CORONERS ACT, 2003

SOUTH  *AUSTRALIA*

FINDING OF INQUEST

An Inquest taken on behalf of our Sovereign Lady the Queen at Adelaide in the State of South Australia, on the 25th and 31st days of May 2010 and the 1st, 2nd, 3rd, 4th, 7th days of June 2010 and the 6th day of December 2010, by the Coroner's Court of the said State, constituted of Mark Frederick Johns, State Coroner, into the death of Irene Thelma George.

The said Court finds that Irene Thelma George aged 84 years, late of 8 Hounslow Avenue, Mile End, South Australia died at the Royal Adelaide Hospital, North Terrace, Adelaide, South Australia on the 25th day of November 2007 as a result of septicaemia secondary to septic arthritis of the left knee. The said Court finds that the circumstances of her death were as follows:

1. Introduction and background

1.1. Mrs George was 84 years of age when she died on 25 November 2007 in the Royal Adelaide Hospital (RAH). Four days previously she had been admitted to the Ashford Hospital Emergency Department with a swollen and painful left knee. As there were no beds available at Ashford, Mrs George was transferred to Parkwynd Private Hospital (PPH) on 21 November 2007 and remained there until close to midnight on 24 November 2007 when she was transferred to the RAH following a cardiac arrest. During the period she was in PPH her condition was not properly appreciated and no diagnosis was made of the condition from which she was suffering, namely septic arthritis of the left knee. As a result, she was affected by a generalised septicaemia and died. An autopsy was conducted by a forensic pathologist who gave the cause of death as septicaemia secondary to septic arthritis of

the left knee, and I so find[1]. I heard evidence from the Medical Director of the Ashford Hospital Emergency Department who saw Mrs George on the morning of 21 November 2007. I also heard from nursing staff of PPH and from Drs Atkinson and Wong who attended upon Mrs George while she was at PPH. An expert overview was obtained for the Court from Professor David Gordon, Head of Department, Microbiology and Infectious Diseases, Flinders University and Professor Gordon also gave evidence at the Inquest.

1.2. Dr Quaini is the Medial Director of the Emergency Department at Ashford Hospital. He was on duty at the Emergency Department on 21 November 2007 when Mrs George arrived by ambulance. She was triaged at Category 3 by the nursing staff who noted that she was suffering from left knee pain but with no history of injury that day. She was very distressed and calling out, although she was able to move her left leg. She informed staff that the knee had become acutely painful that morning. She gave a history of having a left knee arthroscopy some years prior. Her temperature, pulse, respiration and blood pressure were all normal. She was accompanied by her daughter. Dr Quaini saw Mrs George within 15 minutes of her arrival. He noted that she had a swollen left knee but that it was not hot. He thought that she was dehydrated and organised fluids. He arranged for a complete blood picture to be obtained and a chest and knee X-ray. He also arranged for a midstream urine sample to check for urinary tract infection. The blood test was returned approximately 1 hour later[2] and recorded a white blood count only just above the upper limit of normal. Dr Quaini said that he would have expected that the white blood count would have been significantly higher than this if Mrs George had been suffering from a significant infection at that time. Similarly, other indicators on the blood picture, including the ESR and CRP indicators, were not suggestive of a significant infection. The chest X-ray was returned as normal and the X-ray of the left knee showed osteoarthritic changes and loose bodies with a small amount of effusion in the joint. Dr Quaini said that such an effusion could be indicative of inflammation, arthritis or infection. He made a provisional diagnosis of a traumatic injury to the left knee. Dr Quaini said that he considered the possibility of septic arthritis which was why he arranged for the blood picture to be taken. However, taking into account the results of the blood picture and the fact that Mrs George was not febrile, he excluded septic arthritis from

[1] Exhibit C9
[2] Exhibit C5, page 21

his diagnosis. Dr Quaini commented that the knee may have been injured with a stumble or twist that may not have been obvious to Mrs George at the time. He prescribed Morphine for pain relief, Midazolam to reduce Mrs George's anxiety and IV fluids. He reported the admission to Mrs George's general practitioner and then checked whether it would be possible to admit her to Ashford, bearing in mind that she lived alone, had a very sore knee, was unable to weight-bear and was dehydrated. He considered that she required hospital admission but there was no bed available at Ashford and, after considering another option, he found that PPH would receive Mrs George and furthermore that a physician, Dr Wong, was available to assume responsibility for her care at that hospital. Dr Quaini spoke by telephone with Dr Wong and provided him with a briefing. Dr Wong agreed to accept responsibility for her care.

