of acceptable practice despite the regrettable delay. The surgical procedure that he undertook was done competently and appropriately. I think, the 12 hour or so delay

notwithstanding, that his standard of care and the management of [Mrs A] was of a satisfactory standard.

2. Please comment generally on the standard of care provided by [the Hospital] to [Mrs A] during her admission to [the Hospital] [in 2005].

Overall the standard of care provided by [the Hospital] through its employees to [Mrs A] during admissions to [the Hospital] [during that month] was satisfactory. The lead clinician [Dr B] was in charge of the patient's management and failed to diagnose correctly the underlying what proved to be fatal disorder complicating the original surgery of laparoscopic sacropexy. The topic of the management by [Dr B] is not in my remit and then I will not comment further.

[The Hospital] has an integrated care plan which is a clinical pathway for various standard operations undertaken regularly. This integrated care plan was followed in [Mrs A's] case. However her post-operative recovery duration went beyond the standard length of stay of this particular procedure. That this extended length of stay did not in itself raise concerns or trigger a mandatory review is noteworthy. From the notes and documents provided from [the Hospital] there does not appear to be a mechanism whereby an extended length of stay is the flag for the lead clinician to give account to, say, the Medical Director or committee of senior doctors. Such a system would have resulted in the consultant in charge having explanations sought by experienced clinicians and second opinions provided.

Although this is beyond my area of expertise, I note that the condition of the patient slowly declined during her stay in [the Hospital's] Intensive Care. She showed evidence of increasing respiratory failure and this resulted in the crisis of a respiratory arrest necessitating emergency intubation and resuscitation. I am not sure about the facilities available in the [the Hospital's] Intensive Care Unit but presume there is equipment for intermittent positive pressure ventilation which might have been considered earlier in this lady's case. However I reiterate that this is beyond my field of expertise and it may be advisable for the Commissioner to seek expert opinion on this particular point.

3. Please comment specifically on the treatment decisions made by [Dr C] on [the 19th].

[Dr C], when he consulted on [the] 19th, initially concurred with [Dr B's] assessment that [Mrs A] had an infected haematoma not realising that in fact there was a perforated small bowel hernia through the lateral port site.

[Dr C] therefore made the same attribution error in failing to consider that the pattern of symptoms and signs was in fact due to the relatively rare condition of a Richters' type small bowel herniation through the lateral port site with perforation and feeding a septic collection within the parities (abdominal muscle layers).

However he made the right decision in reviewing the patient clinically and having another CT scan done the next day which resulted in immediate laparotomy and the appropriate surgical treatment of her condition. Whether the 12 plus hours' delay was critical in [Mrs A's] survival or otherwise cannot be easily stated even with the benefit of hindsight.

Although there was a delay in reaching the right diagnosis [Dr C]'s professional behaviour was appropriate and professional.

4. Please comment generally on the standard of care provided by [Dr C] to [Mrs A] [during that week].

[Dr C] was further involved in the surgical care of [Mrs A] in the period after she was transferred to [a public hospital's Intensive Care Unit]. During this time period [she was operated on twice]. The first operation was to surgically reduce an intussusception of her small bowel with success and the second as a last ditch effort to try and remove any dead bowel that had developed due to her poor circulation and general state of sepsis. The second operation proved sadly to be unsuccessful due to the widespread ischaemia of the bowel encountered at the time. The operations that [Dr C] did were appropriate and timely. The fact that he undertook the third operation when other surgeons might have respectfully declined due to the unlikelihood of benefit is a reflection of his commitment to this patient is praiseworthy in my view. When patients are in the Intensive Care Unit, surgeons often take a step backwards in the hour-by-hour management of such patients preferring to defer to the expertise of Intensive Care doctors. There is no evidence that [Dr C] was not involved actively in the surgical decision-making as required on a day-to-day basis.

5. Was [Dr C's] documentation of an appropriate standard?

[Dr C's] operation notes both dictated and handwritten were clear, comprehensive and of a high standard. During the time of [Mrs A's] admission to [the Hospital] he wrote summary letters to ([Mrs A's GP]) with copies to [Dr B] annotating in detail his involvement and management of the non-operative aspects of her care. I can find no evidence of handwritten notes however in either [the Hospital] or [the public hospital] notes although a junior doctor has summarised his consultations in a general way. I presume that in this instance [Dr C] has delegated the handwritten documentation to the junior doctor and that is the practice of many surgeons in both the public and private hospitals. I am of the opinion that for formal consultations it is better for the senior doctor to write personally, particularly in the private hospital situation where there are often [fewer] junior doctors attending the patient. However it is fair to say this point of view is not a majority one in the current New Zealand practice climate.

In summary regarding the questions 1–5 above, I consider that [Dr C] provided a satisfactory and appropriate standard of care. There is evidence that [Dr C] in his submissions regretted the delay in taking this patient to the operating theatre on the

[20th] rather than the [19th]. I think this is a reflection of the high standards of surgical management he sets for himself and is commendable.

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

There are no particular aspects of the care provided by [Dr C] that I consider warrant additional comment. In view of this distressing case, and in view of [Dr C]'s recognised experience in laparoscopic surgery, I wonder if he could be encouraged to write a systematic review, case report, or personal opinion piece on the issue of laparoscopic port site hernia risk and its management to contribute to safe practice by laparoscopic proceduralists in New Zealand.

I think there are two aspects of the quality of care provided by [the Hospital] that ought to be considered alluded to above.

3.1 Although the integrated care plan for clinical pathways has been adopted by the Hospital, I think that there needs to be a system where patients with extended lengths of stay are reviewed automatically by independent senior doctors.

