STATE CORONER'S COURT
OF NEW SOUTH WALES

Inquest:	Inquest into the death of Peter SMITH
Hearing dates:	**9 August 2019 and 25 October 2019**
Date of findings:	**25 October 2019**
Place of findings:	Coroners Court, Cooma
Findings of:	Magistrate Michael Antrum
Catchwords:	CORONIAL LAW – cause and manner of death, adequacy of care, supply of CG4+ gas cartridges, transfer to tertiary hospital, recommendations
File number:	2018/00042435
Representation:	Counsel Assisting the Coroner **Sergeant Ben Hart** Solicitor for Family **Mr Yevgeny Bagrin** (Slater & Gordon) Solicitor for Southern NSW Local Health District **Ms Caroline Blair** (Makinson d'Apice Lawyers) Barrister for Southern NSW Local Health District **Mr Ben Bradley** (Greenway Chambers) Solicitor for Dr Human **Mr Ren Li** (Avant Law)
Non publication order:	**Not applicable**

Findings:	Identity: The person who died is Peter Smith. Date of Death: Peter Smith died on the 6 February 2018. Place of Death: Peter Smith died at Cooma Hospital. Cause of Death: Peter Smith died from gas gangrene with an antecedent cause of Clostridium septicum septicaemia. Manner of Death: The manner of death is from natural causes, however the manner in which the infection entered Mr Smith's body is unknown.
Recommendations:	To: The Minister for Health **That New South Wales Health review its supply and inventory systems in District hospitals to ensure that stocks of all necessary diagnostic and medical supplies are maintained at levels, at all times, to meet anticipated need. The review should consider whether existing systems are vulnerable to error, and introduce where necessary clear guidelines around monitoring, prescribed stock level trigger points for reordering, and periodical audits of stock and supply systems to ensure compliance with adequate stock levels. What is an "adequate stock level" will necessarily vary from hospital to hospital.**

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The Coroners Act in s81 (1) requires that when an inquest is held, the coroner must record in writing his or her findings as to various aspects of the death. These are the findings of an inquest into the death of MR PETER SMITH

Introduction

I have conducted an inquest into the death of Mr Peter Smith who died at Cooma Hospital on 6 February 2018, and I now set out the evidence I have considered, the submissions I have reviewed, and the findings that I make.

Pursuant to s27(1)(d) of the *Coroners Act* an inquest concerning the death of a person is required to be held if it appears to the coroner that the manner and cause of the person's death has not been sufficiently disclosed. I directed that this matter proceed to inquest after considering the report of forensic pathologist Dr Duflou and the concerns expressed by the next of kin and family of Mr Smith. I was satisfied that it was in the public interest to inquire further into the manner of Mr Smith's death.

I reiterate the comments I made at the outset of the inquest that it is not the purpose of an inquest to apportion blame, to perform a disciplinary function, or to act as a tribunal of guilt or innocence. This inquest proceeds purely under the *Coroners Act* and I am concerned only with the cause and manner of death. Of course, in the consideration of the evidence before this inquest I may make recommendations arising from my consideration of that evidence. In so doing I should be mindful of recommendations that may have been made in other fora, whether other regulatory regimes are better placed to consider reforms, and of developments that may necessarily occur or have occurred distinct from deliberations in the coronial jurisdiction. The coronial jurisdiction is not the salve for every social ill.

Similarly, it is important that coroners undertake their function in a sensitive but realistic fashion. Applying the perfection that can be achieved with hindsight is neither fair nor reasonable. At all times during the tragic events that preceded and surrounded Mr Smith's death, real people were involved in his treatment and care. Family members lived through the trauma of watching a loved one die within a relatively short space of time. I acknowledge that it is the family of Mr Smith who have lost most as a result of the events around 6 February 2018 at Cooma Hospital.

The affection and love for Mr Smith was perhaps best reflected by his family through the statement that was delivered by his wife Mrs Deslee Smith. That statement is exhibit 4 in this inquest and she notes the following:

"when we first lost Peter, so suddenly and tragically, we pulled together and tried to make sense out of what happened – it was a really hard time for each of us to begin to comprehend how quickly someone you love could suddenly not be around.

