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 2nd, 3rd, 4th and 10th days of March and the 5th day of August 2011, by the Coroner's Court of the said State, constituted of Anthony Ernest Schapel, Deputy State Coroner, into the death of Howard Malcolm Semmler.*

*The said Court finds that Howard Malcolm Semmler aged 60 years, late of 4 Satsuma Crescent, Golden Grove, South Australia died at the Royal Adelaide Hospital, North Terrace, Adelaide, South Australia on the 14th day of November 2008 as a result of cardio respiratory failure due to malignant pleural effusion due to metastatic malignant melanoma. The said Court finds that the circumstances of his death were as follows:*

## 1. Introduction

1.1. On Friday 14 November 2008 Mr Howard Malcolm Semmler, 60 years of age, died at the Royal Adelaide Hospital (RAH) where he was being treated for a metastatic malignant melanoma.

1.2. Mr Semmler had a medical history that included hypertension, type 2 diabetes and atrial fibrillation. Mr Semmler at one point in his life had also suffered from polio which is said to have affected his gait, particularly in respect of his left foot. Persons who suffer from diabetes are prone to develop ulcers on the soles of their feet. This can be due to a number of factors associated with the disease. Diabetes affects the vascular system to the point where extremities such as the feet may not receive a fully adequate blood supply. This increases the vulnerability of the foot to develop ulcerated lesions on the sole and it also serves to render those lesions difficult to heal.

Another complicating factor is that a person may experience a lack of sensitivity in the feet which can mean that their awareness of the infliction of trauma may be lessened. Generally speaking a diabetic person who for whatever reason develops an ulcer on the bottom of the foot will experience a longer healing time than otherwise would be the case.

1.3. In the latter part of 1999 Mr Semmler developed an ulcer on his right foot. This ulcer was treated by his general practitioner. There had been some disturbance to the sensation in his right foot at that time. On this occasion the ulcer resolved within just over a month[1]. A history of previous ulceration in a diabetic person is but one predictor of possible future ulcers to the feet. That Mr Semmler might develop another foot ulcer some time in the future would thus come as no surprise.

1.4. In March 2007 Mr Semmler presented to his general practitioner with what appeared to be an ulcerated lesion on the bottom of the heel of his left foot. The lesion was believed by the health professionals who were to treat him to be another diabetic foot ulcer. This lesion would never fully resolve until it was subject to debridement and biopsy in July 2008. It was on this occasion that for the first time the lesion was diagnosed as a malignant melanoma. The malignant melanoma would metastasise with malignant deposits in other areas of Mr Semmler's body. The disseminated cancer would claim his life in November 2008.

1.5. A melanoma is a cancer of the skin. When compared to other cancers of the skin such as squamous cell carcinomas or a basal cell carcinomas, a melanoma is a particularly aggressive and life threatening form of skin cancer mainly due to its strong propensity to metastasise or spread to other organs of the body. Once the melanoma has metastasised to distant parts of the body it can be very difficult to treat and a person's prognosis and life expectancy is frequently unfavourable in those circumstances. This proved to be the case with Mr Semmler. At first, metastatic deposits of tumour were identified in Mr Semmler's groin nodes. Radiotherapy was planned but Mr Semmler presented with a new left groin lump prior to radiotherapy. A PET scan was performed in October 2008 and this showed evidence of persistent metastatic disease still present in the left groin but now also present in the pleura and lungs. Mr Semmler presented to the Modbury Hospital (the Modbury) on 10 November 2008 with shortness of breath. Investigations showed a right pleural effusion which is a

[1] Transcript, page 37

collection of fluid around the lungs caused in Mr Semmler's case by the metastatic cancerous deposits in that area of his body. On 10 November 2008 approximately 5 litres of bloodstained fluid was drained from his chest by way of a pleural tap. Mr Semmler would remain in hospital until the day of his death. He was in the Modbury from 10 November to 12 November 2008. On 12 November 2008 he was transferred to the RAH for further management of his cancer. He died two days later.

1.6. When Mr Semmler was at the RAH, it is clear that in spite of the draining of the pleural effusion that had been administered at the Modbury on 10 November 2008, a further build up of fluid had taken place. This was identified in a chest X-ray taken on 13 November 2008 at the RAH.

1.7. Mr Semmler's terminal event occurred early on the morning of 14 November 2008 when he became acutely short of breath. It was decided that he required another pleural tap to drain the build up of fluid and that this needed to take place urgently. When medical staff attempted to sit Mr Semmler up for this procedure he lost consciousness and stopped breathing. Resuscitation was unsuccessful and Mr Semmler died.

