CORONERS ACT, 2003

SOUTH *AUSTRALIA*

FINDING OF INQUEST

An Inquest taken on behalf of our Sovereign Lady the Queen at Mount Gambier and Adelaide in the State of South Australia, on the 23rd, 24th, 25th, 26th, and 27th days of May 2016, the 29th day of July 2016, the 1st and 2nd days of August 2016 and the 7th day of April 2017, by the Coroner's Court of the said State, constituted of Anthony Ernest Schapel, Deputy State Coroner, into the death of Edward John Mayell.

The said Court finds that Edward John Mayell aged 83 years, late of 35 Railway Terrace, Beachport, South Australia died at the Flinders Medical Centre, Flinders Drive, Bedford Park, South Australia on the 5th day of October 2014 as a result of pneumonia and severe acute respiratory distress syndrome. The said Court finds that the circumstances of his death were as follows:

1. Introduction and cause of death

1.1. These are the findings of the Court in relation to an Inquest into the cause and circumstances of the death of Edward John Mayell. Mr Mayell died on 5 October 2014 at the Flinders Medical Centre (FMC). He was 83 years of age.

1.2. The cause of Mr Mayell's death is of no controversy. It was a natural cause. The cause of death is stated in a medical practitioner's death report that was tendered to the Court. This report emanated from the FMC where Mr Mayell died. The cause of death expressed in the report is pneumonia and severe acute respiratory distress syndrome[1].

1.3. For the purposes of this Inquest the cause and circumstances of Mr Mayell's death were reviewed by an independent emergency physician, Professor Anne-Maree Kelly.

[1] Exhibit C11

Professor Kelly is the Academic Head of Emergency Medicine at Western Health in Footscray, Victoria. Professor Kelly provided two written reports to the Court[2] and gave oral evidence. In Professor Kelly's report dated 24 April 2016[3] she states that she agrees that the cause of death was pneumonia which had become complicated by septic shock and respiratory failure.

1.4. I find that the cause of Mr Mayell's death was pneumonia and severe acute respiratory distress syndrome.

1.5. I find that the cause of Mr Mayell's pneumonia and consequent septic shock was the bacterium Legionella. This organism had been identified by way of a blood culture. The organism had not been identified at the time Mr Mayell was diagnosed with pneumonia, but this is not an unusual circumstance because of the time that is required for a culture to develop the organism.

2. **Background and reason for Inquest**

2.1. Mr Mayell lived in Beachport in the South-East of the State with his wife, Mrs Jan Mayell. Mr and Mrs Mayell had lived at Beachport since Mr Mayell's retirement. They lived in a house the construction of which had been completed in 2005. The electric hot water service in the premises had been replaced in 2011. Following the identification of Legionella as the origin of Mr Mayell's pneumonia, investigators from SA Health attended at the Mayell premises at Beachport to investigate the source of the Legionella. As a result, Legionella was detected in samples that were taken from the kitchen tap and the bathroom shower head. Other possible sources within Mr Mayell's usual environment were investigated, but no further source of Legionella was detected. I find that the source of the Legionella bacterium was the kitchen tap and shower head as described. Mrs Mayell did not contract any illness associated with Legionella.

2.2. Mr Mayell had a past medical history that included ischaemic heart disease, coronary artery bypass grafts, atrial fibrillation, congestive cardiac failure and chronic obstructive pulmonary disease. He was on a number of regular medications for those conditions.

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[2] Exhibits C27 and C27a

[3] Exhibit C27a

2.3. Mr Mayell's general practitioner was Dr James Stewart who was the principal and sole medical practitioner at the Beachport Medical Centre. At that time the Beachport Medical Centre was only open on Mondays, Wednesdays and Friday. On the days that the medical centre was not open, no employee was on the premises. As will be seen, this circumstance impacted on whether important diagnostic information about a patient of this practice could be conveyed in a timely manner to Dr Stewart.

2.4. Mrs Jan Mayell provided a witness statement to the Inquest[4] and gave oral evidence by way of telephone. In her statement Mrs Mayell describes her husband becoming unwell on Friday 12 September 2014. On that day she accompanied her husband to the Beachport Medical Centre where Dr Stewart took some blood for testing.

2.5. Mr Mayell deteriorated over the weekend. Mr Mayell was experiencing abdominal pain and nausea and had been vomiting. Mr Mayell was also said to have been losing weight and not eating. According to Mrs Mayell her husband had trouble walking.

2.6. On Monday15 September 2014, again accompanied by his wife, Mr Mayell attended the Beachport Medical Centre to see Dr Stewart. By then the blood results were available. Many of the results were abnormal. There seems little doubt, and I so find, that as of that Monday Mr Mayell had contracted the Legionella bacterium and was suffering from pneumonia due to that bacterium.

2.7. It is here necessary to say something about the Legionella bacterium. It was described in the evidence of Professor Kelly as an atypical organism that can lead to the contraction of community acquired pneumonia. Legionella responds to antibiotics including erythromycin. Professor Kelly explained to the Court that community acquired pneumonias can be distinguished from the relatively uncommon aspiration pneumonia which results from infection generated by the aspiration into the lungs of stomach contents. Aspiration pneumonia involves an organism or organisms that respond to an antibiotic such as metronidazole which is designed to eradicate bacteria that have an aversion to oxygen. Community acquired pneumonias, depending upon the bacterium involved, respond to other types of antibiotics. Generally speaking, in the first instance the precise identity of the bacterium will not be known. This is due to the fact that blood cultures take time to develop. In order to cover the possible bacteria involved, a broad spectrum antibiotic will be prescribed pending identification of the

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[4] Exhibit C1b

responsible organism. However, in order to cover community acquired pneumonia from an atypical source such as Legionella, an antibiotic such as erythromycin will need to be administered as well. In other words, as I understood the evidence, where community acquired pneumonia is diagnosed or suspected, but where the involved organism is not yet identified, it will be necessary to administer antibiotic cover for both the typical and atypical organisms.

2.8. Professor Kelly explained to the Court that pneumonia from any source is a serious illness, as is the sepsis and septic shock that can result from that illness. Pneumonia and its complications need to be diagnosed and treated urgently. As will be seen Professor Kelly spoke of an association between delayed treatment and morbidity from pneumonia. Treatment by way of antibiotic therapy needs to be instituted at the first available opportunity, regardless of whether the bacterium that has caused it has been identified at that point or not. Therapy by way of broad spectrum antibiotics is the appropriate course to be taken. As will be seen, the therapy that was instituted in the first instance in respect of Mr Mayell was not administered at the first available opportunity and was complicated by what was erroneously assumed by medical practitioners to involve an aspiration pneumonia, all of which resulted in an inadequate antibiotic cover that was not suited to the Legionella bacterium.

2.9. I will come to the details of Mr Mayell's clinical course later in these findings, but a convenient factual framework is as follows:

- Mr Mayell's presentation on Monday 15 September 2014 was as a result of pneumonia.
- Mr Mayell attended the Millicent Hospital on the morning of Tuesday 16 September 2014. The pneumonia, but not the active organism, was diagnosed by way of a chest X-ray that was administered at the rooms of Benson Radiology (Bensons) which were situated within the Millicent Hospital. A locum doctor at that hospital had ordered the taking of the chest X-ray.
- The result of the X-ray which identified pneumonia was available and was reported on by the examining radiologist at Mt Gambier during the afternoon of that day. On that day the Beachport Medical Centre was closed.
- The X-ray report was not seen by a medical practitioner until late in the evening of that day, namely Tuesday 16 September 2014. The doctor who saw the report that

evening was the locum working at the Millicent Hospital. At that time she was working there on her own. Although that medical practitioner had ordered the taking of the chest X-ray, she took no immediate or timely action in respect of the report which identified pneumonia as the explanation of Mr Mayell's presentation.

- In the event Dr Stewart, who returned to work on the morning of Wednesday 17 September 2014, did not see the radiological report until that morning. Mr Mayell had an appointment to see Dr Stewart at 11:45am that day. Based on the contents of the X-ray report, Dr Stewart believed that Mr Mayell was suffering from aspiration pneumonia. As a result, Mr Mayell was transported by ambulance to the Millicent Hospital arriving in the early afternoon.
- Some hours after Mr Mayell's arrival at the Millicent Hospital, antibiotic therapy was commenced at the direction of the locum doctor. The therapy was commenced with a diagnosis of aspiration pneumonia in mind. It did not cover Legionella.
- Mr Mayell was later that day transported by ambulance to the Mount Gambier Hospital where late that evening a different and more appropriate regime of antibiotic therapy was instituted.
- The responsible organism was subsequently identified at the FMC as Legionella.
- Ultimately Mr Mayell was conveyed to the FMC where he died on 5 October 2014 from pneumonia due to Legionella.

2.10. Myriad issues were covered during the course of this Inquest. The core issues here were why it was that Mr Mayell was not prescribed the correct regime of antibiotic therapy as soon as his diagnosis of pneumonia was in, whether Mr Mayell's death could have been prevented and whether in the future a similar event could be prevented or rendered less likely. So the matters that in my view went to those core issues and which were truly worthy of consideration were:

- Whether the radiological report that described the diagnosis of pneumonia, or at least the contents of that report, should have been drawn to the attention of the doctor at the Millicent Hospital or of Dr Stewart at a much earlier point in time;
- Why it was that no person at the Beachport Medical Centre was made aware of the existence of the report during Tuesday 16 September 2014;

- Why it was that the doctor at the Millicent Hospital who facilitated the chest X-ray took no action in relation to that report when she eventually read it on the evening of Tuesday 16 September 2014;
- Whether the diagnosis contained within the radiological report was properly understood by medical practitioners;
- Whether antibiotic therapy could have and should have been administered at the latest on the afternoon of Tuesday 16 September 2014, having regard to Mr Mayell's clinical presentation and the result of Mr Mayell's X-rays;
- Why it was that the commencement of antibiotic therapy on Wednesday 17 September 2014 did not commence until approximately 4pm that day when it had been clearly understood since the morning that Mr Mayell was suffering from pneumonia;
- Whether the appropriate regime of antibiotics was administered to Mr Mayell at the Millicent Hospital;
- Whether the treatment and management of Mr Mayell at the Millicent Hospital was optimal in any event;
- Whether more timely and appropriate antibiotic intervention may have altered the outcome for Mr Mayell;
- There was also a question surrounding the reason why the appropriate regime of antibiotic therapy was not started until late in the evening of 17 September 2014 at the Mount Gambier Hospital to which Mr Mayell had been transferred in the late afternoon of that day. Unfortunately the Court was not able to establish that reason through the evidence that was adduced in the Inquest. However, as will be seen, the real question in any event was whether the correct antibiotic regime should have been commenced during the afternoon of the previous day.

3. Mr Mayell's consultation with Dr Stewart on 12 September 2014

3.1. Mr Mayell and his wife attended at Dr Stewart's surgery on Friday 12 September 2014. Mr Mayell had lost approximately 10 kilograms in weight and complained of lethargy and a lack of appetite. On this occasion Dr Stewart ordered an abdominal ultrasound scan that was to be performed by Bensons at the Millicent Hospital during the following week. Bloods were taken for analysis.