3.2 I am satisfied overall with the quality of care in [the Hospital's] Intensive Care Unit was of a high standard but think the decision not to intubate this patient earlier was a mistake in hindsight. I cannot comment further on this as it is not my area of expertise but the Commissioner may choose to take advice on this particular point.

Thank you for the opportunity to comment on this unfortunate case of delayed diagnosis of a port site small bowel hernia with perforation and sepsis. It is a topic of vital contemporary importance and I hope this will be highlighted and widely known among the practitioners of laparoscopic surgery.

Bryan R Parry MD FRACS
Professor of Surgery"

Intensive care expert advice

Because of comments made by Dr Parry about the care provided in the Hospital's intensive care unit, the following expert advice was obtained from anaesthetist and intensive care specialist Dr Ross Freebairn:

"I am Medical Director of Intensive Care Services and Consultant Intensive Care Specialist, Hawke's Bay Hospital, Hastings. I have a MB ChB (Auckland), and am a Fellow of the Joint Faculty of Intensive Care Medicine and of the Australia and New Zealand College of Anaesthesia. I am vocationally registered in Intensive Care Medicine and in Anaesthesia.

I have to read copies of the reports provided by the H&DC office and the Guidelines for Independent Advisers.

…

I note that expert advice has been obtained from a specialist gynaecologist as well as from a general surgeon on the care provided by [Dr B] and [Dr C]. I have not read either of those reports, and my opinion is based upon the notes provided by the Health and Disability Commissioner:

[At this point, Dr Freebairn sets out the list of documents sent to him and a précis of the facts gathered. This section of Dr Freebairn's report has been omitted for the purpose of brevity.]

1. In his report on [Mrs A's] care, the Commissioner's expert general surgeon stated:

> 'I am satisfied [that] the overall quality of care in [the Hospital's] Intensive Care Unit was of a high standard but the decision not to intubate this patient earlier was a mistake in hindsight. I cannot comment further on this as it is not my area of expertise …'

Please advise on the standard of care provided by [the Hospital] to [Mrs A] during her admission to [the Hospital's] ICU between [the 20th and 22nd] including whether she was intubated in a timely manner.

If you believe that an appropriate standard of care was not provided, please indicate the severity of the departure from that standard.

To assist you on this last point, I note that some experts approach the question by considering whether the departure would be viewed with mild, moderate, or severe disapproval.

2. Are there any aspects of the care provided by [the Hospital] during [Mrs A's] admission to ICU that you consider warrant additional comment?

[Mrs A] was in no particular respiratory distress until the evening of [the 21st]. During the evening she developed some shortness of breath and required increasing oxygen supplementation to keep her oxygen saturations at an adequate level. However this was achieved with the supplemental oxygen. At about 0730 there was a change in her respiratory condition with an increase in respiratory rate.

At about 0800 am [Mrs A] was assessed by [an anaesthetist] and continuous positive airway pressure (CPAP) ventilation was started via a tight fitting face mask. He notes that there [was] some degree of respiratory distress, that there [was] an increasing amount of oxygen required. The non invasive ventilation started. Initially there was an improvement in the monitored parameters, with a reduction in respiratory rate and

improvement in oxygen saturation. Arrangements were made at this time for transfer to [a public hospital] for further care. There was ongoing respiratory support and monitoring by the nursing staff.

Respiratory collapse [occurred] at 1130am. At that time [Mrs A] was resuscitated with intubation, ventilation and increasing use of pressor agents being used.

Comment
Intubation and ventilation is not without risks, particularly in the deteriorating critically ill patient. Viewed in retrospect, the signs and symptoms which are associated with deterioration can almost universally be identified and in cases when there is a catastrophic outcome subsequent it is also possible to find alternative management strategies that may have had different outcomes.

However the clinicians at the time of their assessment do not have the advantage of knowing the outcome, and the issue is one of whether with the information available at the time of the assessment should have led to early or different interventions.

Prior to the deterioration overnight ventilation was not indicated, and the deterioration over the night was reasonably managed by the use of oxygen therapy.

The morning review by [the anaesthetist] identified some respiratory distress, and CPAP was applied when the case was reviewed. While intubation and invasive ventilation may have been a management option at this point, there are no absolute indications for intubation at 7.30–8 am. Ventilation is a supportive management, not curative therapy in itself. Intubation may prevent some degree of aspiration. Common indications for institution of mechanical ventilation may include profound increased respiratory rate (> 40), failure of respiratory muscles (use of accessory muscles), refractory hypoxemia on high levels of inspired concentration of oxygen, compromised cardiac performance, life-threatening metabolic acidosis, and altered mental status.[1] From the description of [Mrs A] in the nursing and medical notes, and the parameters recorded on the monitoring record, [Mrs A] had some respiratory distress, with respiratory rates of 30, was somewhat distressed, was adequately oxygenated on the oxygen mask and then later on the CPAP circuit, was developing a moderate metabolic acidosis, and remained conscious until the time of the collapse. Systematic reviews of the evidence in the scientific literature has not been definitively shown [that] the placement of an endo-tracheal tube improves outcome in respiratory failure related to sepsis but there is some evidence of benefit in some situations.[1]. While the addition of mechanical ventilation may be useful in reducing the work of breathing, positive pressure ventilation in unstable patients is not without risk. The risks of intubation and invasive ventilation, including the cardiovascular collapse, are increased in critically ill patients. The use of non-invasive ventilation as support for patients may be used as an alternative. The presence of an endo-tracheal tube increases the risk of ventilator-associated pneumonia, and the use of non invasive ventilation, such as continuous positive pressure airways has been

recommended. Postoperative patients may benefit from both improved ventilation in a wide variety of patients by reduction in intubation rates. [2, 3]

Patients supported by non-invasive ventilation may do well, particularly if the cause of their deterioration is able to be rapidly resolved. While it is not possible from the notes to ascertain the exact cause of the deterioration and respiratory distress, it is likely that the combined effect of acute lung injury/ARDS from her sepsis and the increased work of breathing from her respiratory compensation metabolic acidosis would both be factors.