Mrs Smith's frustration was also set out in that statement when she noted on behalf of the family –

..at no point in any of these processes have we felt anyone truly wanted to provide us with answers, rather it seemed to us to be an attempt to hide information from us.

Background

Mrs Smith sets out her recollection of events with approximate timings in the family's statement. She says that on 5 February 2018 she arrived home from work around 5:30pm to find Peter feeling unwell and resting in bed. He explained he thought it may be a stomach bug with symptoms of nausea and gastro, and possibly a low-grade temperature.

At 9pm Peter had developed pain in his legs and over time took a combination of panadol and Nurofen. By midnight the pains in his legs had worsened and Peter took a shower to see if cool water would relieve the symptoms. After that hot water bottles were applied and a valium tablet was taken to try and relax the muscles.

At 3am he was still feeling pain in his legs and took a further panadol and nurofen.

At 4:31am Mrs Smith called Health Direct to see if they had any further suggestions. They recommended a visit to the hospital and offered to call an ambulance. Peter declined an ambulance and the Smiths agreed to go to the hospital under their own power. Mrs Smith recalls they arrived at Cooma Hospital emergency department around 445am and was later assessed by Dr Hong.

Mrs Smith recalls that she went home to change and got back to the hospital by 734. Sometime after then Mrs Smith was advised that the results of the blood test and says she was told it was a viral infection with lower than normal kidney function, and that there were further results pending. She recalled the nurses informing the doctor that Mr Smith was "a little tacky".

Mrs Smith recalls that between 8:30 and 8:45am Peter seemed to pick up a little and thought that he was hungry. Between 845 and 10am Peter began to deteriorate and Mrs Smith recalls the staff performing CPR on her husband.

Hospital records show that RN Connor examined Mr Smith and triaged him as a category two at 5am on 6 February 2018. R.N. Connor noted:

presents with severe leg muscle cramps
oh/a groaning, crying out in pain
onset of cramps 2100 intermittently
then from midnight cramps became constant and unmanageable
triaged two allocated because of extreme pain
unable to perform vital signs at triage due to patient's condition
Dr Hong was on call for the hospital on the morning of 6 February 2018. He says that during his telephone discussion with RN Connor the triaged category was not communicated to him and neither did he ask for that information.

Although Dr Hong did not attend in person until after 5:30am he explained that treatment was initiated within five minutes of when he had been contacted around 5 AM. Progress notes show that morphine was given at 5:13 AM and again at 5:28 AM.

As Peter's pain remained unmanageable Dr Hong prescribed ketorolac at 5:56 AM and gave a provisional diagnosis of muscular strain or cramp. At this point Mr Smith's vital signs were normal and at 7 AM Dr Hong ordered fentanyl to ease Mr Smith's leg pain.

I take the following chronology from Advocate Assisting Mr Hart's submissions which are accurate according to my reading of the clinical notes.

A diagnostic blood test was conducted at 6:52 AM and that test indicated elevated levels of creatinine kinase and his potassium levels were low. Dr Hong gave a differential diagnosis which was either dehydration or rhabdomyolysasis, a condition of muscle breakdown that can cause damage to the kidney. To treat the possible dehydration Dr Hong ordered 2L of saline and treatment for the rhabdomyolysasis was IV fluids and possible dialysis.

One of the concerns expressed in this inquest was the availability of a pathology service, which at Cooma did not provide an onsite service outside of business hours. There was however the availability of an on-call service but Dr Hong chose to wait for the onsite service to open. Dr Hong explained that given the timings they would not have made any difference with respect to Mr Smith. He noted that the pathology service would open at 8am and given that the on-call pathology would take 20 to 30 minutes to get back there was little advantage in utilising the on-call service.

Dr Hong indicated that on the indications that he had observed there was nothing to suggest that a venous blood gas test should be performed on Mr Smith. Further, and an issue that I will come back to, the hospital had only one venous blood gas test kit (an iStat kit) left in stock and this was to be used on another patient who had raised lactate levels and had been admitted around 3 AM. Dr Hong notes that in any event the symptoms did not indicate the need for a venous blood gas test.