3.2. There does not appear to have been any diagnosis, differential or otherwise, made on this occasion. The plan was for Mr Mayell to be reviewed by Dr Stewart in one week's time.

4. Mr Mayell's consultation with Dr Stewart on 15 September 2014

4.1. On Monday 15 September 2014 Mr Mayell again presented with his wife following his deterioration over the weekend. The complaint on this occasion was of abdominal pain, nausea, vomiting and dysphagia which is a swallowing difficulty. Dr Stewart performed an examination which revealed no abdominal tenderness, no guarding, no rigidity, no rebound, but some distension. There were normal bowel sounds. The results of the blood examination were discussed. There were abnormalities.

4.2. Dr Stewart gave oral evidence in the Inquest. Dr Stewart's impression on this occasion was that Mr Mayell may have had a subacute bowel obstruction. In Mr Mayell's clinical notes[5] Dr Stewart recorded that he compiled an imaging request directed to Bensons for an abdominal ultrasound scan. It will be remembered that this had already been ordered on the Friday. The printed request form filled out by Dr Stewart on the Monday records that the requested examination was for an abdominal ultrasound scan to be performed by Bensons the following day. There is no record of Dr Stewart ordering an X-ray of either the abdomen or the chest. Accordingly an appointment was made for Mr Mayell to attend Bensons in the Millicent Hospital at 10am on 16 September 2014. Complicating matters slightly was the fact that it appears that the Benson's appointment for the Tuesday was for an abdominal X-ray in any case, but not a chest X-ray.

4.3. The clinical details recorded within the request form cited:

> 'Anorexia, regurgitation
> V little per rectum
> ? Subacute obstruction' [6]

I note that Dr Stewart's witness statement[7] asserts that on 15 September 2014 he ordered a chest X-ray as well. There is no reference to a chest X-ray within the clinical notes, within the Benson's request form which simply requested an abdominal ultrasound nor within Benson's booking records, except that a handwritten reference to

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[5] Exhibit C5
[6] Exhibit C15a
[7] Exhibit C15

both an abdominal X-ray and a chest X-ray would be added to the document by the locum at the Millicent Hospital the following day in circumstances that I will describe presently.

4.4. I am not certain whether Dr Stewart had desired to order a chest X-ray or not, but the issue is of no practical consequence because in the event a chest X-ray would be ordered and performed the following day at Millicent. The true significance, though, of the contents of the Benson's written request form was in its reference to the clinical details involving the possibility of a subacute bowel obstruction based upon the abdominal symptomatology that was stated in the document. This is so because in light of the clinical details as expressed in the request form including the queried diagnosis of subacute bowel obstruction, pneumonia was a diagnosis that was unexpected and one which required urgent medical attention.

5. <u>The events of Tuesday 16 September 2014</u>

5.1. Tuesday was one of the days of the week on which the Beachport Medical Centre was closed and unattended. In fact, the practice was only open on three days per week, Mondays, Wednesdays and Fridays. Reports received electronically at the practice from Bensons, and presumably from other services, on a day on which the practice was closed would not be seen until the next working day. Tendered to the Court were the Royal Australian College of General Practitioners guidelines in relation to care outside normal opening hours and in particular in respect of the follow-up of seriously abnormal and life threatening results outside normal opening hours. The guidelines are clear that effective follow-up in this regard relies on practices having robust and reliable systems for contact[8]. Ms Lynley Higgins who is the practice manager at the Beachport Medical Centre told the Court that there had been an understanding that Bensons would call the practice if there was an urgent matter that needed to be brought to the doctor's attention. I am uncertain, though, how such an understanding would work as a matter of practicality when the medical centre was closed and Dr Stewart was difficult to contact as he often was on a day the clinic was closed. Any such understanding of course would depend upon Bensons accurately categorising something as urgent or unexpected, a matter I will come to in due course. Ms Higgins also told the Court that on days on which the clinic was closed and unattended, there was a telephone answering message

[8] Exhibit C40

that directed anyone calling for urgent medical attention to phone the Millicent Hospital which in turn could call the patient. However, the fact remains that important results such as X-ray results that were received electronically would not be seen until the next working day.

5.2. The other feature associated with this day being a Tuesday was that although there was a technician on duty at Bensons at the Millicent Hospital that day, it was not a day on which an ultrasound, the procedure sought within Dr Stewart's request form, could be performed. On the other hand, both abdominal and chest X-rays could be performed.

5.3. Thus when Mr and Mrs Mayell attended at Bensons at the Millicent Hospital on the morning of 16 September 2014 they were told by the on duty radiographer that an abdominal ultrasound could not be performed. Mrs Mayell was insistent, rightly or wrongly, that it had been Dr Stewart's intention that Mr Mayell undergo an X-ray in addition to the abdominal imaging. The difficulty was that the request form made no mention of any type of X-ray and for that reason alone no imaging could be performed without further input from a medical practitioner. It was this circumstance that led to Dr O'Hagan, the locum doctor working at the Millicent Hospital, becoming involved.

5.4. In her witness statement Mrs Mayell states that on this Tuesday her husband was terribly ill and was extremely reluctant to leave Millicent Hospital without imaging being undertaken. She realised that Dr Stewart would not be working at Beachport Medical Centre that day and so it would not have been possible for Mr Mayell there to obtain a revised request form that would have included X-rays.

5.5. As it so happened one of the registered nurses who was employed at the Beachport Medical Centre on the days that the clinic was open also worked at the Millicent Hospital on the days that she was not working at Beachport and was on duty at Millicent that day. This person was registered nurse Jackie McBride. Ms McBride provided a statement to the Court through the Crown Solicitor's Office[9] and she also gave oral evidence. Ms McBride told the Court that on the Tuesday morning she was working at the Millicent Hospital when she encountered Mr and Mrs Mayell walking down the corridor that led from Bensons to the emergency room of the hospital. Mrs Mayell at that stage was physically supporting her husband. Mrs Mayell expressed concern to Ms McBride saying that her husband was very weak, lethargic, was not eating and had

[9] Exhibit C16

experienced a very restless night. Ms McBride obtained a wheelchair for Mr Mayell. There then ensued some discussion about the fact that the Benson's request form did not request the correct procedure.

5.6. Dr Asimanogi O'Hagan was the only medical practitioner on duty at the Millicent Hospital that day. Dr O'Hagan provided a statement[10] to the Inquest and gave oral evidence via video conference from Queensland. Dr O'Hagan was a locum medical practitioner who had obtained her medical qualifications in New Zealand. She had worked at a number of hospitals in New Zealand, the United Kingdom and Australia. Dr O'Hagan was employed by the Millicent Hospital on a locum basis between Monday 15 September and Friday 19 September 2014. This was the only occasion on which Dr O'Hagan worked in Millicent. Tuesday 16 September 2014 was Dr O'Hagan's second day on the job at the Millicent Hospital.

5.7. Through the registered nurse, Ms McBride, Dr O'Hagan was made aware of the presence of Mr and Mrs Mayell within the hospital and of the difficulty concerning the Benson's request form. As a result Dr O'Hagan, in order to save any further inconvenience and on the understanding that the required imaging involved X-rays, altered the request form by crossing out reference to the abdominal ultrasound scan and inserting in her own handwriting the substituted examinations of a chest X-ray and an abdominal X-ray. Dr O'Hagan noted the clinical details recorded within the document and ordered the abdominal X-ray for obvious reasons and a chest X-ray to investigate whether there was free gas beneath the diaphragm which would be consistent with abdominal pathology. In my view, Dr O'Hagan ordered the chest X-ray on properly considered grounds based upon the exercise of her own clinical judgment. In my view it can be said that she ordered that X-ray and not merely facilitated it. There was no suggestion of pneumonia at that point in time.

5.8. Mr Mayell then underwent the abdominal and chest X-rays at Bensons.

5.9. The imaging was performed by a radiographer, Ms Noad. After Mr Mayell had undergone the X-rays he and his wife made their way to the Millicent Hospital Accident and Emergency Department, which was in the same building, where in due course he was examined by Dr O'Hagan. Dr O'Hagan formed the view that Mr Mayell was suffering from dehydration and for that reason she instructed nursing staff to see to it

[10] Exhibit C23

that Mr Mayell drink about a litre of water contained within a jug. A document entitled 'NON-ADMITTED UNPLANNED PATIENT ATTENDANCE RECORD' was created in respect of Mr Mayell's attendance at the Millicent Hospital on that day. Part of that document was filled in by Ms McBride and part of it was completed by Dr O'Hagan. Dr O'Hagan examined Mr Mayell and made observations relating to his chest which she noted was clear. Dr O'Hagan signed the document.

5.10. There is no doubt in my mind that Mr Mayell, despite the fact that he had originally only attended at the hospital for the purposes of obtaining radiological imaging from Bensons, and that he was later discharged that day from the hospital, had been the patient of that hospital and in particular the patient of Dr O'Hagan. However, there is one matter that was not entirely consistent with the characterisation of Mr Mayell's status as a patient of the hospital and that is that if Mr Mayell had been understood to have been a patient of the hospital at the time the X-rays were taken, he would have been supplied with a copy of the X-rays and these in turn would have been made available for Dr O'Hagan to view at a time when Mr Mayell was still present. However, because the request for imaging was originally that of Dr Stewart, Mr Mayell was not regarded by Bensons as a patient of the Millicent Hospital, but rather as an outpatient. For that reason a copy of the X-ray was not provided to him. I find that on 16 September 2014 neither Mr Mayell nor Dr O'Hagan were supplied with a copy of either the chest or abdominal X-ray. Dr Stewart said in his evidence that he believed he saw the X-ray images the following morning. His belief was that the Mayells brought them in with them. However, in her oral evidence Mrs Mayell convincingly told the Court that they did not receive any X-rays. This is consistent with evidence that the radiographer Ms Noad gave. I find that Dr Stewart is mistaken about that issue. As will be seen, in due course he did see a copy of the report relating to the X-rays, albeit belatedly.

5.11. In the event the only set of X-ray films that were created at Bensons on 16 September 2014 were couriered to the Bensons facility at Mount Gambier where there was a consultant radiologist on duty. The X-rays were examined that afternoon and were reported on the same afternoon. There is no criticism to be levelled at the timeliness of the delivery, examination and reporting of the X-rays.

5.12. To my mind the evidence is clear that the results of the chest X-ray which demonstrated pneumonia could and should have been seen and acted upon by a medical practitioner no later than Tuesday afternoon, 16 September 2014. It would follow from that

conclusion that the necessary antibiotic treatment for Mr Mayell could have and should have been commenced that same afternoon. I will return to the reasons for so concluding in due course, but it is as well to set out a timeline of the events of 16 September 2014 in order to demonstrate that the necessary treatment for Mr Mayell could have been administered that afternoon.

5.13. Ms Catherine Lunnay is the risk quality assurance officer for Bensons. Ms Lunnay was called at the Inquest to interpret records relating to Benson's involvement in Mr Mayell's presentation on 16 September 2014. Ms Lunnay firstly explained the digital PACS (Picture Archival Communications System) that is used by Bensons. PACS is part of the overall IT system that is used by to transmit radiological imagery such as X-rays. Ms Lunnay explained that X-ray films are digitised and they can be conveyed by way of electronic transmission from one Benson's site to another. Unfortunately PACS was not available in Millicent. Had it existed at Millicent, PACS would have enabled the electronic transmission via the internet of Mr Mayell's X-rays to the workstation of the radiologist in Mount Gambier. This would have enabled an analysis of the imagery to have been performed very soon after the imagery was created. However, Millicent radiological imagery had to be physically driven by courier from the Millicent Hospital to the Mount Gambier Hospital. Nevertheless, the imagery arrived in the early afternoon and was available to be analysed by a radiologist at that time.