[Mrs A] was able to protect her airway, so this indication for intubation did not exist making NIV [non-invasive ventilation] a possible management tool.

While there was a rapid deterioration at the time of the collapse, and while there are some subtle signs of deterioration, there were also signs of improvement from 0800 to 1100 in response to the medication, respiratory support and oxygen therapy.

The intubation at the time of her collapse was justified, as there was respiratory distress and an apparent loss of cardiac output at the time of dressing change. However, despite there being signs of some deterioration over the three hours, there were no absolute indications to intubate her earlier. Despite its precipitous nature and the need for rapid intervention the intubation and subsequent ventilation does not appear to have led to significant deterioration. The reasons for the deterioration in the medical condition were not clear but acute lung injury/ acute respiratory distress syndrome would be caused [by] significant deterioration.

I have not viewed the [public] Hospital notes, but the post mortem report notes oedematous lungs with no gross evidence of consolidation. This suggest that aspiration pneumonitis, a possible consequence of having an unprotected airway at the time of the collapse was not a major part of her deterioration. Not only was there absence of clear indication to intubate [Mrs A] earlier on, but the collapse did not result in gross soiling of her lungs.

I note that the respiratory deterioration occurred while awaiting transfer to [Public] Hospital, to allow admission to a level three intensive care service for further support. It is not explicitly stated, [but] [the private Hospital] appears to run a level one intensive care unit, providing care for critically [ill patients] for short periods of time. The referral and arrangement for transfer appear to be appropriate, but unfortunately delayed while a bed was being made available in [the] Public Hospital. This would not have helped in the management of [Mrs A's] condition. However even if intubated and ventilated at 07.30 am, or even earlier in the morning there is no evidence that this would have improved the outcome from the intra-abdominal and septic complications that developed.

Summary: It is unfortunate that the septic complication following her surgery, including the development of ARDS, ultimately led to her death. However the respiratory deterioration at [the Hospital], which resulted in [Mrs A] being intubated could not be predicted with any degree of certainty, and the 'delay' in intubation was not a breach in standard of care.

In my opinion, from the information provided to me, the cares provided and courses of action followed by the medical staff in dealing with [Mrs A's] respiratory deterioration over the evening of [the 21st] and [the morning of the 22nd] while in [the Hospital] appear to be of an acceptable standard.

[1] Sevransky JE, Levy MM, Marini JJ. Mechanical ventilation in sepsis-induced acute lung injury/acute respiratory distress syndrome: an evidence-based review. Critical Care Medicine. 2004 Nov; 32 (11 Suppl): S548-53.

[2] Evans TW. International Consensus Conferences in Intensive Care Medicine: non-invasive positive pressure ventilation in acute respiratory failure. Organised jointly by the American Thoracic Society, the European Respiratory Society, the European Society of Intensive Care Medicine, and the Societe de Reanimation de Langue Francaise, and approved by the ATS Board of Directors, December 2000. Intensive Care Medicine. 2001 Jan;27(1): 166-78.

[3] Rocco M, Conti G, Antonelli M, Bufi M, Costa MG, Alampi D, et al. Non-invasive pressure support ventilation in patients with acute respiratory failure after bilateral lung transplantation. Intensive Care Medicine. 2001 Oct; 27(10): 1622-6."

Dr B's response to provisional opinion

Through her lawyer, Dr B stated that the breach finding of the provisional opinion was "not justified". In relation to her failure to review Mrs A in person on the 11th and 18th, Dr B stated that:

> "[I]n the circumstances of effective communications between doctor/patient, doctor/nurses and doctor/RMO, this is of little or no significance in respect of the evening of admission, all the more so in the light of the ability to far better assess the patient the following day, with the benefit of the investigations."

Dr B added that she was being criticised for not attending, when she was never asked to do so. In addition, had she attended, "the management would in all likelihood, or at least as far as can now be determined, have been the same".

Dr B stated that her working diagnosis for Mrs A's admission on the 18th was bowel obstruction, and that she consulted a general surgeon (Dr C) on the following day, after a CT scan had been performed.

In relation to the advice provided by Dr Brenner and Dr Clentworth, Dr B stated:

> "With respect, Dr Brenner is no more independent than Dr Clentworth; Dr Clentworth having been consulted on the basis of his independence long before there was any complaint. Dr Clentworth's non-performance of the procedure is not relevant in the present context of post operative complications of a type which can occur in any similar procedure, albeit but rarely in this particular form. Dr Clentworth's review had the advantage of immediacy, without being coloured by the comments of others."

In summary, Dr B stated that the criticisms in the provisional opinion did not take into account "the rarity of the actual condition, the diagnostical difficulties thereby encountered and the non-diagnosis until the second CT scan by at least four consultants as well as [Dr B]". She also commented that, when consulted, Dr C agreed with the working diagnosis.

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.

Opinion

This report is the opinion of Rae Lamb, Deputy Commissioner, and is made in accordance with the power delegated to her by the Commissioner.

Opinion: No breach — Dr B

Preoperative information
Prior to surgery, Dr B provided Mrs A with information about her condition, and the operation to be performed. The fact that Mrs A went back to Dr B with several queries indicates that she had read and understood the information provided. I also note that Dr B responded promptly to further questions raised by Mrs A. I endorse the view of my independent gynaecological expert, Dr Bernie Brenner, that the preoperative information provided by Dr B was of a "very high standard".