1.8. Mr Semmler's death was reported to the State Coroner. An autopsy of his body was performed by Dr John Gilbert, a forensic pathologist at Forensic Science South Australia. Dr Gilbert provided a post-mortem report dated 18 August 2009[2]. In that document he reported the cause of death as respiratory failure due to malignant pleural effusion due to metastatic malignant melanoma. However, during the course of this Inquest differences of opinion were expressed as to the precise nature of Mr Semmler's cause of death. The oncologist responsible for Mr Semmler's management at the RAH, Dr Nimit Singhal, who gave evidence in the Inquest, favoured the view that Mr Semmler's death had a strong heart related component to it and that it was not as the result of the pleural effusion.

1.9. The cause of death as explained by Dr Gilbert in his post mortem report was based upon the following pathology as detected by him at autopsy:

> 'Autopsy examination disclosed extensive metastatic malignant melanoma in the pleural cavities, most marked on the right side. Over 4 litres of heavily bloodstained malignant effusion fluid was present in the right chest cavity causing marked compression of the right lung. Less extensive pleural metastases were also noted on the left side in

[2] Exhibit C2a

> association with a much smaller malignant effusion (300mL). Two deposits of metastatic malignant melanoma were identified within the left lung. The remainder of the autopsy was unremarkable except for the presence of micronodular, cirrhosis of the liver. No complications of the liver disease were identified. Apart from the lung and pleural metastases, no other metastatic disease was identified.' [3]

1.10. In the light of Dr Singhal's differing opinion as to the cause of death, Dr Gilbert was asked to give further consideration to that issue. In a subsequent report[4], Dr Gilbert indicated that he was prepared to modify his opinion as to the cause of death to the very limited extent that he now acknowledged that there may have been some compromised cardiac function at work in Mr Semmler's cause of death, but firmly maintained his original view that the collapse and death was due to the malignant pleural effusion. Dr Gilbert modified his cause of death by amending his original opinion that there had been a respiratory failure consequent upon the pleural effusion to recite that a cardio respiratory failure consequent upon the effusion had been the cause of death. To my mind there is little essential difference between the two causes of death as expressed by Dr Gilbert. Regardless of whether there had been a respiratory failure or a cardio respiratory failure, Dr Gilbert remains of the view that the underlying cause of Mr Semmler's death was the pleural effusion. I indicate that for reasons I will discuss in due course I have preferred Dr Gilbert's evidence over that of Dr Singhal as to cause of death. To my mind Dr Gilbert is correct in his assessment that Mr Semmler's death was primarily due to the malignant pleural effusion and its effects.

1.11. I find Mr Semmler's cause of death to have been cardio respiratory failure due to malignant pleural effusion due to metastatic malignant melanoma.

1.12. Reduced to its most basic premise, it is clear that cancer and its inevitable complications resulted in Mr Semmler's death. It should be understood at the outset that Mr Semmler's malignant melanoma had reached a very advanced stage insofar as it had spread to distant organs of the body. By the time of Mr Semmler's death on 14 November 2008 his prognosis was very poor and his chances of survival were negligible. Moreover, it is doubtful whether any differing management of his very advanced illness would have added to his life expectancy.

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[3] Exhibit C2a, page 1
[4] Exhibit C2b

## 2. Mr Semmler's family's concerns

2.1. I received into evidence a number of pieces of correspondence from Mr Semmler's wife, Ms Dianne Semmler, that had been written by her to her husband's general practitioner in the first instance and then variously to the State Coroner or Counsel Assisting the State Coroner.

2.2. Mrs Semmler has raised a number of concerns regarding her husband's medical treatment. Broadly speaking there are two stated areas of concern. The first involves a contention that an unreasonable period of time elapsed before Mr Semmler was ultimately diagnosed as having a malignant melanoma on the plantar aspect of his left foot, having regard to the fact that he first presented to his general practitioner with the lesion in March 2007 and that the diagnosis of malignancy was made in July 2008. The second area of concern involves an assertion that Mr Semmler's care in the days leading up to his death was less than adequate, especially at the hands of those responsible for his care at the RAH. In particular, it is suggested that the second pleural tap that was attempted on the morning of 14 November 2008, the day of Mr Semmler's death, was belatedly performed and then only in circumstances in which Mr Semmler was in extremis. The suggestion is that this procedure ought to have taken place at an earlier point in time and that if it had taken place, it may have avoided the fatal episode on the morning of 14 November 2008 when the pleural tap was actually attempted. There were other concerns expressed that do not relate directly to the cause and circumstances of Mr Semmler's death. I have not found it necessary to refer to all of these concerns.