5.14. Ms Lunnay established the following timeline:

Date (2014)	Time	Event	Remarks
15 September	2:48pm	Appointment made for Mr Mayell to have an abdominal X-ray at 10am on 16 September 2014	This appointment was made through the Beachport Medical Centre. The appointment was for an abdominal X-ray, not an abdominal ultrasound, notwithstanding the terms of the request form completed by Dr Stewart. The appointment was not for a chest X-ray.
16 September	10am	The scheduled appointment time for Mr Mayell at Bensons at Millicent	
16 September	10:06am	Mr Mayell arrives at Bensons at Millicent	Appointment is opened and registered in Benson's IT
16 September	10:14am	A request for a chest X-ray is added to the appointment for the abdominal X-ray	This was undertaken by Dr O'Hagan writing on the request form as described above

Date (2014)	Time	Event	Remarks
16 September	10:26am	Bulk billing in relation to Mr Mayell's X-rays occurs	By this time both the chest X-ray and the abdominal X-ray have been performed
16 September	1:09pm	By this time the X-rays have been delivered to the radiologist at Mount Gambier for examination and reporting	
16 September	2:01pm	By this time the radiologist has examined the X-rays and has dictated, typed and signed the X-ray report	
16 September	2:17pm	The radiologist has reviewed and verified the report for distribution	
16 September	2:24pm	At this time the report was transmitted to Beachport Medical Centre automatically by email	
16 September	2:36pm	The time at which the radiology report is electronically signed by the radiologist	There is a discrepancy between this time and the time of 2:24pm above, but the discrepancy is of no consequence as it is clear that the radiology report was in existence and available no later than 2:36pm
16 September	3:46pm	The radiological report is automatically downloaded into Beachport Medical Centre's server	This is not the time at which the report is seen by human activity. However, the report would have been available to be seen by staff at the centre. However, on that afternoon Beachport Medical Centre was not open for this purpose
16 September	5:06pm	The radiological report was faxed to the Millicent Hospital	Ms Lunnay explained that reports were faxed to hospitals at the end of the working day.

5.15. The radiological report is on Benson's letterhead. The document itself is principally addressed to Mr Mayell care of his home address. The medical practitioner to whom it is principally addressed is a Dr T Burchall who I was told is a local medical practitioner in Millicent. Referrals from the hospital, generally speaking, can take place in that practitioner's name. I was told, however, that Dr Burchall had no personal involvement in this X-ray request, nor did he have any personal responsibility in relation to the treatment of Mr Mayell, nor in the interpretation of the X-ray report. Dr Burchall was the referrer in name only. The report is directed by way of cc to Dr Stewart who was the original referring medical practitioner. There is no reference within the report to the involvement of Dr O'Hagan but this is not surprising as she was a locum practitioner. The fact that the report is apparently directed to the attention of a Millicent referring doctor and cc'd to Dr Stewart gives the impression that there was an expectation that the on-duty medical practitioner at Millicent Hospital would be the person who in the first instance would receive and act upon the report. There is no

evidence that the radiologist would or should have had an understanding that at Dr Stewart's practice at Beachport no person would be able to access the report on the afternoon of 16 September 2014. However, to my mind there would have been an expectation on Benson's part that the document would be accessible by personnel at the Millicent Hospital. There would also have been an expectation on Benson's part that if necessary there would have been a doctor available at Millicent should the need to speak to that doctor have arisen.

5.16. In the event there is no evidence that anybody who was in a position to act upon the report saw it before the late evening of 16 September 2014 when Dr O'Hagan saw the report for the first time.

5.17. The contents of the report are as follows:

> '**XRAY CHEST AND ABDOMEN**
>
> **Clinical:**
> Anorexia., regurgitation. - ? Subacute obstruction.
>
> **Findings:**
> **Chest:**
> Moderate to extensive air space opacity in the right lower lobe and lesser extent the right middle lobe favouring pneumonia or potentially aspiration.
> Minor left basal pleural effusion.
> No overt pulmonary oedema.
> Mild to moderate cardiomegaly and evidence of previous CABG.
> No subdiaphragmatic gas.
> Followup chest xray in six weeks after appropriate treatment recommended.
>
> **Abdomen:**
> No small or large bowel dilatation to indicate mechanical obstruction.
> No extraluminal free gas.' [11]

5.18. It will be noted that the clinical information in this report would be understood by the reporting radiologist to involve anorexia, regurgitation and the possible diagnosis of a subacute obstruction, meaning of course a bowel obstruction. This accords with the information that was set out in Dr Stewart's request form. There is no suggestion within the clinical information of any pathology relating to the patient's chest, in particular pathology within the lungs such as pneumonia. Indeed, the findings both from the chest X-ray and the abdominal X-ray did not identify any abdominal pathology and in fact

[11] Exhibit C6, page 33

demonstrated that there was no subdiaphragmatic gas which would be consistent with there having been no subacute bowel obstruction.

5.19. Rather, the radiological report identified moderate to extensive airspace opacity in the lower lobe of the right lung and to a lesser extent within the right middle lobe. That abnormality is said to be '*favouring pneumonia or potentially aspiration*'. To my mind this finding was quite unexpected having regard to the clinical information in the radiology request form. It was also a finding that was serious.

5.20. This was a report that needed to be drawn to the attention of, and be read by and acted upon by, the referring medical practitioner, whoever that might be in the circumstances of this case. To my mind both Dr O'Hagan and Dr Stewart had responsibility in respect of that process. Additionally, as will be seen, it is the Court's opinion that the radiologist, Dr Ho Ly, had a responsibility to draw the diagnosis to the attention of a medical practitioner and not merely by way of the electronic transmission of his report. This is so having regard to the unexpected nature of the finding of pneumonia and to its seriousness.

5.21. A set of observations was obtained from Mr Mayell timed at 12:50pm. The most significant is that Mr Mayell recorded a systolic blood pressure of 97 which is low.

5.22. Mr Mayell remained at the Millicent Hospital for some time following the taking of the X-rays. I have already referred to Dr O'Hagan's impression that he was experiencing dehydration and that he was given a litre of water to consume with this impression in mind. This together with other matters, including Dr O'Hagan's examination of Mr Mayell and her arriving at a discharge diagnosis, led the Court to conclude that Mr Mayell was a patient of Dr O'Hagan. Dr O'Hagan's alteration of the X-ray request form was no mere formality but had been a step in her clinical management of Mr Mayell on that day. Legal authority is clear that a medical practitioner has a duty to ascertain the outcome of examinations that the practitioner has ordered and to offer appropriate treatment in the light of the outcome of such an examination[12]. I find that Dr O'Hagan thus had a duty to inform herself of the results of the X-rays as soon as they were available.

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[12] See **Kite and Kite v Malycha** (1998) 71 SASR 321

5.23. The records of the hospital reveal that at 2:20pm Dr O'Hagan conducted her examination of Mr Mayell and at that time a urinalysis was conducted. Although there is no record as to the time at which Mr Mayell left the hospital that afternoon, in hr evidence Mrs Mayell estimated that she and her husband left the Millicent Hospital at about 3:30pm. This estimate was based on the fact that when they arrived back in Beachport where they lived, the local museum was in the process of closing and that the museum habitually closed at 4pm. She estimated that it is about a 20 minute drive from the Millicent Hospital to the town of Beachport. Thus it is that Mr Mayell was probably at the hospital until about 3:30pm. It will be remembered that the X-ray examination had been conducted by the radiologist Dr Ho Ly in Mount Gambier and that the result had been reported by approximately 2:36pm at the latest, although the hospital did not receive that report by facsimile until approximately 5pm. Nevertheless, the point is that the results of the X-rays were in at a time while Mr Mayell was still within the Millicent Hospital. There is no doubt that had those X-ray results been understood at the Millicent Hospital by Dr O'Hagan at a time while Mr Mayell was still there, albeit as an outpatient, he would have been admitted to the Millicent Hospital and antibiotic treatment could have been commenced for pneumonia. It will also be remembered that Mr Mayell’s X-rays were actually conducted by 10:26am that day. Mr Mayell remained at the hospital for another 5 hours. The results were in no later than 2:36pm and this was so notwithstanding the fact that the X-ray films had to be transported by road to Mount Gambier.

5.24. Accordingly, it is difficult to determine the justification for Mr Mayell being allowed to leave the hospital without Dr O’Hagan knowing the results of the X-rays. It has to be acknowledged that having regard to the clinical reason for the X-rays being performed, Dr O'Hagan was not expecting a result of pneumonia. She had not ordered the chest X-ray with that possible diagnosis in mind. She told the Court that she had believed that the chest X-ray was needed in order to establish whether or not there was gas beneath the diaphragm, a radiological sign of possible bowel pathology unconnected with the lungs. Her impression was of dehydration. However, having regard to the fact that she had taken it upon herself to examine Mr Mayell and to form an impression as to his diagnosis, any conclusion that she may have arrived at as far as Mr Mayell’s condition was concerned was flawed insofar as it did not take into account the X-rays that she herself had facilitated. The decision to discharge Mr Mayell before the X-ray results were known was equally flawed.

5.25. Dr O'Hagan told the Court that she saw the X-ray report for the first time late in the evening of Tuesday 16 September 2014 at which time she endorsed the copy of the report that had been received at the hospital by fax shortly after 5pm. She endorsed it as follows:

> 'Pt seeing Dr J Stewart tomorrow
> 16.SEP.14'

Dr O'Hagan explained to the Court that she wrote this in the belief that Mr Mayell was seeing his own general practitioner, Dr Stewart, the following day and that Dr Stewart could attend to Mr Mayell’s clinical needs. The reason why Dr O’Hagan failed to see this important document at an earlier point in time is quite unclear. The Millicent Hospital was in possession of the Mayell’s home phone number. They could easily have been called either during the afternoon or the evening and been told of the result of the chest X-ray. The appropriate course would have been for Mr Mayell to be advised to come into the hospital. They were not called.

6. The events of Wednesday 17 September 2014

6.1. It is clear that Mr Mayell deteriorated overnight. He was observed in the Beachport Medical Centre to be very weak. The appointment for this attendance had been arranged in advance. The appointment time appears to have been 11:45am. There is evidence within the clinical record to suggest that Mr Mayell attended at about that time as there is reference to the time of 11:52am as being the time at which Dr Stewart saw Mr Mayell. There is also a time of 12:45pm which is the time recorded by the nursing staff of their examination of him. The earliest time recorded as far as observations are concerned is 12:10pm that day. Despite the importance of the X-ray findings that had been received within the practice the day before, no attempt was made to get Mr Mayell to come into the practice at a time earlier than the appointed time.