Standard of surgery on the 7th
Dr B's recording of the surgery allowed Dr Brenner to actually view the operation rather than simply relying on clinical documentation and Dr B's description of the procedure.

Although he was unable to view the port removal at the end of the operation, Dr Brenner saw most of the surgery. He advised that he could not fault any of the technical aspects of the surgery, and that Dr B displayed a high standard of surgical technique. In addition, Dr Digby Ngan Kee, in providing expert advice for the Coroner (and also having viewed the DVD), advised that Dr B followed the best practice for this procedure. I accept Dr Brenner's advice that Dr B performed the operation with reasonable care and skill.

Summary
In relation to the preoperative information provided to Mrs A, and the standard of surgical technique, I am satisfied that Dr B provided a high standard of care, and therefore did not breach the Code of Health and Disability Services Consumers' Rights (the Code).

Opinion: Breach — Dr B

As noted above, I am satisfied that Dr B's surgical technique was of a satisfactory standard. However, a surgeon's responsibility extends beyond the operation to include the postoperative care. In particular, and specific to this case, Dr B was required to observe Mrs A for any complications that could arise following surgery. For the reasons given below, in my opinion Dr B did not provide an appropriate standard of care postoperatively, and therefore breached Right 4(1) of the Code.

Delay in management of postoperative complication
Mrs A was due to be discharged on the third day after surgery. However, on the evening before her planned discharge, she developed nausea and a sharp pain in her abdomen. Overnight, a "hard lump" developed, which Dr B assessed the following morning as being an egg-sized haematoma. It was decided to keep Mrs A in hospital for an extra day and, even

though she was still "vaguely nauseous", she was discharged home on the 11th, with the advice to call if there were any further concerns.

As it happened, there were further concerns, and Mrs A was readmitted at 9pm that night with increasing nausea. The nursing record described her as "exhausted and miserable". Although Dr B made the decision to readmit Mrs A and had discussions by telephone with nursing and medical staff, she did not reassess Mrs A in person until the following day. At 12.30pm on the 12th, when she assessed Mrs A, Dr B noted that the abdominal X-ray taken on Mrs A's admission was not suggestive of bowel obstruction. Instead, she recorded her concern at Mrs A's low sodium level. Rather than obtain a general surgeon's opinion, Dr B asked for a review from Dr E, an endocrinologist, and Mrs A was subsequently discharged home.

Mrs A was readmitted for a second time four days later on the evening of the 18th. The lump (still considered a haematoma) had enlarged, and Mrs A was still feeling nauseous. Dr B has subsequently stated that her working diagnosis was bowel obstruction; however, once again she did not attend Mrs A in person but left Mrs A's care to the RMO. Dr B did not initially arrange for a general surgical opinion. Following the CT scan performed the following morning, Dr B asked surgeon Dr C for his opinion. After a further CT scan the next day, and with Mrs A's condition deteriorating, the decision was made to operate, at which point the diagnosis of a herniated loop of the small bowel (ileum) was made.

Dr Brenner advised that "port herniation and bowel obstruction should have entered the differential diagnosis as soon as [Mrs A] was noted to have vomiting and a mass under the port site". Although I note that these signs were present when Dr B reviewed Mrs A on the 10th, I concur with Dr Brenner's view that when Mrs A was readmitted on the evening of the 11th:

> "an opinion from a general surgeon was warranted at this time and should have been arranged by [Dr B] as a matter of urgency".

I note also that when Mrs A was readmitted for a second time at 8pm on the 18th, once again Dr B did not refer her immediately for a general surgical review. Given Mrs A's continuing nausea, Dr Brenner advised that "a very high suspicion to a possible bowel condition should have been entertained at this time". Dr Brenner said that the failure to refer Mrs A for general surgery review on the 11th was a "moderate to severe departure from standards expected from a gynaecologist performing advanced laparoscopy". He also advised that Dr B departed from expected standards by failing to review Mrs A in person on the 11th and the 18th when she was readmitted to hospital.

In her response to the provisional opinion, Dr B submitted that her failure to assess Mrs A on the evening of the 11th has "little or no significance in respect of the evening of admission" in the context of effective communication. She did not attend on the 18th for the same reasons. Dr B also appears to suggest in her response to the provisional opinion that she

should not be criticised for failing to review Mrs A on the evenings of her readmissions as she was never asked to do so. In my view, Dr B should not have relied on others to ask her to attend. Mrs A was in a private hospital and, as Dr Brenner advised, Dr B was responsible for her care. Mrs A was clearly not recovering as expected and Dr B should have personally reviewed her with greater urgency. I note Dr Brenner's clear advice that she should have attended.

Dr B stated that she was distracted by Mrs A's low sodium levels, and advised the Coroner that Mrs A's mother had suffered from this problem, and that Mrs A had a similar past medical history ("a pre-existing tendency to [low blood sodium levels]"). The only evidence of Mrs A's mother's history is a note made by a nurse on the night of the 11th. There is no record of any subsequent assessment or discussion between Dr B and Mrs A about either her, or her mother's past medical history. In particular, Mrs A's preoperative sodium level was normal. I accept that Dr B was distracted by Mrs A's low sodium in the postoperative period, but I do not accept, in the absence of any evidence of a personal history of low sodium levels, that this distraction was reasonable. I also note Dr Ngan-Kee's advice to the Coroner that low sodium levels are an uncommon occurrence following gynaecological laparoscopic procedures but can be seen in cases of bowel obstruction.