1.3. Dr Quaini very frankly acknowledged that the best way to establish whether a septic arthritis was present within the left knee would have been to aspirate the left knee, a process which he could have undertaken. However, at that time he felt that there was not a sufficient indication for that to be done[3].

2. Parkwynd Private Hospital

2.1. Mrs George was transferred to PPH on the afternoon of 21 November 2007 under Dr Wong's care. A nursing note at 1650 hours indicates that she arrived sometime before that. At that time she was noted to have a very painful left knee and to be febrile with a temperature of 38°C but otherwise normal.

2.2. Mrs George was seen by Dr Wong sometime between 5pm and 9:30pm that day. Dr Wong examined Mrs George and took a history[4]. He noted that she had a two week history of increasing left knee pain, lived alone, was independent in her activities of daily living, had had no fall or injury to the left knee and was due to see Dr Greg Keane (orthopaedic surgeon) for review. She had attended at the Ashford Hospital as she was unable to weight-bear. On examination he found her left knee to be tender and swollen with a decreased range of movement. He ordered analgesia, orthopaedic review and placement of an indwelling catheter, should that be necessary.

[3] Transcript, pages 53-54
[4] See Exhibit C17

2.3. Dr Wong saw Mrs George again at approximately 7am the following morning and noted that she was in a stable condition, afebrile and that the left knee was a little less swollen. He ordered oral fluids, subcutaneous Clexane (to prevent blood clots) and an orthopaedic review by Dr Atkinson.

2.4. Dr Wong had no clear recollection of his conversations with Dr Atkinson[5]. On the other hand Dr Atkinson, in his evidence, was reasonably clear in his recollection of his contacts with Dr Wong. I accept Dr Atkinson's evidence in relation to what transpired between him and Dr Wong in the two conversations that they had in relation to Mrs George. The first of these was on the afternoon of 22 November 2007, and the second on the afternoon of 24 November 2007, following Dr Atkinson's review of Mrs George. In the first conversation Dr Atkinson was contacted by Dr Wong while Dr Atkinson was attending a conference in Melbourne. Dr Wong asked if Dr Atkinson would be prepared to review Mrs George and provided brief details of her circumstances. Dr Atkinson agreed that he would do so and did not understand there to be any particular urgency about the request. He was anticipating returning to Adelaide on the morning of Saturday 24 November 2007 but in the result returned a little earlier than that on the Friday evening. Dr Atkinson heard nothing further to indicate that there was any urgency attached to the matter and attended upon Mrs George during the afternoon of 24 November 2007.

2.5. Dr Wong gave evidence that he expected that Dr Atkinson would review Mrs George on 23 November 2007[6]. However, I think that that is a misunderstanding on Dr Wong's part. In my opinion the evidence of Dr Atkinson is to be preferred. I find that Dr Wong did not express any sense of urgency in relation to the matter and it was anticipated that Dr Atkinson would see Mrs George at PPH as soon as he was able to do so. Had any sense of urgency been expressed by Dr Wong, it is quite clear that Dr Atkinson would have advised that he was unable to attend because of his absence at a conference in Melbourne until Saturday afternoon at the earliest.

3. Mrs George's blood pressure drops

3.1. The next significant event occurred at approximately 9:15pm on 22 November 2007 when Registered Nurse Stubbs, who gave evidence at the Inquest, noted that Mrs

[5] Transcript, page 251
[6] Transcript, page 270

George's blood pressure had fallen to $^{83}/_{32}$. Ms Stubbs was concerned about this change in her condition and notified Dr Wong at 10pm that evening[7]. She was told to advise nursing staff to hold Mrs George's blood pressure medication the following morning and made a note in the clinical records accordingly.