2.3. With these concerns in mind the treatment of Mr Semmler, from the time of his first presentation with his foot lesion until the moment of his death, was examined by independent medical expertise. The aspect of concern that involved the alleged belated diagnosis was examined and commented upon by Dr Peter Joyner OAM who is a very experienced general practitioner. The oncological aspects of Mr Semmler's management was examined and reported on by Associate Professor Christos Karapetis. Dr Karapetis is Associate Professor and Director of Clinic Research and Senior Medical Oncologist at the Department of Medical Oncology at Flinders Medical Centre. Both independent experts provided written reports concerning their review of the matter. In Dr Joyner's case he also gave oral evidence in the Inquest. I regarded both Dr Joyner and Dr Karapetis as experts having regard to their qualifications and experience in the fields of medicine with which this Inquest is concerned.

## 3. Malignant melanoma of the foot

3.1. Mr Semmler's lesion was situated on the sole or plantar aspect of his left foot in the region of the heel. This is an area of the foot that would not normally be exposed to sunlight as frequently as say the top of the foot. In assessing the aetiology of a lesion to the sole of the foot one might reasonably take this into account.

3.2. Tendered in evidence was an article entitled 'Malignant melanoma of the foot and ankle'[5] published in the Journal of Bone and Joint Surgery in 1995. The article was tendered by Mr Krupka, counsel for Mr Semmler's general practitioner Dr Lou Skeklios, primarily in order to illustrate the appearance of malignant foot ulcers as depicted in several photographs included within the article. The point made is that the lesion in Mr Semmler's case was quite unlike the usual appearance of a melanoma, but was typical in both appearance and behaviour of a diabetic foot ulcer. I have also found the text of the article to be informative when regard is had to the issues in this case. The investigation which is the subject of the article was said to have been performed at the University of Michigan Medical Centre in the United States of America. The article is somewhat dated of course, but it is informative in that it recognises that malignant melanomas on the plantar aspect of a person's foot have developed where trauma to the involved area is part of the antecedent history of the lesion[6], and it speaks in some detail of misdiagnosed or belatedly diagnosed melanomas on the soles of the feet. Common characteristics of a misdiagnosed melanoma are said to be ulceration within the lesion and failure to heal despite several months of treatment. These features existed in Mr Semmler's case. The article goes on to recite that although some authors at that point in history had implicated trauma as a causative factor in the development of plantar melanomas, the proposition remained unproved at that time. The article nevertheless identified trauma as a matter of some relevance insofar as an antecedent history of trauma may have resulted in misdiagnosis of the lesion as involving post-traumatic change. In other words, the presumed traumatic origin of the lesion diverted diagnostic attention away from a possible cancerous origin. As will be seen, Mr Semmler told his podiatrist that he believed that he had suffered the injury when he had gone barefoot in his backyard and his foot had struck a rock.

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[5] Exhibit C7d, The Journal of Bone & Joint Surgery, Malignant melanoma of the foot and ankle, PT Fortin, AA Freiberg, R Rees, VK Sondak and TM Johnson (J Bone Joint Surg Am. 1995;77:1396-1403

[6] Exhibit C7d, page 1400

3.3. Another significant feature revealed by the US 1995 article is that patients who had a plantar or subungual[7] lesion had a higher prevalence of misdiagnosis than did those who had a lesion on the upper aspect of the foot or ankle. As well, the poorer survival of patients who had a melanoma on the foot or ankle, particularly those who had a plantar lesion, may be related to an increased frequency of misdiagnosis resulting in a greater depth of invasion and a more advanced stage of the disease by the time the lesion came to be properly diagnosed. Accordingly, patients in whom the lesion had initially been misdiagnosed had a significantly shorter duration of survival than those in whom the lesion had initially been diagnosed correctly[8]. What the article demonstrates is that it has been recognised for some time now that melanomas and ulcerated melanomas may develop on the plantar aspect of a person's foot and that such a lesion has been either the subject of misdiagnosis altogether or of correct diagnosis at a point in time at which the patient's chances of survival are no longer favourable.