6.2. There is no evidence that independently establishes when it was for the first time that the radiological report which had been automatically downloaded the previous afternoon at the Beachport Medical Centre was seen for the first time by any person at the practice that morning. Dr Stewart told the Court that on the Wednesday morning he had the result of the X-rays. He testified that the results would have come through on the internet and that they would have been on his computer when he came into work. The evidence suggested that Dr Stewart would commence work and start seeing

patients at about 9am. I am not certain as to the time at which Dr Stewart saw the X-ray report because the alarming nature of the report ought to have dictated that Mr Mayell be contacted to come in straight away and not wait for his appointed time. As I say, this did not happen. Like Dr O'Hagan, Dr Stewart had also been under a duty to inform himself of the result of the radiological examination. The fact that his practice had been closed and unattended the day before meant that he did not discharge this duty at a time when the results of the examination should have been acted upon, that is to say, the day before.

6.3. When Mr Mayell was seen by Dr Stewart on the Wednesday morning he looked critically ill. Dr Stewart said that this was a significant change from two days previously[13]. Observations made at 12:10pm indicated that Mr Mayell was indeed critically ill with blood oxygen saturations at 88%, raised temperature at 38.4ºC, low blood pressure at $^{92}/_{68}$ and an increased pulse. Dr Stewart naturally noted the diagnosis of pneumonia as per the X-ray report. Crepitations heard on the right hand side of Mr Mayell's lungs were in keeping with that diagnosis.

6.4. Dr Stewart made a diagnosis of aspiration pneumonia. This diagnosis would prove to be inaccurate insofar as it was understood to be an aspiration pneumonia as distinct from a community acquired pneumonia. Asked as to the basis upon which he made that diagnosis Dr Stewart cited three reasons. Firstly, Mr Mayell had reported vomiting earlier in the piece. Secondly, Dr Stewart asserted that aspiration pneumonia tends to exist in the right hand side of the lungs. Thirdly, Mr Mayell's condition had deteriorated very rapidly and that this was typical of an aspiration pneumonia. Asked as to whether at the time he considered that Mr Mayell could have been suffering from a community acquired pneumonia, he said no. In the consultation notes for Mr Mayell dated 17 September 2014 Dr Stewart noted the diagnosis as aspiration pneumonia. It will be remembered of course that this diagnosis appeared within the radiological report as being one of two possibilities, namely '*pneumonia or potentially aspiration*'. The reference to aspiration is a reference to aspiration pneumonia and when one reads the report it is clear even to the layman that the radiologist was not intending to be dogmatic about the possibility of aspiration pneumonia. However, I am not certain that Dr Stewart's own diagnosis of aspiration pneumonia made any practical difference in terms of the treatment that Mr Mayell received either at the Beachport Medical Centre

[13] Transcript, page 40

that day or at Millicent and Mount Gambier later that same day because Dr Stewart did not administer, and was not in a position to administer, the necessary antibiotic therapy. Mr Mayell required transfer to a hospital for that therapy to commence. However, it is possible that this erroneous diagnosis of aspiration pneumonia as a sole working diagnosis was perpetuated at Millicent Hospital by Dr O'Hagan, possibly on the basis of what Dr Stewart had included in written material that travelled with the patient to Millicent and on a phone conversation that Dr O'Hagan conducted with Dr Stewart. I will come back to that aspect of the matter in due course. Dr Stewart spoke to a doctor at the Mt Gambier Hospital and to Dr O'Hagan at the Millicent Hospital before Mr Mayell was transferred to Millicent by ambulance.

6.5. Mr Mayell was treated by way of intravenous saline therapy at the Beachport Medical Centre. He was also administered oxygen. As a result his oxygen saturations did improve. The last set of observations was conducted at 12:45pm at which time the intravenous saline was also commenced.

6.6. The South Australian Ambulance Service (SAAS) was called by Beachport Medical Centre staff. A great deal of evidence was given and much time was consumed during the Inquest in relation to the issue as to whether or not Mr Mayell should have been transported by ambulance immediately to the Mount Gambier Hospital, bypassing Millicent Hospital altogether. There was considerable debate about whether existing protocols or practices dictated that a patient in Mr Mayell's circumstances should have been taken immediately to the Millicent Hospital, at least in the first instance. It seemed relatively clear from the evidence that the preference of both Mr and Mrs Mayell was that Mr Mayell be conveyed by ambulance directly to the Mount Gambier Hospital because they wanted to avoid a repetition of what they thought had been a negative experience the previous day at Millicent. It was also Dr Stewart's desire that Mr Mayell go straight to Mt Gambier. In the event, Mr Mayell was transported to Millicent on the understanding that he would then be transferred to Mt Gambier. This did ultimately occur, but not until the late afternoon. This was a rather arid debate because it should have made no difference to Mr Mayell which hospital he went to. If proper and timely care had been administered at the Millicent Hospital in the first instance, it is difficult to see what practical difference his being at the Millicent Hospital or the Mount Gambier Hospital should have made. In due course, naturally he would have received appropriate care within the high dependency environment that Mount Gambier Hospital

could provide, but at least as far as the commencement of Mr Mayell's treatment is concerned, Millicent Hospital ought to have provided no different care from what the Mount Gambier Hospital could provide. There was no evidence that the Millicent Hospital was intrinsically unsuited to Mr Mayell's medical needs, at least to begin with. In the event the issue about which hospital Mr Mayell should have been conveyed to essentially amounted to an allegation made with the wisdom of hindsight that Mr Mayell was delivered into an environment of inevitable and predictable clinical incompetence. This view of the matter would have to be rejected because if anything was to be legitimately expected, it was that Millicent would have the resources both human and otherwise to appropriately care for Mr Mayell, at least in the first instance. There was no reason to suppose in advance that Mr Mayell was going to receive inadequate or incompetent care at the Millicent Hospital. The issue for discussion in reality is whether or not Mr Mayell did or did not receive care that was adequate, competent and timely once he was there. All that said, there is no escaping the fact that there was an element of pointlessness in Mr Mayell being transferred to Millicent when it was understood that he would be ultimately be transferred to Mt Gambier given the proximity of Mt Gambier to Millicent. This raises a broad issue that SAAS should re-evaluate with Country Health SA.

6.7. In the event an ambulance was dispatched at 12:38pm. It arrived at the Beachport Medical Centre at 12:57pm and departed that premises at 1:08pm. The ambulance arrived at the Millicent Hospital at 1:36pm. Some of the clinical records that had been created at the Beachport Medical Centre travelled with Mr Mayell including the observation chart and an emergency attendance chart that gave a provisional diagnosis as aspiration pneumonia. The computerised entry of the page of Mr Mayell's consultation notes from the Beachport Medical Centre also expressed that same diagnosis. By the time of Mr Mayell's arrival at the Millicent Hospital a copy of the radiological report was already part of the Millicent Hospital records and, as seen, had been endorsed by Dr O'Hagan the previous evening.

6.8. The clinical notes from the Millicent Hospital record a number of times associated with Mr Mayell's arrival at the hospital. The arrival time is recorded as 1:45pm. The same time is recorded as the time he was seen by a nurse. The time of 1:47pm is the time recorded when the doctor, whom we know to be Dr O'Hagan, was notified. It is not entirely clear as to what Dr O'Hagan was notified about except that one presumes that

it was at least that Mr Mayell had arrived at the hospital. Whether Dr O'Hagan associated that piece of information with Mr Mayell whom she had managed the previous day is also less than clear as is whether or not anything of substance took place when Dr O'Hagan was so notified. The admission documentation suggests that Mr Mayell was triaged as Category 4. This category of triage is a low category signifying no particular urgency. As will be seen Mr Mayell's presentation dictated a much higher category than that. In short, he needed to be examined and seen by a doctor as soon as he arrived having regard to the diagnosis that was then available. The category meant that patients who had either presented before Mr Mayell or would present after Mr Mayell, and who were triaged with a higher category of 1, 2 or 3, would receive preferential treatment by the doctor before Mr Mayell. Whether that did in fact happen is not clear because the time at which Mr Mayell was ultimately seen by the doctor is also unclear.

6.9. There are a number of references to the reason for admission as being '*? aspiration pneumonia*'.

6.10. A set of clinical observations was conducted. This examination was recorded as having taken place at 1:50pm. They recorded a raised temperature, raised pulse rate, raised respiration rate and a low oxygen saturation percentage, all in keeping with the earlier observations at Beachport. Mr Mayell was placed on oxygen with the use of a Hudson mask. This resulted in the oxygen saturation increasing. This would be the only set of observations recorded until just before Mr Mayell was transferred by ambulance to Mount Gambier Hospital at about 5:30pm.

6.11. At some point Mr Mayell was examined by Dr O'Hagan[14]. She recorded her examination in the progress notes. The notes consist of one page of handwritten notes. Neither the time of the examination nor the time at which her notes were made are recorded on this page. This is grossly unsatisfactory as there is no other note in Mr Mayell's Millicent Hospital file that recorded when this examination took place. In the notes Dr O'Hagan has referred to Mr Mayell's previous presentation the day before. She recorded the presenting complaint as being '*right lower lobe pneumonia/aspiration*'. In the note she has referred to the set of clinical observations that were recorded at 1:50pm. As far as a treatment plan is concerned it is clear that

[14] Exhibit C6, page 12

Dr O'Hagan ordered antibiotics consisting of intravenous ceftriaxone and intravenous metronidazole. A blood culture was also ordered with a view to ultimately establishing the involved organism or organisms. The intent to transfer to Mount Gambier is also noted together with a notation concerning that this was at the request of both Mr Mayell and his general practitioner.

6.12. There was a great deal of evidence given in the Inquest in an attempt to reconstruct when it was that Dr O'Hagan had examined Mr Mayell and had ordered the antibiotic therapy. The SA Pathology notes suggest that the blood for culture purposes and other bloods were collected at 3:50pm. The records state that the antibiotics were commenced in the case of ceftriaxone at 4:05pm and in the case of metronidazole at 4:10pm. According to the medication chart, at 4pm the analgesic paracetamol was also administered. These medications were written up as involving '*stat*' administration. This indicates an order on the part of the prescribing medical practitioner that the medication should be administered immediately upon its being ordered.

6.13. There is one other time recorded and that is that at 3:10pm 500ml of intravenous saline was to be administered over three hours. The evidence is unclear as to why this occurred at that time. As seen above Mr Mayell was already being administered intravenous saline therapy which had been commenced at the Beachport Medical Centre.

6.14. In this Inquest the question naturally arose as to whether the administration of the antibiotics had been significantly delayed after they had been ordered by the doctor, or whether there had been a significant delay in the doctor ordering them. The clinical notes do not of themselves answer that question. Mrs Mayell was not able to assist the Court as to the length of time taken before her husband was seen by the doctor[15]. Either way, the administration of antibiotics some two and a half hours after Mr Mayell's arrival at the hospital would seem to be an unsatisfactory and unnecessary delay having regard to the fact that a diagnosis of pneumonia, be it community acquired or aspiration, was reasonably clear from everything that had taken place so far.

[15] Transcript, page 561

6.15. I have referred to a further set of observations that were taken by the nursing staff before Mr Mayell's transfer to the Mount Gambier Hospital. These are recorded at 5:10pm[16]. These observations were also in keeping with severe illness.