Dr Hong says he left the hospital around 8 AM and prior to leaving he had a conversation with Mr Smith. At that time Mr Smith was talking and appeared to be pain free. Dr Hong said Mr Smith was joking around. Dr Hong gave a verbal handover to Dr Human which included information in relation to Mr Smith.

Dr Human arrived in the Cooma emergency department around 8:15 AM and spoke briefly with Mr Smith and Mrs Smith. At that time Mr Smith's vital signs were within normal range and some pathology results were available. These results suggested to Dr Human a viral illness however she was still waiting on the creatinine kinase results to determine renal function.

Dr Human continued to see other patients and returned when Mr Smith's condition deteriorated. Dr Human gave evidence that there was a low white cell count and neutrophil count and she had formed the opinion that this was likely to be a viral infection. At this point the results did not suggest to her that Mr Smith was suffering a bacterial infection.

Once the creatinine kinase levels were received they were recorded as being over 9000 which suggested that there was muscle breakdown occurring. Additional blood tests were ordered and ultimately Dr Human detected crepitus in Peter's legs. At this

stage it was realised that Mr Smith was critically ill and the first potential diagnosis of necrotising fasciitis was made.

At this point Dr Human contacted the admitting officer at Canberra Hospital for advice, and other doctors. She was advised to begin an intravenous antibiotic administration and to organise transport to Canberra Hospital.

Ultimately these efforts were unsuccessful and Mr Smith could not be resuscitated and he was declared deceased at 11am.

The clinical notes can be summarised as follows:

At 956 the clinical notes record a rapid decompensation and Mr Smith was moved to the resus bay. At 1021 lactate levels are of concern and Dr Sean Truter, Visiting medical officer attends
1029 cardiac arrest
1030 adrenaline phoned retrieval
1035 noradrenaline
1036 incubation
1050 cardiac arrest
11 o'clock deceased

Terms of reference

At the outset of this inquest I established its terms of reference:

1. What is considered a minimal supply of CG 4+ gas cartridges to be held by the emergency department at Cooma Hospital?
2. What systems are in place at Cooma Hospital in the event that CG 4+ venous gas cartridges deplete to critical levels?
3. What were the circumstances that led to there not being an available CG 4+ venous gas cartridge to conduct venous blood gas sampling on the morning of 6 February 2018?
4. Would Mr Smith's prognosis been different had venous blood gas sampling been able to be performed on the morning of 6 February 2018?
5. Would administration of intravenous antibiotics have changed Mr Smith's prognosis? If so, when should intravenous antibiotics have been administered?
6. When should Mr Smith had been referred and/or transferred to a tertiary hospital?
7. Was the sepsis pathway followed at any stage? If not, why not?
8. Was the care and treatment provided to Mr Smith at Cooma Hospital adequate in all the circumstances?

Evidence

The following persons gave evidence at this inquest:

1. Mrs Deslee Smith – Mr Smith's wife and next-of-kin
2. Dr Hong – Emergency Department doctor
3. Dr Human – General Practitioner
4. Ms Julie Mooney – District Director, Nursing, Midwifery and Clinical Governance Southern New South Wales Local Health District
5. Associate Prof Raftos – Emergency medicine specialist
6. Dr Hungerford – Critical care and Emergency medicine specialist

I have also received and considered the brief of evidence prepared by the New South Wales Police Force coronial law unit, and which was formally tendered in this inquest.

Pathology

I noted earlier the on-call pathology service was not utilised as Dr Hong gave evidence that the delivery time for that service would usually be 20 to 30 minutes at which time the on-site pathology service could be utilised.

The view expressed by the majority of doctors in this matter is that given the symptoms observed of Mr Smith there was no reason to refer the matter for on-call pathology review at an earlier stage.

On-call doctor

At the time of Mr Smith's death the emergency department was not staffed by a doctor at all times and Dr Hong was the "on-call" doctor on that date. The inquest was advised that this arrangement has now been changed so that there is a doctor available at the hospital 24 hours a day.

Supply of blood gas cartridges

CG4+ cartridges allow blood gas to be measured. They are a necessary item in District hospital inventories.