Dr B submitted that she discussed with Mrs A her concerns about low sodium, but there is no record of such a discussion. I also note the Coroner's report, which stated that "[Dr B] accepted that, upon analysis, the clinical notes provided a 'slim basis' for belief that [Mrs A's] mother suffered from hyponatraemia".

Dr B considered for some time that the lump that appeared was a haematoma, but there was no consequent drop in haemoglobin, which Dr Brenner identified as often occurring with port site bleeds.

Dr B obtained expert advice from Dr Clentworth, who concluded that she acted reasonably. However, I note that he stated that he does not perform the procedure under examination in this case. He also stated that he reviewed only the clinical notes and the DVD of the operation. Dr Clentworth stated in his advice that on the "second postoperative day" (the 8th), Mrs A's mother's history of low sodium levels was obtained. As previously noted, there is no such record in the clinical notes, so I am unsure where Dr Clentworth obtained this familial medical history.

Overall I find Dr Brenner's advice more persuasive for several reasons. He is an independent expert providing advice at the request of this Office rather than to Dr B. He has also reviewed all the responses obtained during this investigation (rather than just the clinical notes and the DVD), and he is experienced in the procedure performed on the 6th.

Communication with radiologists
Dr Brenner raised a concern about the information provided by Dr B to the radiologists, Dr D (the 12th) and Dr F (the 18th).

Although Dr B submitted in her response to the provisional opinion that Dr D was unclear what he had been advised by Dr B, Dr D has stated that, had he been advised of the possibility of bowel obstruction, he would have performed a standing abdominal X-ray. That he did not perform such an investigation strongly implies that he was not advised of the possibility of bowel obstruction.

Furthermore, Dr F was also not advised of this possibility when he reported the abdominal X-ray performed on the night of the 18th.

Although Dr B has subsequently stated that bowel obstruction was her working diagnosis on Mrs A's readmissions on the 11th and the 18th, it was not a potential diagnosis passed on to the radiologists; and it was not recorded by the clinical staff who admitted Mrs A on those dates. Dr Brenner advised that bowel obstruction did not appear to be the working diagnosis on the 18th, as Dr B's notes indicate that she still considered the abnormality to be a haematoma. Referring Mrs A to an endocrinologist rather than a surgeon is also incompatible with a concern that bowel obstruction was the working diagnosis.

Had Dr B's working diagnosis been bowel obstruction, then she should have made it clear to the radiologist that this was her main concern. The radiologist, Dr D, was clear to the Coroner that he was not advised by Dr B of such a diagnosis being considered on the 12th, as it would have affected his choice of radiology procedure. In support of Dr D, it is relevant to consider the discharge summary written following Mrs A's discharge on the 14th. The reason for admission was given as investigations for low sodium levels, even though Dr B has recently conceded that this information was incorrect and not recorded by her.

Accordingly, on the balance of probabilities, I find that Dr B's recall is inaccurate on this point, and that although she may have considered bowel obstruction, her working diagnosis was what was recorded: either a low sodium level or an infected haematoma. She may have considered bowel injury as a possibility, but ruled it out without referral to a general surgeon.

Summary
There is a striking area of unanimity between the three experts whose views I have considered in this case. Dr Ngan Kee told the Coroner that it is an axiom of minimally invasive gynaecological surgery (such as laparoscopic surgery) that patients should make a rapid recovery. Dr Clentworth, for Dr B, stated that "[w]hen laparoscopic surgery is undertaken, bowel injury must be considered if recovery is not as anticipated". Dr Brenner advised that "port herniation and bowel obstruction should have entered the differential diagnosis as soon as [Mrs A] was noted to have vomiting and a mass under the port site".

In this case, a previously relatively well woman postoperatively became unwell, with nausea, vomiting and a mass under a port site. In my opinion, this should have triggered a higher degree of suspicion and investigation.

Dr B should have referred Mrs A for a general surgery review at an earlier stage. In my opinion this review should have been requested on Mrs A's readmission on or soon after the 11th. This error was compounded by Dr B's failure to refer Mrs A for immediate general surgical review soon after her readmission on the 18th.

Furthermore, Dr B did not attend Mrs A in person when she was readmitted to hospital on the 11th and the 18th. In my view, she should have done so. Dr Brenner advised that this was also below the expected standard. For the above reasons, Dr B failed to provide Mrs A services with reasonable care and skill, and therefore breached Right 4(1) of the Code.

Opinion: No breach — Dr C

On the morning of the 19th, Dr C was asked by Dr B to review Mrs A. He agreed with Dr B that the cause of Mrs A's symptoms was an infected abdominal wall haematoma; he also concurred with her decision to treat with antibiotics and observe Mrs A closely.

Following the CT scan performed the following day, Drs B and C reassessed Mrs A, and together decided to proceed to surgery.

Dr Brian Parry, who provided me with independent general surgery advice, reviewed Dr C's treatment of Mrs A. Dr Parry concluded that Dr C provided a satisfactory standard of care. Dr Parry acknowledged that there was a delay in the diagnosis, with Dr C having made the same "attribution error" as Dr B, but advised that in the context of this being a "relatively rare" complication, Dr C's actions were reasonable.

Dr Parry also considered the care provided to Mrs A by Dr C from the 22nd to the 28th, when Mrs A was a patient on the intensive care unit at the public hospital, and two operations were performed by Dr C. Dr Parry advised that Dr C provided a satisfactory standard of care during this period, and he was complimentary about the commitment shown by Dr C's decision to operate for a third time.