6.16. A nursing note indicates that Mr Mayell was transferred to Mount Gambier at about 5:30pm. A referral letter from Dr O'Hagan states '*Thank you for taking care of this patient. ? Aspiration Pneumonia*'. It is clear from this and from the file as a whole that Dr O'Hagan appears to have fixated upon a diagnosis of aspiration pneumonia as a definitive diagnosis. She appears to have dismissed the possibility that the pneumonia was a community acquired pneumonia. Dr O'Hagan gave oral evidence as to this issue. I will come to that in a moment.

6.17. Everything about the manner in which Mr Mayell was managed at Millicent illustrates that there was a distinct lack of urgency. This lack of urgency is classically exemplified by the triage category of 4 which is manifestly unsupportable.

7. <u>The evidence of Dr Ho Ly</u>

7.1. Dr Ly is a registered medical practitioner and radiologist employed by Bensons. He has been practising as a specialist radiologist at Bensons since 2010. He also practices at the FMC. Dr Ly provided a statement to the Inquest[17] and gave oral evidence. Dr Ly explained to the Court that Bensons has two practice sites in Mount Gambier. One site is at the Mount Gambier Hospital and the other is located on Crouch Street. Radiologists from Bensons, of which he is one, attend Mount Gambier on a rotational basis. In 2014 he would visit Mount Gambier as the onsite radiologist approximately twice each year, with each visit being up to one week. He reports on imaging taken predominantly from hospitals in the region including the Millicent Hospital. Dr Ly was the radiologist who conducted the examination of Mr Mayell's abdominal and chest X-rays taken at the Bensons facility at the Millicent Hospital on Tuesday 16 September 2014. Dr Ly told the Court that on a typical day he would view and report on approximately 100 films of varying complexity. This task is complicated by interruptions where he is required to provide advice to technicians or where he is required to call the referring doctor regarding the result. He said that there are numerous demands on a daily basis.

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[16] Exhibit C6, page 19
[17] Exhibit C19

7.2. Dr Ly told the Court that PACS did not exist in Millicent, but did exist in Mount Gambier where he was stationed for the week in question. It is said that this meant that he had no ability to provide feedback to the radiographer at a time when the patient was still at the hospital.

7.3. Dr Ly gave evidence about the Benson's policy document with respect to the 'Management of Patients with Urgent, Unexpected or Sinister Findings'[18]. The policy describes a red flag system the underlying sentiment of which is that Benson's staff and radiologists needed to be aware of the importance of early detection of, and appropriate management of patients with respect to, urgent and or unexpected findings on imaging examinations. Identified cases needed to be red flagged by technical staff at the time of the examination to allow immediate assessment and appropriate management by the supervising radiologist, regardless of whether the patient was waiting or having their results delivered to the referring doctor. Red flag findings are listed within the policy. They include pneumonia. This document was said to be effective from 21 June 2012 and was superseded by another version of the document[19] that is said to have been effective from 23 September 2014. Both versions of the document refer to the need for the radiologist to make telephone contact with the referring doctor, or an on duty colleague of the referring doctor, in respect of urgent, unexpected or sinister medical imaging findings. If that was not practicable, the policy states that the report should be faxed to the referring doctor. The clear sentiment in either document is that urgent and/or unexpected findings were to be the subject of a telephone call to be made from the attending radiologist to the referring doctor. Neither of the policy versions define what is urgent, unexpected or sinister. The policy echoes the Accreditation Standards for Diagnostic and Interventional Radiology promulgated by the Royal Australian and New Zealand College of Radiologists wherein it is stated that '*If there are urgent and significant unexpected findings, the radiologist shall use reasonable endeavours to communicate directly with the referrer or an appropriate representative who will be providing clinical follow-up. A record of actual or attempted direct communication is appropriate*'[20].

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[18] Exhibit C19, Annexure HL5
[19] Exhibit C19, Annexure HL6
[20] Exhibit C34, page 29, A.1.3.6 Urgent Reports

7.4. In his evidence Dr Ly was asked to explain the findings in Mr Mayell's chest X-ray. He said as follows:

> 'The shadows or the opacity that I see on the lungs are findings that we look for on the chest X-ray. Based on experience, based on the appearance of it, there are certain possibilities. It's not 100% accurate findings but it is the most likely, the one that favours the most likely finding on the chest X-ray. The potential of aspiration was raised given the provided clinical information on the request form of regurgitation. It's to raise up a possibility for the doctor as a consideration, just giving additional help in the assessment of the patient.' [21]

It is clear from that answer that the finding of pneumonia was to all intents and purposes definitive, but that given the clinical information, aspiration pneumonia was raised as a possibility for a doctor to consider. I did not understand Dr Ly to be reporting dogmatically that this was an aspiration pneumonia. However, he was reporting in clear terms that Mr Mayell's imaging was highly consistent with pneumonia.

7.5. Dr Ly confirmed the evidence that I have already referred to concerning the times at which he reported. He stressed that Bensons relied on the referring doctor to have a prompt system of follow up on results. He also referred to the fact that reports are also made available to the hospital either through facsimile or email. He said that he disagreed with the proposition that under the red flag policy there had been a requirement for him to do anything further by way of directly contacting the referring doctor. He said that to do so was not his usual practice. He said that he believed it was not necessary for him to contact a referring doctor because pneumonia is a common radiological finding and not an unexpected finding on a chest X-ray. He said:

> 'In my opinion, when a doctor requests for a chest X-ray, the finding of pneumonia is one of the findings that you are looking for, almost always on a chest X-ray. I do not routinely call referrers for the chest X-ray. As alluded to, the immense pressure and workload that the radiologist goes through, it is not possible to call - sorry, it's not practical to call referrers for results.' [22]

He added that when a chest X-ray is ordered and the radiologist identifies pneumonia, there is a high chance that the referring doctor is worried about that illness or is looking for it, and that it was his job as radiologist to confirm it[23]. The difficulty with that approach is that although there had been a request for a chest X-ray of Mr Mayell, the

[21] Transcript, page 426
[22] Transcript, page 429
[23] Transcript, page 432

finding of pneumonia in his case was not one of the findings that the referring doctor was looking for. In this case it was plain that the referring doctors, Dr Stewart and Dr O'Hagan, were not looking for pneumonia. This seems to be abundantly evident from the clinical information that was within the request form. The clinical information on the request form was consistent with an investigation into abdominal pathology, and the chest X-ray in particular was ordered by Dr O'Hagan to investigate whether free gas existed beneath the diaphragm. There was nothing on the form to suggest that a chest X-ray had been requested with the possibility of pneumonia in mind.

7.6. Counsel assisting, Ms De Palma, asked Dr Ly whether, in the context of this case where subacute bowel obstruction was the condition that was being considered, he accepted that a finding of pneumonia was in fact unexpected. Dr Ly agreed that in a case where the referring doctors were querying subacute obstruction*, 'then yes it would potentially be clinically unexpected.'* [24] Asked further whether he agreed therefore that he should have contacted the general practitioner, he said:

> 'In hindsight, with all the available information, that may have been helpful to the clinical understanding of the management.' [25]

7.7. Dr Ly had not determined that the finding of pneumonia in Mr Mayell's case was an unexpected finding that required immediate notification of a referring doctor by telephone. He relied on the referring doctor to have processes in place such that ought to have enabled the referrer, on a Tuesday, to have been made aware of the findings. There is no evidence that Dr Ly knew that Dr Stewart's rooms would be closed and unattended on a Tuesday. He could not have been expected to anticipate that, but the fact remains that Benson's own policy dictated that Dr Ly should have endeavoured to contact either Dr Stewart or the doctor on duty at the Millicent Hospital to inform them of the unexpected finding of pneumonia. I so find.

8. <u>The evidence of Dr O'Hagan</u>

8.1. I have already referred to how Dr O'Hagan came to be working at the Millicent Hospital. Dr O'Hagan gave oral evidence.

8.2. Dr O'Hagan told the Court that on 16 September 2014, which was the day that she ordered the X-rays for Mr Mayell, she examined Mr Mayell and formed the view based

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[24] Transcript, page 441
[25] Transcript, page 441

upon that examination and upon his observations that were taken by the nurse, including a urinalysis, that Mr Mayell was suffering from dehydration. Although he was moderately unwell looking, he was not febrile, tachycardic or tachypneic and his blood pressure was on the low side of normal (it was 97 as seen) and that his oxygen saturations were reasonable for him. He had a clear chest. She did note that his abdomen was soft and non-tender and that this was not consistent with subacute obstruction. She did not think that he had an acute abdomen at that time[26]. I accepted her evidence that she did not see any hard copy of the X-rays that had been carried out at Bensons that day. She told the Court that if she had been placed in possession of the X-rays she would have examined them. She said that she would have been able to identify obvious changes in the lungs and in particular would have been able to detect pneumonia if it was obvious on the X-ray[27]. Dr O'Hagan told the Court that at about 10pm that evening she read the X-ray report relating to Mr Mayell and endorsed it in the manner that I have already described. Asked for her interpretation of the X-ray report she said:

> 'That the changes on the chest X-ray indicate pneumonia or potentially aspiration.' [28]

Asked by her counsel, Ms Cliff, as to what if anything she did in relation to Mr Mayell when she saw the result of the X-ray, Dr O'Hagan responded that she had believed that Mr Mayell was not significantly unwell at the time of discharge and that she had been reassured that he was going to be followed up by his general practitioner the next day[29]. Prior to seeing the X-ray report, she had not given any thought to a diagnosis or differential diagnosis of pneumonia or aspiration pneumonia during the course of that day. Dr O'Hagan also said that her understanding at the time had been that she had been '*just there to facilitate an investigation that the general practitioner would have wanted*'[30]. She said that she had no appreciation that the X-ray results would somehow become her responsibility. She said:

> 'I just didn't appreciate that I was supposed to follow it up and that the result would come to me. It was still my understanding that the patient was still going to be followed up and managed by the GP that knew them well.' [31]

[26] Transcript, page 308
[27] Transcript, page 313
[28] Transcript, page 316 – Aspiration meaning aspiration pneumonia
[29] Transcript, page 318
[30] Transcript, page 319
[31] Transcript, page 319

I have rejected Dr O'Hagan's characterisation of her role as something of a mere facilitator. To my mind Dr O'Hagan had a responsibility to act upon the X-ray report. It was not too late for the Mayells to have been phoned and asked to come back to the hospital or to go direct to Mt Gambier, either by ambulance or private vehicle.

8.3. In her evidence-in-chief Dr O'Hagan was asked by her counsel why she had not earlier contacted Bensons to ascertain the result of the X-ray and had done so while Mr Mayell was still at the hospital, remembering of course that the result was in at that time. To this Dr O'Hagan said that she had not given any thought to calling Bensons because she had not been thinking that there was a problem with Mr Mayell's chest. When she had assessed him on the afternoon of 16 September 2014, his chest had been clear and there was no respiratory distress. She reiterated that the chest X-ray had been ordered to investigate whether there was air under the diaphragm, a matter associated with abdominal pathology. Dr O'Hagan added that in hindsight she wished she had chased up the result from Bensons.