Ms Mooney's statement had an example of a typical inventory sheet as attachment 2 to her statement. The attachment is headed "Cooma emergency department daily checklist" and is for a period of time not relevant to the day on which Mr Smith died.

Evidence was given that one of the nursing staff would conduct a daily inventory and tick off the items once quantities and supplies had been checked.

This evidence was important because it will be recalled that even had the treating doctors determined to test blood gas levels that would not have been possible as at

the time there was only one cartridge left in hospital supplies and that was being kept for another patient who had already recorded elevated lactate levels.

The daily checklist includes a horizontal line headed “order I-stat cartridges” which I understand to be the relevant gas cartridges. I am certain that experienced nurses have the requisite knowledge as to what would amount to an adequate supply, but what is striking about the daily checklist is that for most of the items listed there, including the ordering of I-stat cartridges, no quantities are identified as either a sufficient supply, or as a trigger to order more supplies.

In evidence even Ms Mooney was having difficulty in identifying the number of I-stat cartridges per box and the precise number of venous gas cartridges that that would represent. Her statement in paragraph 14 as follows:

…the actual level of cartridges available for use at any one time fluctuates, depending on demand. It would be expected that an order would be placed for replacement cartridges when stock is reduced to around two boxes. It would be expected that either two or three boxes are requested per order.

In the emergency department, the usual practice for maintaining I-stat cartridges involves a daily assessment by nursing staff to take into account current stock levels, recent demand for testing and provides an estimate of future stock requirements.

Later Ms Mooney states that the trigger for reordering "is when stock levels are less than two boxes." Ms Mooney notes that the typical lead time from ordering to stock delivery can range from 1 to 4 business days. It was further noted that where stocks deplete to critical levels then stock can be borrowed from other facilities such as neighbouring hospitals or the 24-hour pathology service.

However Ms Mooney concludes "there should never be situation at the hospital where blood venous gas testing is not available, if indicated."

The uncertainties around what constitutes a depleted stock level, what might constitute a trigger, and the reliance on general nursing staff to identify when stock levels are low and reordering is required do not inspire confidence as to an appropriate system for what appears to be a critical tool for clinical assessment. While I appreciate that Ms Mooney states that the established process for checking stock levels has been reiterated to nursing staff, there is an opportunity to create a stronger system around ordering and inventory, and one that does not rely simply on the assessment of general nursing staff on a daily basis at some ill-defined time.

I can well imagine that on days where there are staff shortages, where staff are inexperienced in local procedure, or where there are other demands on time, that this manual and *ad hoc* system may lead to the very type of situation where no gas cartridge was available to use on Mr Smith, had it been required.

Clearly, in a modern hospital in any regional centre in New South Wales, this is a situation that should not have occurred.

It also strikes me as unusual that this type of inventory checking is, or was,

determined on a hospital by hospital basis. Certainly I can understand that different hospitals will have different needs, and will require higher and lower supplies depending on their geographical location and their population mix. Nevertheless, it should not be beyond NSW Health to devise a system that would apply at least on a State level so that in any hospital, depletion of an I-stat cartridge to a critical level does not occur. The Southern New South Wales Local Health District ultimately submitted, reiterating Ms Mooney's evidence, that an order is triggered when the level of CG4+ venous gas cartridges is reduced to two boxes however the manner in which the trigger operates was not elaborated upon or defined.

Southern Area Health submitted "the hospital has changed its practices to improve outcomes for other patients" in relation to CG4+ cartridges" and "the Court can have confidence that the systems now in place are robust and in accordance with existing systems adopted throughout the Southern New South Wales Local Health District."

At this point the Court does not have that confidence because whatever those "existing systems" are they were not articulated in any detail during this inquest. I am also left wondering why there was a local system at Cooma if there were other "existing systems adopted throughout the southern New South Wales local health District".

My recommendation will address this issue.

If any further persuasion were needed as to the efficacy or otherwise of this system it is noted that Cooma Hospital does not have a copy of the checklist from 6 February 2018.