Although I note that Dr Parry has commented on the absence of any clinical record made by Dr C (which I intend to bring to Dr C's attention) I am satisfied that he generally provided an appropriate standard of care, and therefore did not breach the Code.

Other comment
It may seem contradictory for me to find in this case that Dr B breached the Code, and Dr C did not. However, I have not been critical of Dr B's failure to *diagnose* the herniation, but her failure to react appropriately to Mrs A's condition over a number of days, and two readmissions. Part of her reaction should have been a referral to a general surgeon.

While Dr C initially failed to diagnose the cause of Mrs A's symptoms when he was asked to review her by Dr B (who was still Mrs A's lead clinician), Dr Parry has advised that after the CT scan performed the following morning, Dr C acted "decisively and appropriately". There was a 12-hour delay between Dr C's first involvement and the further surgery, while Dr B had been managing Mrs A's postoperative symptoms for significantly longer. As stated above, my criticism is not of a failure to diagnose a rare complication, but of not reacting appropriately to Mrs A's presentation.

Opinion: No breach — The Hospital

In his complaint, Mr A raised concerns about the working practices of consultant medical staff at the Hospital.

Having carefully reviewed the information provided in this case, I am satisfied that the errors in Mrs A's care were made by Dr B, and were not caused by other staff or the systems at the Hospital. In particular, I note that Dr Brenner advised that he was "unable to find any evidence that [the Hospital] in its provision of facilities and nursing staff failed to meet acceptable standards of care". He was of a view that the documentation was of a high standard.

I also note that the Hospital has a credentialling process for the specialists who are granted admitting privileges, and include an audit of communication in the regular quality assurance programme.

Dr Parry expressed some concern that Mrs A's extended length of stay "did not in itself raise concerns or trigger a mandatory review". He suggested that the Hospital consider whether there should be a system whereby an extended length of stay (and, I would add, readmissions soon after discharge) triggers a report from the clinician to the Medical Director or a committee of senior colleagues. I intend to recommend that the Hospital consider the introduction of such a system.

Although Dr Parry advised that the care provided by staff of the Hospital was of a satisfactory standard, he suggested that advice be sought from an intensive care specialist. Accordingly, I asked Dr Ross Freebairn, an experienced intensive care specialist, to review Mrs A's care. Having reviewed the information provided, Dr Freebairn concluded:

> "In my opinion, from the information provided to me, the cares provided and courses of action followed by the medical staff in dealing with [Mrs A's] respiratory deterioration over the evening of [the 21st] and morning of [the 22nd] while in [the] Hospital appear to be of an acceptable standard."

Having considered the information available, and the expert advice from Drs Brenner, Parry and Freebairn, I am satisfied that the Hospital provided Mrs A with an appropriate standard of care, and therefore did not breach the Code.

Vicarious liability
Under section 72(3) of the Health and Disability Commissioner Act 1994, an employing authority may be vicariously liable for the acts or omissions of an agent. The Hospital stated that Dr B was neither an employee nor an agent of the Hospital. However, as noted by the Commissioner in Opinion 06HDC11343, there are circumstances in which the actions of a person may lead to a relationship of agency being implied. A key factor in determining whether there is an ostensible agency relationship is the outward appearance to third parties.

In this case I have not considered whether there could be a relationship of agency between Dr B and the Hospital, since even if there were a relationship of agency or employment, given the nature of Dr B's omissions in this case, I do not consider that vicarious liability would arise.

Recommendations

- I recommend that the Hospital consider the introduction of a system whereby an extended length of stay (and, I would add, readmissions soon after discharge) triggers a report from the clinician to the Medical Director or a committee of senior colleagues, and advise me of the result of its deliberations by **14 April 2008**.
- I recommend that Dr B apologise to Mr A for her breach of the Code.
- I recommend that Dr B review her practice and report to me on any changes made to address issues highlighted in this report.

Follow-up actions

- A copy of this report will be sent to the Coroner.
- A copy of this report will be sent to the Medical Council of New Zealand with the recommendation that the Council review Dr B's competence.
- A copy of this report, with details identifying the parties removed, will be sent to the Royal Australasian College of Surgeons, the Royal Australian and New Zealand College of Obstetricians and Gynaecologists, and the New Zealand Private Surgical Hospitals Association, and placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

Appendix 1

Report of Dr Digby Ngan Kee for Coroner

Report for the Coroner

DR DIGBY NGAN KEE *MBChB, Dip Obst (Auck), MRCOG, FRANZCOG*
CONSULTANT OBSTETRICIAN AND GYNAECOLOGIST
SUITE 2, CITY HEALTH CENTRE, 22 VICTORIA AVENUE
PALMERSTON NORTH

I am a Consultant Obstetrician and Gynaecologist in Palmerston North, and an experienced laparoscopic surgeon. I am a clinical advisor for the Accident Compensation Corporation and have frequently given advice on injuries related to laparoscopic surgery. I have a special interest in safety aspects of laparoscopic surgery and I am the NZ spokesman on laparoscopic surgery for the RANZCOG.