8.4. Dr O'Hagan was cross-examined extensively by all counsel including counsel assisting Ms DePalma. Regarding the events of 16 September 2014 Dr O'Hagan told Ms De Palma that she would have been capable of identifying moderate to extensive air space and opacity in the right lower lobe and to a lesser extent the right middle lobe. If she had detected such pathology she said that Mr Mayell would have been admitted to hospital that afternoon. However, it must be remembered that the X-rays themselves were not made available to Mr or Mrs Mayell and therefore not made available to Dr O'Hagan. However, there seems little doubt that if Dr O'Hagan had read the radiology report that had stated that the imaging was consistent with pneumonia, it would have prompted her to initiate antibiotic therapy that afternoon. In fact Dr O'Hagan said that if the abnormality had been revealed to her on 16 September 2014, at that juncture she may have favoured a diagnosis of community acquired pneumonia as distinct from an aspiration pneumonia, particularly having regard to the fact that in her eyes Mr Mayell was stable at that time. Accordingly, she said that she may have ordered the necessary antibiotic therapy for a community acquired pneumonia.

8.5. Dr O'Hagan agreed with her counsel that on the afternoon of Tuesday 16 September 2014 further blood pressure readings should have been undertaken prior to discharge[32]. It will be remembered that Mr Mayell's blood pressure was low (97) on that day.

8.6. Dr O'Hagan also told the Court that she had not applied her mind to whether or not Mr Mayell's dehydration, as she thought it to have been, was a sign of something more sinister[33].

8.7. Regarding the events of 17 September 2014 Dr O'Hagan told the Court that it had been her understanding that Mr Mayell had been transported by ambulance to Millicent Hospital in the first instance with the intention that he be transferred to the Mount Gambier Hospital. She agreed with her counsel that Mr Mayell needed treatment before he could be on-transferred[34].

8.8. Dr O'Hagan agreed that Mr Mayell's triaging at Category 4 on 17 September 2014 was not appropriate. She believed that a more appropriate level would have been Category 2.

8.9. Dr O'Hagan agreed that on 17 September 2014 many of Mr Mayell's vital signs were abnormal. Dr O'Hagan told the Court that the rapid onset of symptoms and his change in condition suggested that something acute had happened since she had last seen him. She was asked by her counsel what her diagnosis had been and she said '*my working diagnosis at that stage was aspiration pneumonia*'[35]. She was asked on what basis she had formulated that working diagnosis. To this Dr O'Hagan said that she had been influenced by the chest X-ray report, by Mr Mayell's deterioration, by his background history of regurgitation and vomiting and the fact that the general practitioner, Dr Stewart, had discussed the matter with her that morning and that he had thought the appropriate diagnosis was aspiration pneumonia as well. So Dr O'Hagan prescribed intravenous antibiotics of ceftriaxone and metronidazole. Dr O'Hagan explained the basis of that choice and it is clear that the choice was based upon the working diagnosis of an aspiration pneumonia as distinct from community acquired pneumonia.

8.10. The issue as to the timing of the administration of the antibiotics was naturally raised during the course of Dr O'Hagan's evidence, having regard of course to the fact that

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[32] Transcript, page 322
[33] Transcript, page 326
[34] Transcript, page 331
[35] Transcript, page 339

Dr O'Hagan admittedly made no note of the time at which she conducted her examination or of the time at which she made the note of her examination. Two matters that were of possible significance were the fact that at 3:10pm intravenous saline was commenced and that at 3:50pm bloods for a blood culture were collected and that both would have been undertaken specifically on Dr O'Hagan's order, certainly the latter. Dr O'Hagan explained that it is common practice to take a blood culture sample before antibiotics are given so that the result of the blood culture remains unaffected by the administration of therapeutic antibiotics.

8.11. In the final analysis Dr O'Hagan was at a loss to explain why it had taken approximately two and a half hours for antibiotic therapy to be started[36]. She agreed that having regard to Mr Mayell's working diagnosis, antibiotic therapy was an inevitable measure and one that therefore should have been started as soon as possible. She agreed that as soon as possible was not shortly after 4pm.

8.12. At the time of this Inquest Dr O'Hagan was aware that Mr Mayell had ultimately been diagnosed with a community acquired pneumonia caused by Legionella and had not been suffering from aspiration pneumonia. She was therefore asked about the allegation that wrong antibiotic therapy had been prescribed. To this Dr O'Hagan said that at the time she had prescribed a broad spectrum antibiotic based upon the working diagnosis of aspiration pneumonia. She had not been thinking of Legionella at that time. Dr O'Hagan also said that she did not believe that Mr Mayell had been suffering from septic shock on the afternoon of 17 September 2014, but in cross-examination by Ms De Palma she stated that it had occurred to her that Mr Mayell might have sepsis and she accepted that although her working diagnosis had been aspiration pneumonia, he could well in fact have been suffering from a community acquired pneumonia. Dr O'Hagan also accepted that the antibiotics that she administered were not appropriate for a community acquired pneumonia as she was leaning towards aspiration pneumonia. In her evidence Dr O'Hagan insisted that her working diagnosis of aspiration pneumonia had been appropriate at the time having regard to the fact that the radiologist had not seen the patient himself whereas she had seen the patient and had collated the relevant information in relation to him. She did agree in hindsight that given that the cause of the pneumonia was not actually known at that time, it would

[36] Transcript, page 350

have been safer to have administered antibiotics that also could have covered the possibility of community acquired pneumonia[37].

8.13. It is not possible to say whether the correct antibiotics at that late stage may have saved Mr Mayell's life. The truth is that the correct antibiotics should have been started the day before.

9. The statement of Sarah Christina Noad

9.1. Ms Noad is a medical radiation technologist, otherwise known as a radiographer. Ms Noad was the radiographer who was working at Benson's rooms at the Millicent Hospital on 16 September 2014. It was Ms Noad who took the abdominal and chest X-rays of Mr Mayell. Ms Noad now lives and works in New Zealand. Ms Noad was asked to provide a statement having regard to a suggestion made by the independent expert, Professor Kelly, that she could have or should have drawn the pathology illustrated by the chest X-ray to the attention of a doctor in the Millicent Hospital and have done so at a time while Mr Mayell was still present.

9.2. In her statement[38] Ms Noad indicates that she is trained to produce diagnostic images but was not qualified to assess or interpret radiological images to the point where she could provide a diagnostic report, provisional or otherwise. She suggests that this function is the domain of the radiologist. However, she would have been able to identify pathology across a variety of radiological images, for example an ankle fracture. As far as chest X-rays were concerned she was aware that there are a number of pathological causes for chest infection, including pneumonia, but that she was not qualified to differentiate between one pathological cause of a chest infection and another.

9.3. Ms Noad indicates in her statement that she recalls Mr and Mrs Mayell. She recalls the difficulty about the request form not specifying X-rays and the need for the form to be amended. She indicates that she performed the X-rays after the form was altered, but does not recall whether she formed any view based on the images that were produced. She indicates that at the time of the examination she believed Mr Mayell to be an outpatient of the hospital which meant that she would have only printed one set of

[37] Transcript, page 402
[38] Exhibit C31

images for delivery to Mount Gambier for assessment by the radiologist. Accordingly, Mr Mayell would not have been furnished with a copy of the X-rays on that occasion.

9.4. To my mind it would be a counsel of perfection to suggest that the technician, Ms Noad, should have identified a serious pathology within the lungs and have brought that to the attention of a medical practitioner within the Millicent Hospital. She was entitled to assume that the radiological images would be promptly examined by the radiologist at Mount Gambier, which they were, and that the results would be expeditiously made available to any medical practitioner who was in a position to act upon them. It will also be remembered that the X-rays had been reported on at a time while Mr Mayell was still in the Millicent Hospital and so there was still an opportunity for Mr Mayell to have been properly assessed in the light of the X-ray results and have been admitted to hospital that afternoon.

10. <u>The evidence of Professor Anne-Maree Kelly</u>

10.1. Professor Kelly provided two reports[39] to the Inquest and gave oral evidence.

10.2. In her reports Professor Kelly was critical of a number of aspects of Mr Mayell's management on both 16 and 17 September 2014. Professor Kelly repeated those criticisms in her oral evidence.

10.3. In her reports Professor Kelly suggested that the reporting cycles exhibited in respect of the X-rays taken on 16 September 2014 were too slow and potentially risked delayed treatment for patients. In particular, Professor Kelly suggested that there was a responsibility placed upon the radiographer to have noted that Mr Mayell looked quite unwell and that the chest X-ray was significantly abnormal. I am not certain that this criticism is warranted having regard to the radiographer's position in this exercise and to the fact that the radiologist Dr Ly was able to report the results at a time when Mr Mayell was still in the hospital. However, the observation that the reporting cycle was in this case too slow is a valid one in the Court's opinion.

10.4. As to the treatment at the Millicent Hospital on 16 September 2014, Professor Kelly raised a number of matters including that the potential significance of Mr Mayell's low blood pressure was not fully appreciated and that further investigation, consisting for example of blood tests, should have been undertaken to ascertain the cause of that. She

[39] Exhibits C27 and C27a

suggested that it was more likely than not that intravenous therapy would have been required with monitoring of blood pressure at regular intervals to determine whether or not Mr Mayell was deteriorating. Professor Kelly also opined that Dr O'Hagan should have contacted radiology to determine whether the X-rays showed anything significant. In short, she expressed the opinion that Mr Mayell should have been admitted to hospital on 16 September 2014 for intravenous fluid therapy and appropriate antibiotics for treatment of his pneumonia once it was reported and understood.

10.5. Regarding the events of 17 September 2014, Professor Kelly noted that it was contemplated that Mr Mayell's destination for definitive treatment was the Mount Gambier Hospital. She suggests that it would have been preferable for Mr Mayell to have been transferred directly to the Mount Gambier Hospital where it was possible to provide a closer observation and higher level of care. That is obviously so, but I do not believe the decision to take Mr Mayell in the first instance to Millicent Hospital should have made any practical difference in this case, provided of course that Mr Mayell was properly treated at Millicent.

10.6. In her reports Professor Kelly points out that the antibiotics prescribed by Dr O'Hagan were not those recommended for severe community acquired pneumonia, but that the treatment given was appropriate for aspiration pneumonia. Professor Kelly indicated in her report that aspiration pneumonia was not consistent with Mr Mayell's clinical presentation which was much more consistent with community acquired pneumonia. As will be seen, Professor Kelly expanded upon this in her oral evidence. She pointed out in her report that the failure of Dr O'Hagan to prescribe antibiotics relevant to Legionella resulted in several hours of further delay in the administration of appropriate antibiotic treatment.

10.7. As to the question of Mr Mayell's prognosis, Professor Kelly cites statistical information concerning mortality from severe sepsis in cases where a delay to antibiotic treatment had occurred. She indicated that it has recently been shown that a delay in antibiotic treatment of greater than six hours results in an approximately 10% increase in mortality in patients with severe sepsis. She indicated that mortality increases steadily after the first hour of delay. She expressed the opinion that on 16 September 2014 Mr Mayell had features suggestive of severe sepsis. However, she suggests that if Mr Mayell had received appropriate fluid therapy and antibiotics for severe

community acquired pneumonia on that day, progression to septic shock might have been avoided and his chances of survival would have been considerably improved.