## 4. The course of treatment of Mr Semmler's lesion

4.1. Mr Semmler first presented to his general practitioner, Dr Lou Skeklios, with the lesion on 26 March 2007. Dr Skeklios, who gave evidence in the Inquest, noted at the time that the lesion consisted of a 2 to 3mm clean ulcer on the heel. Mr Semmler said it had been present for a couple of days. Dr Skeklios did not record any explanation as to the origin of the lesion that may have been given by Mr Semmler at the time but he noted that Mr Semmler had other sores on his arms which he said had occurred when building a bird cage. Although the lesion did not look infected, Dr Skeklios thought it wise to cover the lesion with an Allevyn dressing.

4.2. Thereafter Mr Semmler saw Dr Skeklios in respect of the lesion on a number of occasions in 2007 and 2008. Dr Skeklios redressed the heel on 29 March and noted on 3 April 2007 that the heel wound was just about closed over. He prescribed one more Allevyn patch which he expected Mr Semmler himself to remove in a few days. Dr Skeklios would next see Mr Semmler on 31 May 2007 at a time after Mr Semmler had seen his podiatrist, Ms Karen Nixon, at the Modbury.

4.3. Ms Nixon first saw evidence of the lesion on 15 May 2007. Ms Nixon also gave evidence in the Inquest. She had been Mr Semmler's podiatrist for sometime. She

[7] Beneath the toenail
[8] Exhibit C7d, page 1401

had provided regular debridement of a plantar callous on his left heel. The most recent of such debridements had occurred on 13 February 2007 on which occasion she had debrided all of the callous. She explained in her evidence that the reason for doing this was that it was important to keep the callousing down so that it did not ulcerate. As I understood her evidence, the area of callous that Ms Nixon had regularly debrided was the same area in which Mr Semmler's lesion developed.

4.4. On 15 May 2007 Ms Nixon could see that a small healed injury existed in the affected location of the heel. She asked Mr Semmler how this had been sustained. He replied that he had trodden on a rock. He said that he had looked after the injury himself and it had healed. Ms Nixon would make a note of that fact when she next saw Mr Semmler in August by which time the wound had broken down. On 15 May 2007 Ms Nixon noted within Mr Semmler's Modbury progress notes that the injury had 'all healed'[9]. She would not see Mr Semmler again for another three months.

4.5. In the meantime Mr Semmler saw Dr Skeklios on a number of occasions. At a consultation on 31 May 2007 there was a small ulcerated left heel sore. He understood from Mr Semmler that in the period since he had last seen Dr Skeklios Mr Semmler had seen his podiatrist. Allevyn was prescribed on this occasion.

4.6. By 16 July 2007 Dr Skeklios noted that the ulcer was almost healed but with a slight discharge. On 26 July 2007 the heel was noted in Dr Skeklios' case records as 'looking good', as observed by nursing staff.

4.7. Ms Nixon saw Mr Semmler again on 14 August 2007. At that point the wound had broken down. Ms Nixon made a note to the effect that she questioned whether the wound may have had a foreign body in it. She debrided the margins of the wound, dressed it and took steps to unload the wound by encouraging Mr Semmler to walk on his toes. To this end she used a 6mm heel lift and a device designed to push his weight on that foot forward. When asked in evidence as to what could have caused Mr Semmler's wound to break down by 14 August 2007, Ms Nixon suggested that walking on the wound would have been sufficient trauma to cause that. She went on to explain that in her experience when her patients first heal, the skin tissue is weak and it is quite common for patients' wounds to break down again. It was on 14

[9] Exhibit C6, page 8

August that Ms Nixon made a note of the fact that Mr Semmler himself ascribed the foot injury to an impact with a rock.

4.8. Ms Nixon again saw Mr Semmler on 28 August 2007, 11 September 2007, 23 October 2007, 28 November 2007 and 19 December 2007. Mr Semmler missed an appointment on 25 September 2007.

4.9. By 8 October 2007 it was noted in Dr Skeklios' practice that the ulcer had broken down. It was again treated with gel and Allevyn. On 11 October 2007 the ulcer looked clean. On 15 October 2007 the heel was redressed. On 29 October 2007 Allevyn was again prescribed.

4.10. On 23 October 2007 Ms Nixon noted there was callous all around the margins of the wound which meant that the wound was still taking pressure, in other words it was being walked on. She decided at that point that Mr Semmler should use crutches and these were provided by the Modbury. She booked him in for another appointment on 28 November 2007.