Prof Raftos expressed the view that a venous blood gas test should have been conducted by 7 AM at the latest saying that "as a part of a normal emergency department assessment of the patient who is quite ill, as Mr Smith was, a blood gas should have been performed and if it were performed the lactate would have been quite high and that would have indicated to the doctors that there was something really nasty going on."

Given that the last CG 4+ gas cartridge was used on another patient at around 628 there would have been no gas cartridge at 7 AM to use. We also know that stock did become available again after 10 AM as it was used on Mr Smith after that time. As to how and when and from where that stock arrived, the hospital is unable to say and again this reflects a lack of rigour around supply methodology and systems.

It is the evidence of Dr Human that she would not have used the cartridge at the time prior to when Mr Smith's deterioration had become acute because there were no indicators for it.

Prognosis

In submissions to this Court the family submitted, through their legal representative, that a series of missed opportunities deprived Mr Smith of any chance of survival. It was also submitted that "Clostridium septicum has a documented mortality rate of 60% if recognised and treated appropriately", adding that "there are several

documented cases of survival in Australia" which points more at the rarity of that event than of prevalence.

The family refer to Prof Korman's observations (infectious diseases physician and medical microbiologist) which notes that mortality with respect to Clostridium septicum infection remains "very high greater than 60% to 100% with the majority of deaths occurring within the first 24 hours after onset."

Dr Korman observed:

..even if Mr Smith had presented directly to the Canberra Hospital (or another tertiary referral hospital), and the possibility of sepsis and the possibility of severe necrotising bacterial infection (had) been recognised early, appropriate intravenous antibiotics had been administered promptly and urgent surgical intervention been arranged, the chance of survival would have remained low with this rapidly progressive infection.

Dr Roberts, an emergency physician who has extensive experience in emergency medicine and ICU in large teaching hospitals in New South Wales noted that

"*Mr Smith had none of the features that would trigger the New South Wales health sepsis pathway. Mr Smith had none of the red markers for sepsis, such as fever or hypertension. Mr Smith was in pain and tachycardic, but this was consistent with recent history of physical exertion and muscle cramps.*

"*in my 33 years of clinical practice in emergency medicine and ICU in large teaching hospital and regional centres, I have not seen a case of Clostridium septicum presenting in this way deteriorating so rapidly."*
Dr Hungerford, emergency physcian observed:

in conclusion this is a very sad case of a patient who had a very rare condition; a condition where the patient's fate was probably sealed before he even arrived at the emergency department in Cooma and an outcome which I suspect would have been the same even if the patient had presented to a tertiary hospital and had been diagnosed the moment he arrived there.

Mr Bradley, acting for the southern New South Wales local health District, submitted:

even Professor Raftos, very much an outlier in his written reports, conceded under cross-examination that Mr Smith wasn't a typical presentation and was an extraordinary case."

It must be said that Associate Professor Raftos' views were often at odds with the other experts assembled in this matter. The principal points of distinction might be summarised as whether or not the symptoms were such that an earlier diagnosis should have been made, and whether there should have been an earlier referral to a tertiary hospital.

Under cross-examination however Professor Raftos agreed that the vital signs when they were tested were within the normal range. Under further cross-examination

Professor Raftos agreed that it was an extraordinary case, and an atypical presentation. He added "I can understand why they didn't because it was unusual." He noted that the pain had been relieved and that this would have "relaxed" the treating doctors. These concessions under cross-examination, while there are still points of distinction, go a long way to fortifying and endorsing the views of the other medical experts qualified in this inquest.

Submissions on behalf of the family which sought to reassert Professor Raftos' earlier position, while understandable, do not sit comfortably with the weight of opinion expressed in this inquest.

Dr Korman opined that even if a venous blood gas test had been performed it is unlikely that the result would have had a significant impact on the management of Mr Smith or the outcome. He disagrees with a conclusion that it is "not more likely that the serum lactate would have been elevated if measured at 6:30 AM." Associate Prof Raftos disagreed with that position in his report however it was submitted that his disagreement does not address the fact that Mr Smith was haemodynamically stable and that there were no clinical signs of sepsis at that time.