10.8. I turn to Professor Kelly's oral evidence which was extensive. Professor Kelly expanded upon the observations that she had made in her reports. Regarding the events of 16 September 2014 Professor Kelly told the Court that the fact that Mr Mayell consumed the bulk of the litre of water that had been given to him did not alter her view that Mr Mayell in reality required admission for intravenous therapy. She pointed to the fact that Mr Mayell presented with very low blood pressure of less than 100 (it was 97). She pointed out that in a person of Mr Mayell's age the possibility that the low blood pressure was a reflection of shock needed to be considered, particularly when it was observed by Dr O'Hagan that Mr Mayell was moderately unwell and that according to his wife his ability to walk and perform his basic activities was significantly limited. Added to that was the fact that there was no evidence that Mr Mayell's blood pressure in anyway improved prior to his discharge from the Millicent Hospital. I note that there is no evidence that Mr Mayell's blood pressure was taken after it had been taken at 12:50pm.

10.9. Regarding the events of 17 September 2014, and in the light of the X-ray report, Professor Kelly expanded upon her opinion that Mr Mayell was given the incorrect antibiotics at Millicent Hospital. She stated:

> 'Mr Mayell had contracted a pneumonia as an independently-living person in the community. He did not have significant risk factors for aspiration pneumonia which is recorded as a potential cause, and only a potential cause, on the X-ray report, that is usually occurs with people who have trouble controlling their swallowing, such as people who have had stroke or people that are intoxicated for example whose conscious state is impaired and their reflexes are impaired, or people with other neurological conditions. Although Mr Mayell had been having some vomiting, vomiting of itself would not be considered to be a high risk factor for aspiration. I think what happened here is that there was an assumption that it was aspiration because it was mentioned on the radiology report, whereas it was actually much, much, much more likely that this was a community-acquired pneumonia, which requires subtly different treatment but treatment that does cover legionella which treatment for aspiration pneumonia does not.' [40]

In addition, Professor Kelly pointed out that the X-ray report did not definitively indicate that Mr Mayell was suffering from aspiration pneumonia. It simply stated that this was a possibility. In any case Professor Kelly was of the view that the two doctors

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[40] Transcript, page 573

in question, being general practitioners, still had responsibility to themselves reconsider whether aspiration pneumonia was truly viable in the patient even if they thought aspiration was the preferred diagnosis. Professor Kelly said that if appropriate consideration had been given in that regard, one would have concluded that aspiration pneumonia was not at work in Mr Mayell. Furthermore, aspiration pneumonia is actually a very rare condition whereas community acquired pneumonia is a more common condition. Professor Kelly stated, as she had in her report, that the administration of erythromycin to cover an atypical bug such as Legionella had been required and that this was not given until Mr Mayell was transferred to Mount Gambier. She said:

> '.. it was the erythromycin that was delayed and unfortunately that was the one that was going to be active against the legionella.' [41]

Professor Kelly suggested that Mr Mayell would probably not have derived any benefit at all from the administration of the antibiotics that he was given at the Millicent Hospital.

10.10. On the question of the timing of the administration of antibiotics, the delay of several hours after the referral from Dr Stewart in Professor Kelly's view had increased the likelihood of mortality. She reiterated the statistical data about that issue. Of course, in this case the delay was actually greater than that in that it spanned the time from which the X-ray report was available on the afternoon of 16 September 2014 to the time when the administration of appropriate antibiotics was commenced at the Mount Gambier Hospital on the evening of 17 September 2014 which was well in excess of 24 hours.

10.11. As to the prospect of a more favourable outcome had things been undertaken differently, Professor Kelly stated that if Mr Mayell had been admitted and treated on the afternoon of 16 September 2014 there was a reasonable prospect of a different outcome[42]. As to the likelihood of such an outcome, she stated that this was a very difficult question to answer given that Mr Mayell was aged over 80 years and had a number of significant comorbidities including heart disease. She again emphasised that minimisation of delay in antibiotic treatment was key to survival and that for each period of delay, mortality increases markedly. Accordingly, in her opinion there would

[41] Transcript, page 578
[42] Transcript, page 570

have been a reasonable prospect of Mr Mayell's survival if he had been treated earlier, but it was impossible for her to quantify the likelihood of a favourable outcome.

10.12. In cross-examination by Mr Keane on behalf of Country Health SA Local Health Network, Professor Kelly suggested that on 16 September 2014 in order for a doctor to convince him or herself that there was not a more serious issue going on with Mr Mayell, additional blood tests could have been performed the chest X-ray result ought to have been chased up. In this context she suggested that even without the X-ray result, a presentation which had involved shortness of breath, general unwellness with a mild temperature and low blood pressure for the patient's age, one would have been considering a chest infection as one of the potential causes of that presentation. Professor Kelly said that in pneumonia it is not uncommon for a chest examination to be normal for an extended period of time and for the signs of the condition to be subtle[43].

10.13. She also told Mr Keane that on 17 September 2014 community acquired pneumonia should have been at the top of the choices of types of pneumonia[44]. She suggested that the chance of Mr Mayell's pneumonia being an aspiration pneumonia was probably less than 10%[45].

10.14. In her oral evidence Professor Kelly also referred on more than one occasion to the perpetuation of clinical error from one medical practitioner to the next. She suggested that this was exemplified by Dr Stewart's conclusion, and its transmission to Dr O'Hagan, that the pneumonia in question was aspiration pneumonia. Professor Kelly suggested that the patient's diagnosis needs to be reviewed at all stages. In this regard it will be remembered that Dr O'Hagan herself suggested that her diagnosis of aspiration pneumonia was influenced by a number of matters, including her telephone conversation with Dr Stewart that morning.

10.15. Professor Kelly was vigorously cross-examined by counsel for Bensons, Ms Chapman SC, for the most part in respect of the issue as to whether Bensons had borne an obligation to draw Mr Mayell's X-ray findings to the attention of a medical practitioner more rapidly than what had happened here. In the course of Professor Kelly's cross-examination in respect of this issue she pointed out that imaging processes involve a partnership between the radiology service and the referring practitioners. This is

[43] Transcript, pages 601-602
[44] Transcript, page 602
[45] Transcript, page 602

particularly important when unexpected or urgent findings are made[46]. So while Professor Kelly agreed that there needs to be processes at the general practitioners end where findings are unexpected or potentially serious as was the case here, there is a responsibility upon the radiologist to ensure that the referring doctor actually knows about this by marking the report urgent or by ringing the surgery to inform the referring doctor that the doctor needs to look at it. She suggested that there was a need for the '*loop to be closed more quickly*'[47], the loop not simply ending when the email is delivered, but ending when the referring doctor knows about the finding. Professor Kelly's evidence on this point echoed the Benson's policy document to which I have already referred. She said that one has to be aware that not every doctor works at every clinic on every day and that when a finding is urgent there has to be a failsafe mechanism on both sides, meaning at the radiological end and at the general practitioner end. This is of course a reference to the fact that Dr Stewart's rooms were closed and unattended on Tuesday 16 September 2014.

10.16. Professor Kelly was cross-examined about her assertions that findings such as Mr Mayell's X-ray findings needed to be conveyed rapidly to the referring practitioner. Professor Kelly repeatedly emphasised that Mr Mayell's chest X-ray findings were unexpected and serious. Cross-examining counsel pointed out the frequency with which Bensons would encounter pneumonia on chest X-rays, suggesting in effect that it was a common finding. To this Professor Kelly answered that chest X-rays were typically undertaken to address existing chest symptomatology, such as shortness of breath, to ascertain whether pathology such as a chest infection was at work. On the other hand, chest X-rays were not typically ordered by a general practitioner for abdominal problems as was the case here[48]. Professor Kelly made this point to emphasise the fact that although findings of pneumonia might well be common, they were usually made in the context of an investigation into suspected pathology involving the lungs and were thus unsurprising and not unexpected, whereas a finding of pneumonia against a background of an investigation into suspected abdominal pathology could rightly be characterised as an unexpected finding that was serious, which required urgent attention, which might surprise the referring practitioner and

[46] Transcript, page 606
[47] Transcript, page 606
[48] Transcript, page 609

which for all of those reasons required urgent communication from the reporting radiologist to the referring doctor.

10.17. As to the urgency of Mr Mayell's findings, Professor Kelly pointed out that the X-ray indicated moderate to extensive air space opacity in two lobes of the lung and that this finding was relevant to the severity and outcome of the disease, matters which were not suspected by the ordering doctor. Professor Kelly said:

> 'So this was something that urgent treatment could have an impact on outcome, and a delay of 24 hours could have an impact on outcome as well. I have no problem with the efficiency of Benson's in turning the report around, it's about how the loop was closed to get that information to a clinician who could treat the patient. ' [49]

10.18. I had no hesitation in accepting Professor Kelly's evidence as to the need for Mr Mayell's X-ray results to have been conveyed by means other than simply relying on the routine transmission of the report by email and fax. I preferred her evidence to Dr Ly on this issue. I found that the chest X-ray results were unexpected and serious and that they required urgent attention.

10.19. As to the fact that Dr O'Hagan did in fact see the report on the evening of 16 September 2014, Professor Kelly suggested that she had a responsibility to follow that up with the patient[50]. She said:

> 'Given Mr Mayell's presenting condition earlier in the day, particularly the low blood pressure and the comment by Dr O'Hagan herself that he looked moderately unwell, and that unexpected finding, I would have preferred at least a phone call to see how he was going, if not a call back to the hospital for urgent treatment.' [51]

As to whether or not Dr O'Hagan could have derived comfort from the knowledge that the patient was seeing Dr Stewart the following day, Professor Kelly reiterated that she had concerns about the initial assessment of Mr Mayell at the hospital that day, in particular about the degree of dehydration and Mr Mayell's low blood pressure. She said:

> 'In the light of that and this finding, I don't think waiting another 12 hours or more to see the GP is easily justified.' [52]

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[49] Transcript, page 612
[50] Transcript, page 614
[51] Transcript, page 615
[52] Transcript, page 615

Indeed Professor Kelly was of the view that given the clinical observations that Dr O'Hagan had made, she should have contacted Bensons, who actually had a physical presence in the hospital, to obtain information about the X-ray results. Professor Kelly suggested that Dr Ly's findings were not subtle and that general practitioners have a level of ability to interpret X-rays[53]. I accepted Professor Kelly's evidence on this issue to that of Dr O'Hagan.

10.20. Finally, Professor Kelly commented upon the difficulty that exists in smaller country hospitals in identifying the very sick patient. She believed that in this case this was exemplified by the failure to place significance upon Mr Mayell's low blood pressure when he presented on 16 September 2014. She also suggested that clinical staff at these types of hospitals need access to programs that exist in other jurisdictions about early identification of patients with severe sepsis and the nature of appropriate interventions. As well, country hospitals on occasions have limited exposure to very sick patients. In this context Professor Kelly spoke about the lack of an appropriate response to the blood pressure that fell into the dangerous range at Millicent on 17 September 2014.

10.21. Asked as to what might prevent something like this reoccurring, Professor Kelly suggested that in country hospitals there needs to be robust processes in place to enable appropriate responses to presentations that involve presentations with vital signs outside the normal range. Secondly, she suggested that South Australia should consider running a state-wide project in relation to sepsis identification and treatment[54].