4. Mrs George's dehydration worsens

4.1. The PPH fluid balance chart in the PPH clinical record[8] shows that there was no record of urine output from 9am on 22 November 2007 until the insertion of an indwelling catheter at 9pm on 24 November 2007, a period of some 60 hours. A nursing note timed at 0600 on 24 November 2007 records that Mrs George is 'very dry' and queries whether she requires an indwelling catheter and intravenous therapy for hydration.

4.2. On the morning of 23 November 2007 Dr Wong reviewed Mrs George. He noted that she was confused, did not know where she was and thought that staff were trying to harm her. He noted that there was no sign of a stroke having taken place and then noted the possibilities to explain this situation were that Mrs George may have had an adverse reaction to her medication (Temazepam and/or Celebrex) and he ordered that those be stopped. He noted the other possibility that there was an occult sepsis[9]. However, he did not take any steps to further investigate that possibility. Dr Wong was content merely to stop the Celebrex and Temazepam. In particular, he did not consider the possibility that the confusion was a result of either an infective process or dehydration.

4.3. When Dr Wong saw Mrs George next, some 24 hours had passed. The next consultation took place shortly after the abovementioned nursing note in which it was suggested by nursing staff that consideration should be given to the insertion of an indwelling catheter and intravenous therapy for hydration. On that examination Dr Wong noted that Mrs George was drowsy from the Morphine, was in a lot of pain with possibly pain to the right knee as well. He noted that Mrs George had been febrile overnight but that her temperature had settled. His plan was to await orthopaedic opinion and he ordered a further blood test for uric acid levels and a blood culture.

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[7] Transcript, page 131
[8] Exhibit C6
[9] Transcript, page 253

4.4. Mrs George was attended by Dr Atkinson, the orthopaedic surgeon, sometime in the afternoon of 24 November 2007, between 2:45pm and 4:20pm. Dr Atkinson gave evidence that he reviewed Mrs George's notes and then went to her bedside to examine her[10]. He said that Mrs George was very confused and agitated and was moving on the bed in an apparent effort to sit up. She also pushed the bedclothes away. He said that she did not seem to be drowsy. Dr Atkinson found her left knee was swollen to a moderate to severe degree. He did not notice swelling above or below the knee and the colour of the knee was not obviously different from the other. He was unable to put his hand on the left knee because Mrs George had her hands up to fend him off. He attempted to examine her right leg and he was able to grasp her right leg but at that point Mrs George leapt with pain. Dr Atkinson said that he intended to examine what was thought to be the good leg first in an effort to make a comparison with the bad leg, and to reassure the patient. On grasping the tibia of the right leg Mrs George leapt with pain and he elected not to distress her further by touching her left knee.

4.5. Dr Atkinson said that from what he had seen he could not make a clear diagnosis. He knew that Mrs George had arthritis with loose bodies in her left knee but he was concerned about her general condition for which he had no answers or explanation. Her general condition was that of confusion, agitation and significant generalised pain. He thought that Mrs George had problems extending beyond her left knee. He telephoned Dr Wong and although he did not recall the precise content of that telephone conversation, he believed that he had conveyed his concern about Mrs George's general condition and his view that the problem was more generalised than one relating to her knee only. He planned a further investigation, namely a generalised bone scan of the musculoskeletal pathology. His intention was to see if there were metastases or other pathology. He spoke to Mrs George's daughter and advised her that Mrs George was seriously unwell and that he did not know why. He said he wanted to exclude an infection. Dr Atkinson thought it was possibly septic arthritis and had ordered a bone scan. He said that it would be appropriate to consider an arthroscopy to clean the joint out, depending on Mrs George's capacity to undergo anaesthesia. He said that he did not feel that there was a need for urgent intervention at that time[11]. He did not think that, when speaking with Dr Wong, he had mentioned

[10] Transcript, page 208
[11] Transcript, page 216

the possibility of septic arthritis but he did note Dr Wong's notation from the morning of 23 November 2007, of a possible occult sepsis.