Dr Korman referred to data which was not attacked during the inquest to say that there is little research available on the susceptibility of flucloxacillin for clostridium species. Accordingly, NSW Health submits that the Court could not be satisfied that the earlier administration of flucloxacillin and gentamycin would have had any impact on Mr Smith's prognosis.

The overwhelming evidence in this matter is that the devastating infective process that had already gripped Mr Smith's body was not one that could easily have been reversed by invasive surgery or intravenous antibiotic administration.

Dr Hungerford wrote that "there was no reason to perform venous blood gases as there was no reason to suspect that the patient had sepsis. Had it been done sooner and increased lactate levels found sooner this would still not have indicated sepsis because none of the other features of sepsis such as increased heart rate, low blood pressure and the temperature were present."

It was the consensus of the experts that intravenous antibiotic administration would not have changed Mr Smith's prognosis. Professor Ashley Watson, staff specialist, said that even if the diagnosis was made earlier, which according to the experts was unlikely given the absence of symptoms, survival would have been unlikely."

Microbiologist Peter Newton said that "survival was zero; ideal treatment would be rapid surgical debridement, not just antibiotics, antibiotics can't get in due to the ischemia.

Infectious diseases expert and general physician Dr David Clarke said that Mr Smith's chances of survival were remote, even if he had presented earlier in the evening. He described the infection as one that an emergency doctor might experience once in a lifetime, and that reference to the rarity of this type of presentation and condition was one echoed by all of the medical experts.

Dr Clark was of the view that even if Mr Smith had been given penicillin at any time during the presentation it does not mean that that would have made any difference to the outcome.

Dr Roberts opined that the administration of antibiotics would not have made any difference to Mr Smith's prognosis and I have already referred to Dr Korman's reference to the mortality rate with respect to this type of infection.

Dr Korman disagreed that surgical debridement was an option – "based on the rapid progression to death and post-mortem findings of gas cyst formation in major internal organs (heart and liver), it is likely there would have been no chance of achievable surgical intervention."

The Court's own forensic pathologist, Dr Duflou opined on the question of early administration of antibiotics:

"*it very much appears that the patient had overwhelming infection at that time, and I suspect that irrespective of treatment his chances of survival would have been very slim indeed*."

The sepsis pathway

The sepsis pathway is a guide for medical and nursing staff, particularly those working within emergency departments, to identify the possibility of sepsis. The pathway refers to risk factors - signs and symptoms, and then requires, according to the document that I have, a further two yellow criteria. Those criteria include respiration rates, systolic blood pressure, heart rate and temperature amongst other things. If the symptoms and two yellow criteria are identified then it is suggested that a venous blood gas test should be performed. If that blood test then demonstrates what are described as red criteria then the patient has severe sepsis or septic shock until proven otherwise.

The evidence, but for the initial evidence of Prof Raftos, was that there were none of the indicators that would suggest a venous blood gas test should have been performed on Mr Smith on 6 February.

Dr Clark explained that even if Mr Smith had been given the antibiotics according to the sepsis pathway then "this hypothetical intervention would have made no difference at all to the outcome."

Despite Prof Raftos' evidence, pain is not in itself an indicator to commence the sepsis pathway. Dr Hungerford noted that doctors do not focus on one criterion but need to consider the package. Dr Hungerford also noted that the benefit of hindsight does not reflect the clinical realities for those working in real-time in real environments.

Mrs Smith believes that sepsis requires more attention, and that an increased focus on sepsis indicators may save someone else. The Southern New South Wales Local Health District has indicated that it has ramped up its education around sepsis, and

has provided further training to personnel on the sepsis pathway.

It is clear that the sepsis pathway is a document and procedure well-known to the medical community. It is the product of many years of research and clinical observation. It is beyond the scope of this inquest to suggest changes to that guideline.

Mrs Smith submitted that it was her belief that any reasonably competent doctor would have identified a bacterial infection, however, the weight of medical evidence suggests otherwise.