10.22. I accepted Professor Kelly's evidence in its entirety with one minor qualification and that relates to her opinion regarding the involvement of the radiographer, Ms Noad, as had been expressed in her original report. In the course of her evidence Professor Kelly was asked to consider the contents of Ms Noad's statement. She said the fact that Ms Noad had tendered advice to Mr and Mrs Mayell that if Mrs Mayell was concerned she should present to the Emergency Department which did in fact happen altered her view of the matter. Professor Kelly said that this tempered her opinion regarding the involvement of Ms Noad. In any event the evidence was reasonably clear that the expertise of radiographers to identify serious pathology would vary and there is no evidence to suggest that Ms Noad would automatically have identified the difficulty with the findings without the input of a radiologist.

[53] Transcript, page 616
[54] Transcript, page 624

11. Conclusions

11.1. The Court reached the following conclusions regarding the management of Mr Mayell on 16 September and 17 September 2014.

11.2. Dr Ly's radiological report that described the diagnosis of pneumonia should have been drawn to the attention of Dr O'Hagan and Dr Stewart as soon as the report was created. Benson's own policy mandated that urgent, unexpected or sinister medical imaging findings should be the subject of a telephone call to be made from the attending radiologist to the referring doctor. This policy had applicability to Mr Mayell's chest X-ray findings in that pneumonia, be it community acquired pneumonia or aspiration pneumonia, was an unexpected finding having regard to the clinical information that had been provided. It was also a finding that required urgent medical attention. This finding should have been conveyed by Dr Ly by telephone to Dr O'Hagan and Dr Stewart. It may be that Dr Stewart would have been uncontactable having regard to the fact that he was not at his practice on Tuesday 16 September 2014, but Dr O'Hagan would have been available. I find that the radiological findings could and should have been conveyed to Dr O'Hagan at a time when Mr Mayell was still at the Millicent Hospital.

11.3. I find that both Dr Stewart and Dr O'Hagan had an obligation to inform themselves of the result of the radiological examination at the earliest available opportunity and to take the necessary action in light of those results.

11.4. The reason why no person at the Beachport Medical Centre was made aware of the existence of the findings during Tuesday 16 September 2014 was that the medical centre was closed and unattended and that there were no effective procedures in place for urgent medical results to be conveyed to Dr Stewart or to any other medical practitioner who may have had an association with that medical practice. A recorded telephone message directed callers to the Millicent Hospital.

11.5. Mr Mayell's treatment at the Millicent Hospital on Tuesday 16 September 2014 was suboptimal in that:

- No proper regard was had to Mr Mayell's low blood pressure of 97;
- There was no further observation of Mr Mayell's vital signs after the recording of that blood pressure;

- Dr O'Hagan's diagnosis of dehydration was inadequate in that due consideration was not given to the possible explanation for that dehydration;
- The X-ray results were not chased up at a time while Mr Mayell was still at the hospital;
- Mr Mayell was discharged without the result of the chest and abdominal X-ray being known.

11.6. Dr O'Hagan viewed the radiological report for the first time at approximately 10pm on Tuesday 16 September 2014. This was unduly late. She should have seen it earlier. I do not know the reason why Dr O'Hagan saw the report at such a late stage on 16 September 2014. Dr O'Hagan took no action in relation to that report. She took no action because she was reassured by the fact that Mr Mayell was to see his general practitioner, Dr Stewart, the following day. No meaningful reassurance could have been derived from that fact having regard to the seriousness of the finding and the urgency of the required treatment. I find that Dr O'Hagan should have taken steps to notify Mr Mayell or his general practitioner of the X-ray findings that evening.

11.7. The diagnosis contained within the radiological report was not properly understood by Dr Stewart or by Dr O'Hagan. The differential diagnosis of aspiration pneumonia was but one possibility. Neither doctor gave adequate consideration to the possibility that Mr Mayell was suffering from a community acquired pneumonia. The report did not exclude community acquired pneumonia as the correct diagnosis. It is possible that Dr O'Hagan was unduly influenced in her assessment that Mr Mayell was suffering from aspiration pneumonia by Dr Stewart's opinion in that regard. Serious consideration should have been given by both medical practitioners to the very real possibility that the pneumonia from which Mr Mayell was suffering was a community acquired pneumonia that required a different antibiotic regime from that which was appropriate for aspiration pneumonia.

11.8. I find that the contents of the radiology report should have been seen and considered by Dr O'Hagan on the afternoon of Tuesday 16 September 2014. It follows that Mr Mayell should have been admitted to the Millicent Hospital that afternoon and the appropriate regime of antibiotic therapy commenced. I accept Dr O'Hagan's evidence that it is possible having regard to Mr Mayell's clinical presentation on that day, that she would have concluded that Mr Mayell was probably suffering from a community acquired

pneumonia and have ordered the appropriate antibiotic therapy for both typical and atypical organisms, including Legionella.

11.9. Mr Mayell was conveyed to the Millicent Hospital in the early afternoon of Wednesday 17 September 2014. I find that Dr O'Hagan was advised of the arrival of Mr Mayell at the hospital no later than 1:47pm. This was within a few minutes of Mr Mayell's arrival at the hospital. Mr Mayell was triaged as Category 4. This was an inappropriate category as it meant that Mr Mayell's being seen by a doctor could have been unduly delayed. The reality was that Mr Mayell needed to be seen by a doctor urgently having regard to the diagnosis of pneumonia and the fact that this diagnosis had been in existence for nearly 24 hours without any treatment being administered for it.

11.10. The Court is unable to identify the time at which Dr O'Hagan performed her examination of Mr Mayell at the Millicent Hospital on the afternoon of 17 September 2014. This is so because no proper record was made as to the time of that examination or as to the time at which Dr O'Hagan made her notes of the examination. Dr O'Hagan diagnosed Mr Mayell as suffering from aspiration pneumonia. She prescribed antibiotics that were targeted with that diagnosis in mind. Dr O'Hagan should have prescribed antibiotics that would have covered the typical and atypical organisms associated with a community acquired pneumonia. The antibiotics that Dr O'Hagan did prescribe, I find, probably did not have any therapeutic effect in respect of Mr Mayell's condition.

11.11. The antibiotic therapy was commenced shortly after 4pm on the afternoon of Wednesday 17 September 2014. A blood sample for culturing purposes was taken from Mr Mayell shortly before the commencement of antibiotic therapy. The Court has been unable to find whether Dr O'Hagan had much earlier that afternoon ordered antibiotic therapy and that the administration of that therapy had been delayed, or whether Dr O'Hagan's examination of Mr Mayell and the ordering of the antibiotic therapy had been delayed. Either way, the delay of approximately 2½ hours from the time of Mr Mayell's admission to the time of the commencement of antibiotic therapy was undue and suboptimal.

11.12. The treatment and management of Mr Mayell at the Millicent Hospital on the afternoon of 17 September 2014 was suboptimal in that:

- Nursing observations of vital signs were not carried out at appropriate intervals, or were not recorded at appropriate intervals if carried out;
- The administration of the antibiotic therapy was unduly delayed;
- Dr O'Hagan's fixation on a diagnosis of aspiration pneumonia was inappropriate and she should have given due consideration to the possibility that Mr Mayell was suffering from a community acquired pneumonia from typical or atypical organisms;
- The antibiotic therapy that was ordered and commenced was the wrong antibiotic therapy. The therapy should have covered community acquired pneumonia including for atypical organisms, including Legionella.

11.13. Having regard to Mr Mayell's age and his many comorbidities, one cannot be certain as to whether earlier and more appropriate antibiotic therapy commenced on the afternoon of Tuesday 16 September 2014 would have prevented his death. However, the Court finds on the balance of probabilities that his chances of survival would have been greater had that been the case.

12. Recommendations

12.1. Pursuant to Section 25(2) of the Coroners Act 2003 the Court is empowered to make recommendations that in the opinion of the Court might prevent, or reduce the likelihood of, a recurrence of an event similar to the event that was the subject of the Inquest.

12.2. The Court directs these recommendations to the attention of the following entities insofar as those entities might be affected by any particular recommendation, namely SA Health, Country Health SA Local Health Network, South Australian Ambulance Service, the Millicent and District Hospital and Health Service, the Mount Gambier and Districts Health Service, the Beachport Medical Centre, Benson Radiology, the Australian Medical Association, the Royal Australian College of General Practitioners,

the Royal Australian and New Zealand College of Radiologists and the Australian College of Rural and Remote Medicine:

1) That SA Health, Country Health SA Local Health Network and the South Australian Ambulance Service come to a clear and mutual understanding with regard to the appropriate hospital to which a patient in the South East of South Australia should be transferred having regard to the patient's clinical circumstances;

2) That the Millicent Hospital ensure that there are appropriate procedures in place in respect of:

    a) the identification of the deteriorating patient;

    b) the carrying out of regular clinical observations and the recording of the same, regardless of whether or not continuous monitoring is in existence in respect of a patient;

    c) appropriate and accurate triaging processes that have regard to an already existing diagnosis in a patient and the patient's presentation upon arrival at the hospital. It is to be noted in this particular case that it was not as if Mr Mayell arrived at the Millicent Hospital on 17 September 2014 without a working diagnosis. His working diagnosis was plainly evident;

    d) that important radiological and pathological results be drawn to the attention of a medical practitioner as soon as they are received at the hospital by whatever means of transmission;

    e) that colour coded observation charts are routinely used in the Emergency Department of the Millicent Hospital;

    f) that there are robust processes available that will enable rapid and appropriate response in the case of patients whose vital signs are outside the normal range.

3) That SA Health consider running a state-wide project similar to that which exists in New South Wales regarding sepsis identification and treatment, which project should be directed to all clinicians including nurses and medical practitioners. The Court understands that The New South Wales Clinical Excellence Commission has a website with numerous relevant resources;

4) That Benson Radiology remind all clinical staff including radiologists and radiographers that unexpected, urgent and sinister radiological findings should be the subject of an immediate telephone communication to the referring medical practitioner. As to whether a finding can be so characterised, the clinician should take into consideration the clinical information that accompanies the request for radiological imaging and the suspected diagnosis. In particular, pneumonia that is identified in radiological imaging in circumstances where pneumonia is not the suspected diagnosis ought to be characterised as an unexpected, urgent and sinister finding. I also direct this recommendation to the attention of the Royal Australian and New Zealand College of Radiologists;

5) That the practice manager of the Beachport Medical Centre ensure that there are robust and reliable means by which urgent radiological and pathological results can be drawn to the attention of a medical practitioner working in that practice, or to the attention of another medical practitioner who is in a position to act upon those results;

6) The Beachport Medical Centre should enter into a clear and robust understanding between that practice and the Millicent and Mount Gambier hospitals in relation to the transmission of important information regarding patients;

7) That the Picture Archival Communications System (PACS) be immediately installed at the Millicent Hospital so that radiological imaging can be electronically transmitted as between radiological service providers such as Benson Radiology and the Millicent Hospital;

8) That medical practitioners be reminded that a patient's differential diagnosis should be independently re-evaluated whenever a different medical practitioner examines and assesses a patient.

Key Words: Legionella bacterium; Incorrect Diagnosis; Country Areas Medical Services

In witness whereof the said Coroner has hereunto set and subscribed his hand and

Seal the 7th day of April, 2017.

Deputy State Coroner