5. Dr Wong's evidence

5.1. Dr Wong said that he had noted the results of the blood tests taken at Ashford Hospital when he first examined Mrs George. He said that the white blood cell count was marginally up but not alarmingly so[12]. He also said that she was afebrile. His diagnosis was that Mrs George was suffering from osteoarthritis or maybe gout or pseudo gout[13]. He did not at that time consider a diagnosis of septic arthritis[14]. He explained that her blood tests were not alarmingly abnormal to suggest that some infection or inflammation was occurring[15]. He was maintaining his working diagnosis of osteoarthritis when he saw Mrs George on the Thursday morning, 22 November 2007[16]. On the evening of Thursday 22 November 2007 the staff at Parkwynd contacted Dr Wong to notify him of Mrs George's drop in blood pressure to which I have previously referred. He directed that her blood pressure medication should be withheld. He acknowledged that in hindsight the blood pressure reading was a matter of concern[17] and, furthermore, that it was probably the first evidence of the infection which ultimately took Mrs George's life[18].

5.2. When Dr Wong saw Mrs George again on the Friday morning he noted that she was confused and paranoid. He thought that she may have suffered an adverse reaction to the medication, Temazepam[19], but he did note the possibility of an occult sepsis[20]. He acknowledged in hindsight that the consideration of an occult sepsis, (meaning of unknown origin), should instead have been consideration of a septic arthritis in the left knee[21]. His plan was to await Dr Atkinson's orthopaedic review at that point. He did not order further tests but acknowledged in hindsight that he should have done so[22].

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[12] Transcript, page 242
[13] Transcript, page 246
[14] Transcript, page 249
[15] Transcript, page 246
[16] Transcript, page 250
[17] Transcript, page 252
[18] Transcript, page 320
[19] Transcript, page 253
[20] Transcript, pages 253-254
[21] Transcript, page 254
[22] Transcript, page 255

5.3. The PPH medical records show that Mrs George had no oral intake of fluids from the morning of Thursday 22 November 2007. She had not been catheterised and it was therefore difficult to determine how much fluid she had passed, but the notes contained many references to her not having voided during that period. Dr Wong was asked whether he had considered that Mrs George's paranoia and confusion might have been attributable to her state of dehydration. In response to questions about dehydration he asserted that in her early stages at PPH she was drinking well[23]. However, he had to acknowledge that there were no other references apart from one nursing note for 21 November 2007 to Mrs George drinking. On the other hand, he acknowledged that there were many references to her not drinking and not voiding[24]. He acknowledged that he should have taken more notice of those references and that they showed overwhelmingly a pattern of a dehydrated person over a period. He acknowledged that confusion could arise from that state of affairs[25]. He acknowledged that she might have been in renal failure by that stage[26].

5.4. It is remarkable that Dr Wong was not considering a serious infection on that Friday morning. He had no satisfactory explanation.

5.5. Belatedly, on the morning of 24 November 2007, Dr Wong ordered that Mrs George be given fluids to be administered subcutaneously[27]. He also directed that an indwelling catheter be placed and recorded that Fentanyl patches be substituted for morphine. Dr Wong acknowledged that subcutaneous administration was an inadequate response to the situation and that for adequate hydration intravenous fluids should have been administered[28]. He attempted to justify his actions by saying that:

> 'I did not register the seriousness of the dehydration at that time.' [29]

He acknowledged that it was possible that he simply was not paying attention and that he was distracted[30].

5.6. The next contact Dr Wong had was when Dr Atkinson contacted him on the Saturday afternoon. Dr Wong had no memory of the contents of that telephone contact with Dr

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[23] Transcript, page 296
[24] Transcript, page 297
[25] Transcript, page 297
[26] Transcript, page 297
[27] Transcript, page 258
[28] Transcript, pages 280-281
[29] Transcript, page 281
[30] Transcript, page 281

Atkinson[31]. As that was an important telephone conversation, and as Mrs George's death followed within less than 12 hours of that conversation, I pressed Dr Wong as to why he could not recall anything about that conversation. His response was:

> 'It may be that I am trying to block it out of my memory because I know she was badly managed.
>
> Q. Badly managed by whom.
>
> A. By myself.' [32]

6. The events of Saturday night, 24 November 2007

6.1. At approximately 9:15pm on Saturday 24 November 2007 Nurse Merriman decided to contact Dr Wong. Ms Merriman was concerned at observations she had made of Mrs George which she considered to be unstable and that her condition was declining with low oxygen saturations, a high pulse rate and a high temperature[33]. Dr Wong said that he would come in and review Mrs George. According to Ms Merriman, in response to what she had relayed to Dr Wong about Mrs George's condition, Dr Wong ordered that Mrs George not be resuscitated in the event of a cardiac arrest prior to him attending that evening[34].