There was a point at which the sepsis indications did manifest and Mrs Smith refers to the actions of the nurse unit manager Ms Jo Caldwell. Mrs Smith says "without her action on the morning I fear that Peter would have simply passed unnoticed by those medical staff around him. I'd like to extend my thanks to Jo for making quick decisions, calls and commencing the sepsis pathway." It certainly is the case that the evidence in this matter demonstrates that Ms Caldwell was a bastion of strength in the emergency department that day, and that she acted decisively and with real concern for the health and condition of Mr Smith. I agree with Mrs Smith that Nurse Unit Manager Caldwell acted with great professionalism on that day.

Dr Hungerford agreed with Dr Hong there was no clinical indication to perform venous blood gas stating "there was no reason to perform venous blood gases as there was no reason to suspect that the patient had sepsis." The first indication of sepsis was the crepitus felt in Mr Smith's legs by Dr Human. This was a physical observation and not one reliant on any other assessment.

According to clinical notes the sepsis pathway was first initiated by registered nurse Joanna Giainaros. This was at a time of rapid deterioration in Mr Smith's condition.

Indeed the sepsis pathway had been followed, as Dr Robert notes "Mr Smith had none of the features when he presented. Dr Roberts says that the sepsis pathway should have been considered somewhere between 815 and 945 and that it was considered by Dr Human. Even so, at that point it could have no influence on the outcome.

Transport to tertiary hospital

Cooma is a town with a recorded population of around 7,000 people. It services a wider population, particularly the many visitors who visit this beautiful part of the world to enjoy the Alps just to the south.

It has a District hospital. The closest tertiary hospital, that is major hospital, is in the Australian Capital Territory, the Canberra Hospital. The Canberra Hospital is approximately 107 kilometres away.

Professor Raftos was critical about the timing of Dr Human's contact with the Canberra Hospital. This is in line with his view, which is not shared by the other experts, that serious bacterial infection should have been diagnosed by 7 AM. It is at that point Prof Raftos says that the hospital doctor should have consulted urgently

with the specialists on call at the Canberra Hospital. It was Associate Prof Raftos' view that contact should have been made with the Canberra hospital's intensive care unit at around 8 AM.

However Prof Raftos softened and indeed retracted those assertions in his oral evidence before the Court. He accepted that Mr Smith's case was extraordinary and he could understand the doctors performing the way that they did given the atypical presentation. Mr Smith's vital signs were normal and his pain had appeared to ease. Full blood results were still to be received.

Dr Korman noted that by 8 AM there were no clinical features to indicate sepsis and that as he was haemodynamically stable, consultation with the intensive care unit was not indicated. Dr Hungerford agreed – "there was no indication to do this (that is to refer him to a tertiary hospital) until sepsis was considered to be a possible diagnosis. This was not the case until the patient started to deteriorate and the doctor noticed crepitus in the legs. This was sometime after 9 AM."

Dr Roberts wrote that when Dr Human detected gas in the tissue of Mr Smith's legs the correct priority was to find help and to arrange for retrieval. Dr Roberts was of the view that radical surgery was the only hope of survival at that time. As the Southern New South Wales Local Health District observes, that is what occurred – once identification of gas was made, consultation commenced with a tertiary hospital. A transfer was arranged. By this stage however the infection was overwhelming and Mr Smith died shortly after.

Adequate level of care

Prof Raftos gave evidence as follows:

"look, you know, this – this is an extraordinary case, this isn't something that we would see at all commonly and it's a presentation of a person who didn't have a fever and didn't have any of the other vital signs which might suggest that he was seriously ill. But there were some features there that ought to have led the doctors in that direction."

The family have relied on that general assertion (amongst other things) to suggest that Mr Smith did not enjoy an adequate standard of care. They criticise Dr Hong for failing to take appropriate measures and missing opportunities to administer antibiotics. The evidence before this inquest does not support that conclusion.

The family also refer to NUM Joanna Caldwell's retrospective notes and as I have indicated earlier it does appear that NUM Caldwell took a leadership role once the rapid deterioration became obvious. It is clear that a number of actions that Dr Human took were at NUM Caldwell's request. However it cannot be suggested that Dr Human has failed to observe standard medical procedures, or that she has failed to administer appropriate treatment on the indications that are objectively identified before this inquest.