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INTRODUCTIONS

The events leading up to the death of Mrs appear to have been well summarized in the notes provided and do not appear to be in dispute. The essential facts that I believe are relevant to my report are as follows:

1. Mrs presented with the problem of vaginal prolapse and was admitted to Hospital under the care of Dr for a laparoscopic Sacrocolpopexy. This is an advanced laparoscopic procedure and a recognized treatment for vault prolapse.
2. The initial surgery appeared to be uneventful with no post-operative complications. I have received information from hospital that indicates that the port used on the left side through which the bowel herniated was a 12mm Versastep plus radially expanding port manufactured by Autosuture, a division of Tyco Healthcare.
3. Mrs seemed quite well immediately after her surgery, but on the second post-operative day she became troubled by persistent nausea and then vomiting. It was also noted that her serum sodium levels had shown a sharp drop.
4. On the fourth post-operative day Mrs developed a slightly uncomfortable swelling under one of her port sites on the left side. This was judged to be a port site haematoma by Dr
5. Mrs nausea showed some improvement with medication and she was discharged home briefly on . However her nausea and vomiting became worse at home and she was therefore re-admitted to Hospital that evening. A plain abdominal Xray was carried out which showed no obvious evidence of bowel obstruction. Because of the low sodium levels Dr Endocrinologist was asked to see Ms . He did not find any surgical reason for her low sodium levels.
6. Mrs condition appeared to improve somewhat, and she was discharged home again on the the 7th post-operative day.

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However she was re-admitted to Hospital again two days later with further nausea and vomiting.

7. On her re-admission Dr found that Ms abdominal swelling on her left side had increased somewhat. Further investigations were requested including further plain abdominal X-rays that revealed a few fluid levels but no overt evidence of bowel obstruction.

8. Dr requested a CT scan on that revealed a mass under the left lower port site with some gas in it. This was determined to be a necrotizing haematoma. Dr General Surgeon was subsequently asked to review Mrs

9. Dr appeared to agree with the diagnosis of an infected haematoma and conservative management was initiated with intravenous antibiotics. Despite the antibiotics, Mrs condition continued to deteriorate. A second CT scan was requested which on this occasion revealed the lump to be an area of incarcerated bowel

10. Mrs was subsequently taken to theatre by Dr and Dr for an exploratory laparotomy on the 13th post-operative day following the initial operation. At operation a deep abdominal wall abscess was found on the left side resulting from a perforation of a small bowel loop. A bowel resection was performed and the infected area cleaned and debrided.

11. In the post- operative period Mrs was admitted to Hospital's intensive care unit. However because of deteriorating renal and respiratory function she was transferred to the Intensive Care Unit at Hospital.

12. Unfortunately Mrs condition continued to deteriorate. She required a further laparotomy to correct a small bowel intussuseption, and when her condition dramatically deteriorated she underwent a further laparotomy. At this laparotomy there was found to be severe impairment of perfusion to the gut with a necrotic caecum. A bowel resection and iliostomy was performed, but despite full life support Mrs condition continued to deteriorate and she died on

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QUESTIONS RAISED BY THE CORONER

Should all incisional sites have been closely inspected before completion of the procedure and steps taken to ensure that what occurred here might not happen? Was there compliance in this case with best surgical practice principles?

Herniation of bowel or omentum through port site incisions is a rare but sometimes severe complication of operative laparoscopy. In the type of procedure that Mrs underwent, and port site incision used, the incidence of port site herniation has been found to be in the region of 1%(5). Other studies have indicated that 73% of hernias occur at the lateral port sites such as the left lateral port site through which Mrs was found to have herniated bowel (2).

There are several factors that influence the incidence of port site herniation. Port site herniation is more common in lateral rather than umbilical ports and more common in operative laparoscopy rather than diagnostic laparoscopy. This incidence probably related to the greater degree of repetitive movement and instrument manipulation that occurs in lateral port sites during operative procedures (3).

The size of the port site is well recognized as a factor that influences the incidence of herniation. A study of 840 port site hernias (3) found that 725 (86.3%) occurred in port sites greater than or equal to 10mm in diameter. 92(10.9%) occurred in port sites between 8 and 10mm in diameter and only 23(2.7%) occurred in port sites less than 8 mm in diameter. Because of this Incidence it is a generally accepted axiom of advanced laparoscopic surgery that the fascia should be closed with a suture in all port sites of 10mm or greater diameter (3).

I have obtained information from Hospital that indicates that the port used in the case of Mrs was a 12mm Versastep plus radially expanding port, manufactured by Autosuture, a division of Tyco Health Care.

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The Versastep uses new technology and an expanding trocar that stretches rather than cuts the tissue. When the trocar is removed the tissue then rebounds, leaving a hole in the tissue 50% narrower than the standard pyramidal cutting trocar tip (4). A study of similar conical blunt 12mm trocars to that used in Mrs case concluded that these trocars leave holes less than 10mm in diameter, and create fascial defects similar in size to 8mm sharp pyramidal trocars.

Although the Versastep is nominally a 12mm port, Autosuture do not recommend that the fascia is closed when using these ports due to the radially expanding design leaving a smaller hole in the tissue. Therefore Dr would appear to have met current best practice in terms of closing the fascia with this particular type of port.

Another factor that can increase the incidence of port site herniation is the suction caused by rapid decompression of the abdomen at the end of the laparoscopy. It is generally recommended that with secondary ports the trocar is inserted into the port before withdrawal and the port is visualized as the trocar and port is removed. Failure to do so may allow the bowel to be sucked into the port and incarcerated. This is especially important with a radially expanding port as the hole in the fascia rapidly diminishes in size as the port is removed (from 12mm to 8mm) and may therefore incarcerate the contents of the port. Unfortunately I do not have sufficient information from the operation note or my correspondence with Hospital that allows me to determine whether Dr took these precautions.

In summary in would appear that Dr followed best practice with regard to fascial closure with regard to the type of port she was using. However it is unclear whether she visually observed the port withdrawal to ensure that herniation did not occur.

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Was there undue delay here in recognition of what was or what was likely to be going on [port site herniation of bowel]?