6.2. Dr Wong confirmed that account of the conversation[35]. He explained that decision as follows:

> 'Well in my experience looking after elderly patients most of them had expressed a wish that if something happens to them suddenly from which they are not likely to survive they'd rather go peacefully than rather than (sic) being prolonged and put on a life support system.' [36]

Dr Wong acknowledged that there had been no previous discussion about Mrs George in relation to the matter of resuscitation[37]. Dr Wong acknowledged that the giving of the order was entirely inappropriate[38]. He was unable to provide any satisfactory explanation as to why he gave that order.

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[31] Transcript, pages 260, 302, 303
[32] Transcript, page 303
[33] Transcript, pages 95-96
[34] Transcript, page 96
[35] Transcript, page 263
[36] Transcript, page 263
[37] Transcript, page 263
[38] Transcript, page 315

6.3. On Dr Wong's arrival at the hospital he decided that Mrs George was very ill[39] and thought that she had had an overdose of morphine, a reaction to morphine or a stroke. He decided to administer narcan or naloxone which is an antagonist for morphine. That was administered immediately and, shortly after the administration of the naloxone, Mrs George stopped breathing. At that point Mrs George's daughter was also present in the room and Ms Merriman asked her whether she wished for the patient to be resuscitated. Mrs George's daughter responded affirmatively and resuscitative measures were instituted. Dr Wong took part in the resuscitative efforts[40].

7. Expert report - Professor Gordon

7.1. Counsel assisting obtained a report from Professor Gordon in relation to Mrs George's treatment. Professor Gordon is a Fellow of the Royal Australian College of Physicians and a Fellow of the Royal College of Pathologists of Australasia. He is currently the Head of Microbiology and Infectious Diseases at Flinders Medical Centre and the Professor and Head of the Department of Microbiology and Infectious Diseases at Flinders University.

7.2. Professor Gordon said that it was his view that the early blood tests taken at Ashford Hospital did not reveal much of concern. He said the elevation of the white cell count was very borderline and not significant at that time[41].

7.3. In relation to the matter of septic arthritis, Professor Gordon said that if left untreated there can be rapid progression of infection and substantial joint damage and the possibility of death[42].

7.4. He said that a person presenting with an acutely swollen, painful knee, in the absence of trauma, should have septic arthritis as part of their differential diagnosis[43]. He said that gout or pseudo gout might also be considered. The lack of a temperature in an elderly patient was not particularly uncommon, even when they have serious sepsis and the absence of a fever did not contraindicate a diagnosis of septic arthritis[44].

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[39] Transcript, page 265
[40] Transcript, page 266
[41] Transcript, page 327
[42] Transcript, page 328
[43] Transcript, page 328
[44] Transcript, page 329

7.5. Professor Gordon said that in his laboratory at Flinders Medical Centre there have been approximately 4,500 joint aspirates analysed over approximately the last 15 years, of which about 15% were positive for septic arthritis. He therefore postulated that, in his opinion, around about 10% to 15% of patients presenting with an acutely swollen, painful joint might have septic arthritis[45]. Professor Gordon said that it is uncommon for a polyarthritis to be septic in nature.

7.6. Professor Gordon's commentary on the first consultation of Dr Wong was as follows. He noted that at that stage her knee was hot and swollen and she had had a documented temperature of 38.2°C shortly before his examination. Dr Wong claimed that she was afebrile at the time of his examination. Professor Gordon's opinion was that a possible diagnosis of septic arthritis was mandatory at that stage[46]. He said that there was a strong indication to do an arthrocentesis at that point because septic arthritis is considered a medical emergency[47] and that an arthrocentesis was the only way to exclude septic arthritis.

7.7. Professor Gordon noted that when Mrs George presented as confused and paranoid on the morning of 23 November 2007, rather than Dr Wong's conclusion that this was a reaction to Temazepam, it was much more likely to be the progression of sepsis as this often manifests in a deterioration in mental state[48].