Southern New South Wales Health submit that its staff did all that was reasonable to diagnose and treat Mr Smith. They refer to the evidence and note that whatever the

treatment had been it would not have altered Mr Smith's prognosis.

For example references to a failure to consider the possibility of analgesics on fever do not create a significant concern with respect to the overall treatment of Mr Smith, and in any event, the weight of expert opinion was that the influence would be so minimal as to be clinically insignificant. Dr Hong noted that the medication taken by Mr Smith before arriving was sub optimal and therefore not clinically significant.

Dr Human did obtain a full blood count and was able to observe that the white cell count suggested a viral infection. The evidence before this inquest does not suggest that a bacterial infection would have been the automatic or only diagnosis at that time.

In final submissions the family have requested the Court to consider "the full extent of rhabdomyolysis". This is evidence submitted, not through any expert testimony, but in final submissions with reference to a single journal article without further qualification. Clearly it would be improper for me to consider that aspect on that basis alone.

Findings

Mr Peter Smith died on 6 February 2018 at the Cooma District Hospital, Bent Street, Cooma, at 11am. The cause of his death was gas gangrene with an antecedent cause of Clostridium septicum septicaemia. This was a naturally occurring disease however the precise manner in which the infection entered Mr Smith’s body is not known.

Recommendation

I note that Cooma Hospital now has a doctor on duty at all times. 24 hour on-call pathology has always been available to that hospital. Cooma Hospital has made changes to its checking stock levels and it is submitted that it has been brought into line with the rest of the Southern New South Wales Local Health District. I have referred to that aspect earlier in these findings.

I understand that the Clinical Excellence Commission has been in communication with Mrs Deslee Smith and has requested her permission to use Mr Smith's story as a case study for future instruction and development of appropriate identification and treatment of sepsis.

Mr Smith's atypical presentation and the rapid deterioration of his condition after being admitted to Cooma Hospital with some pain the evening before is understandably very distressing and confusing for the Smith family.

Australians do expect a high level of care from their hospitals, and they are entitled to receive a high level of care given the public investment involved. The extent of that care cannot be consistent across all hospitals. The reality is that resources in regional areas will not be of the same breadth and depth, nor will they have the same extent of specialist services that exist in the major metropolitan hospitals.

Nevertheless, there is always an expectation that assistance will be obtained and that care within the resources available will be of a suitably professional and competent nature. The evidence before this inquest, including that ultimately of Prof Raftos, qualified by the family, is that there were no material deficiencies in the care and treatment of Mr Smith by the Cooma Hospital.

I have come to the view, which is reflected in the recommendation, that the failure to have a CG4+ gas cartridge available, should it have been required, is unacceptable and requires review. Nevertheless, I accept the expert evidence that even if the test had been performed it would not have changed Mr Smith's prognosis.

While I know the family had hoped for more in the nature of reform and change as a result of their experience, I am satisfied that the sepsis pathway is the product of serious consideration by many senior health bodies and professionals and does not require amendment arising out of any of the evidence before this inquest.

This inquest cannot change the outcome. I return however to Mrs Smith's first submission and her wonderful description of Mr Smith:
"we have lost the beginning of, and life of every event or party. Peter's humour and bad dad jokes broke through all barriers and he always started the mischief – he always said someone had to do it so it may as well be him! He could carry out the best (and worst) practical jokes. Now it's awful quiet."

All interested parties have been given an opportunity to comment on the recommendation set out below. The Southern NSW Local Health District submits that the recommendation should not be made because, amongst other things, there is no evidence to suggest that inventory controls are a problem across the State. If that is so, then I am sure that any review will quickly come to that conclusion.

My recommendation is:

1. **That New South Wales Health review its supply and inventory systems in District hospitals to ensure that stocks of all necessary diagnostic and medical supplies are maintained at levels, at all times, to meet anticipated need. The review should consider whether existing systems are vulnerable to error, and introduce where necessary clear guidelines around monitoring, prescribed stock level trigger points for reordering, and periodical audits of stock and supply systems to ensure compliance with adequate stock levels. What is an "adequate stock level" will necessarily vary from hospital to hospital.**

Michael Antrum
Coroner