It is an axiom of minimally invasive gynaecological surgery that patients should make a very rapid recovery. In my own practice of advanced laparoscopic surgery I carry out laparoscopic pelvic floor repairs similar Mrs procedure. I would expect my patients to only suffer transient nausea as a result of anaesthetic for less than 24hrs following surgery. My patients are generally eating and drinking normally 48 hrs after surgery and the majority of my patients are discharged well at 72 hours, or three days following surgery. Ms began vomiting on the second post-operative day and this continued and infact became worse until the 13th post-operative day when a laparotomy was carried out that revealed the incarcerated and perforated bowel.

Bowel perforation is a recognized complication following laparoscopic surgery with a mortality of up to 25%. The high mortality is often related to the delay in diagnosis and more specifically the delay in return to theatre. If a perforation is diagnosed immediately and the patient taken back to theatre before peritonitis and sepsis is established, the morbidity and mortality is often much reduced. While the situation of Ms is slightly different, I believe that the general principle still applies. She clearly had a loop of small bowel that herniated through the port site and became incarcerated at some stage. The herniation led to a subacute bowel obstuction and eventually the incarceration lead to necrosis, perforation and sepsis. If Ms had been taken back to theatre earlier than the 13th post-operative day the outcome may not have been as severe.

In the event that incarceration of bowel at trocar site fell within the differential, as at what date ought steps to have been taken to exclude such possibility as causative of ongoing and progressive symptoms?

In my opinion trocar site herniation and bowel obstruction should have entered the differential diagnosis as soon as Mrs was noted to be

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vomiting and to have a mass under the port site. The low sodium levels should also have alerted her attendants that there was a possible complication. Low sodium levels are an uncommon occurrence following Gynaecological Laparoscopic procedures but can be seen in cases of severe illness and also bowel obstruction.

When a mass was detected under the lateral port site it was assumed to be a haematoma. An abdominal ultrasound scan is a relatively non-invasive and available investigation that, if had been performed at the time might have indicated that the mass was not a haematoma.

I have had several port site bleeds during my career as a laparoscopic surgeon. In my experience port site bleeds usually bleed into the intraperitoneal cavity causing a haemoperitoneum and drop in haemoglobin, or the bleeding tracks between the fascial layers or in the loose subcutaneous tissue. This causes a diffused haematoma rather than a discrete lump beneath the port site. Often the result is extensive bruising in dependent areas such as the flanks or even the vulva. In my opinion a discrete lump under the port site would be unusual for a haematoma, particularly if the fascia is not closed in this area. In my mind a lump appearing post-operatively would always raise the possibility of a port site herniation.

It is of course easy with hindsight but in my opinion surgical intervention was probably warranted when Ms was re-admitted on the 11th . In my experience a patient that is unwell at that stage with continued nausea and vomiting probably has an underlying surgical complication. This possibility was obviously entertained, as plain abdominal Xrays were ordered at that time.

As surgeons we are always reluctant to return patients to theatre for a second procedure, particularly if we are unsure whether there is definitely any surgical pathology. However either a further laparoscopy or laparotomy, I am sure, would have revealed the incarcerated loop of small bowel in the lateral port. This might have been a life-saving intervention. However even negative

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operative findings are useful as it can eliminate surgical pathology and narrow the differential diagnosis.

May I please have your advice in general terms as to whether there was a delay in dealing with what ultimately proved to be an event which, had it been diagnosed and dealt with earlier, might not have been productive of the fatal outcome that ensued?

A review of incisional hernias following laparoscopy (5) contains the following statement: "Obstructive symptoms occurring 1 week or more after laparoscopy may be due to bowel incarceration at the site of laparoscopic insertion". Another review (3) states: "A high degree of suspicion for an incarcerated hernia and a low degree of suspicion for re-operation should be exercised when a patient presents with symptomatic or radiographic evidence of small bowel obstruction within 2 weeks of laparoscopy"

Mrs underwent a very advanced (level 3 of 3) laparoscopic procedure. One would expect someone who is trained adequately in carrying out such an advanced procedure to be fully aware of the possible complications of this procedure, including port site herniation.

It should be noted that the radiographs and the initial CT scan did not reveal obvious evidence of a bowel obstruction. However sometimes radiological signs are not seen if the obstruction is incomplete or subacute. I fear that undue reliance on negative radiological findings may have contributed to the delay returning Mrs to theatre.

In my opinion the overall scenario of a women getting sicker more than a week after laparoscopy with nausea, vomiting and a mass underneath the port site should have been sufficient to have triggered a high suspicion of an incarcerated hernia.

I would also view Dr statement that "since the operation and prior to it" she has "certainly diagnosed port site hernias in patients promptly and with

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little difficulty" with some suspicion. Two reviews of this matter (3,5) have concluded that the overall incidence of port site hernation is in the region of 1-1.8%. This is relatively rare incidence. If Dr is encountering this complication on a frequent basis there may be a problem with her technique. It would be useful to have Dr present an audit of her incidence of port site hernation and have this reviewed by her pears.

General comments

This is obviously a very unfortunate case. A relatively well woman is admitted for laparoscopic treatment of a benign condition and succumbs 21 days following her initial surgery. Given the information available to me, I have no specific criticism of the intra-operative care during her laparoscopic procedure. However, in my opinion the diagnosis of a bowel incarceration from a port site hernia should have been entertained at a much earlier stage. Earlier surgical intervention, in my opinion may well have avoided mortality.

It would be useful for future cases that Gynaecological Laparoscopists and hospitals undertaking laparoscopic surgery be informed of the events of Mrs case. This might, in the future, encourage earlier diagnosis and treatment of this problem.

Digby Ngan Kee FRANZCOG
Obstetrician, Gynaecologist, Laparoscopic Surgeon.

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