7.8. Professor Gordon was also critical of Dr Wong's speculation about an occult sepsis. He commented that he would have thought that in the presence of knee pain, knee swelling and a hot knee, if there was a sepsis present, the origin of the sepsis would be likely to be in the knee rather than at some other non-apparent site and that it would be mandatory to undertake an investigation by way of joint aspiration[49].

7.9. Professor Gordon was of the view that the delay in diagnosis of septic arthritis and the treatment necessary for that condition was the cause of Mrs George's death[50]. He thought that if the condition had been diagnosed and treated at, or soon after, her original presentation, there would have been a very high probability that she would

[45] Transcript, page 332
[46] Transcript, page 335
[47] Transcript, page 335
[48] Transcript, page 340
[49] Transcript, page 342
[50] Transcript, page 361

have survived[51]. He thought that if she had been treated on 21 or 22 November 2007 he would be very confident, barring something unexpected, that she would survive.

7.10. By 23 November 2007 he thought that, on balance, Mrs George might still have survived with proper treatment, however it would have required intensive hospital management, fluid resuscitation, intensive care and drainage of the joint[52].

7.11. By 24 November 2007 there was a slim chance in the morning that Mrs George may have had some chance of surviving with very intensive management, but later that day she had very little prospect of surviving[53].

8. Conclusions

8.1. I have already noted that Dr Wong had no satisfactory explanation for many of the shortcomings and failings in his treatment of Mrs George. He acknowledged his shortcomings and failures and did not dispute in any way the opinions expressed by Professor Gordon.

8.2. It is clear that Mrs George's death was preventable with appropriate, timely treatment and that there was ample opportunity for that to occur at, or soon after, her initial presentation. It is understandable that this did not take place at Ashford Hospital. Dr Quaini referred her to a consultant physician at PPH, namely Dr Wong, and he was entitled to expect that she would be properly treated and that Wong would carefully examine her and arrive at a diagnosis and treatment plan.

8.3. Dr Atkinson's involvement came at a very late stage and certainly at a point where it was too late to save Mrs George. Dr Atkinson was provided with little history or background information and was in an extremely difficult position. He contributed to Mrs George's care as best he could and I have no criticism of him.

8.4. Dr Wong, by his counsel, acknowledged that, had Mrs George been properly diagnosed, the outcome may well have been different. It was acknowledged that Dr Wong's management of Mrs George was very poor. It was acknowledged that Dr Wong had never treated a person with septic arthritis before and that may have been one reason for his failure to diagnose it. Dr Wong's counsel said that, as a result of what occurred with Mrs George, he has changed his practice and now keeps better

[51] Transcript, page 362
[52] Transcript, page 363
[53] Transcript, page 363

and proper records. He concentrates on the legibility of his notes and is proactive in instituting blood tests and other investigations, particularly in relation to septic arthritis.

8.5. Perhaps the most disturbing aspect of this matter was Dr Wong's extraordinary decision to direct the PPH staff not to resuscitate Mrs George in the event that she had a cardiac arrest prior to his arrival at the hospital. In the event, as submitted by counsel for Dr Wong, that did not occur and so, on one view, the making of the direction did not adversely affect Mrs George. That does not in any way excuse the act itself however. Furthermore, the making of the order certainly did have some influence on the staff at PPH in the aftermath of Mrs George's arrest Dr Wong's arrival. This is manifest by the fact that Ms Merriman felt the need to ask Mrs George's daughter what she would like done after Mrs George's collapse. In my view, if it had not been for the making of the inappropriate 'not for resuscitation' order by Dr Wong, Ms Merriman would have had no doubt about the need to institute resuscitative measures without a specific direction to that effect from the daughter.

8.6. I find that Mrs George's death was entirely preventable. Dr Wong's failure at several key opportunities to suspect septic arthritis, act appropriately by confirming it through arthrocentesis, and then instituting the relatively simple treatment required to deal with it led to her death. A competent physician would have had no difficulty in managing Mrs George and preventing her death.

9. Recommendations

9.1. I have no recommendations to make in this matter.

Key Words: Hospital Treatment; Incorrect Diagnosis; Septicaemia

In witness whereof the said Coroner has hereunto set and subscribed his hand and Seal the 6th day of December, 2010.

State Coroner