4.11. Mr Semmler saw Dr Skeklios on 29 October 2007.

4.12. On 28 November 2007 Ms Nixon observed that there was now hypergranulation tissue within the wound about 1mm above the skin line, as well as a lot of callous. She noted that Mr Semmler did not arrive on crutches for this appointment. The extra callous was consistent with Mr Semmler not having used his crutches. On 19 December 2007 the wound had decreased in size and had less callous.

4.13. When Mr Semmler saw Dr Skeklios on 31 December 2007 Dr Skeklios observed that the ulcer was enlarging despite the apparent use of crutches. Dr Skeklios prescribed antibiotics on this occasion.

4.14. When next seen by Ms Nixon on 9 January 2008 she noticed that the wound had deteriorated despite antibiotics. There was an increase in size in the lesion plus hypergranulation tissue. Ms Nixon ascribed the deterioration in the wound to the Christmas period. She suggested that it was not unusual for patients with diabetic foot ulcers to return after the Christmas break with deterioration, usually as the result of increased activity and neglect of the wound over the Christmas period. In this regard Ms Nixon identified features of the wound that suggested that there had been

weight bearing in its location. This suggested that Mr Semmler had been habitually walking on it. All of this seemed to have been reinforced by the fact that Mr Semmler had discarded his crutches altogether. He told Ms Nixon that he had received a letter from the hospital seeking the return of the crutches and so he had returned them. She reordered the crutches for him. Mr Semmler was on antibiotics for a golden staph infection which suggested that the wound deterioration was due to an infection or it had been retraumatised. She treated the wound with silver nitrate.

4.15. Thereafter Ms Nixon saw Mr Semmler at intervals of approximately 1 to 2 weeks. At a number of appointments the wound was variously seen to improve, then enlarge again, remain stable with no improvement for a period but then improve again by 20 February 2008. It then became macerated and had started to bleed towards the end of February. That month Ms Nixon had arranged for Mr Semmler to undergo an X-ray of his foot. The X-ray had failed to reveal any foreign body within the ulcer. However, an X-ray would probably have only revealed a metallic foreign body, not glass or wood. In March 2008 the wound was seen to decrease in size and improve which Ms Nixon ascribed to the antibiotic treatment. By 11 March 2008 it had much improved and this again appeared to be the case on 18 March 2008.

4.16. Dr Skeklios noted on 28 March 2008 that the heel ulcer was clean but not reducing in size.

4.17. On 1 April 2008 Ms Nixon saw Mr Semmler again. She noted that he was on antibiotics for Staphylococcus. She noted that there was hypergranulation tissue and much maceration. She debrided the margins and advised Mr Semmler to continue with the antibiotics for another 4 weeks.

4.18. Ms Nixon saw Mr Semmler again a week later on 8 April 2008 and there was no improvement. The antibiotics had finished by that time. At that point Ms Nixon began to consider that the failure of the heel wound to resolve might have been due to a deeper infection, possibly osteomyelitis which is an infection of the underlying bone. The X-ray in February would not have revealed osteomyelitis if it had been existence at that time. A definitive measure for the detection of an osteomyelitis would have been an MRI scan which Ms Nixon would not have been able to order herself. On 15 April 2008 Ms Nixon noted that the left heel ulcer had increased in

size with further maceration. On this occasion she debrided the macerated margins and silver nitrated the hypergranulation tissue.

4.19. The following day, 16 April 2008, Mr Semmler's case was discussed at the Modbury Hospital Foot and Ankle Clinic. This was the first occasion on which the lesion was considered by health care providers other than Dr Skeklios or Ms Nixon. The clinic was attended by Dr Linda Ferris who is the senior visiting orthopaedic surgeon at the Modbury. Dr Ferris examined Mr Semmler that day. She then wrote a letter to Dr Skeklios which sets out her opinions and observations[10]. Dr Ferris reported that at that stage Mr Semmler himself was not sure of the cause of the ongoing injury. Dr Ferris noted the deformity of the foot due to polio and the fact that as a result, he sustained significant pressure on the heel. Dr Ferris observed that the X-ray in February had only excluded metallic foreign bodies and that Mr Semmler's prescription of antibiotics had been intermittent and not administered over a prolonged course. Dr Ferris' recommendation was that Mr Semmler should be placed upon a full four weeks regime of antibiotics. Her advice was that if things had not improved over that period of time, an ultrasound would be performed to determine whether there was any glass or other foreign material in the wound. The proposal was that if that showed nothing and the wound persisted, the next step would be an MRI.

4.20. Ms Nixon told me in evidence that she viewed Dr Ferris' suggested course of management as reasonable. For Ms Nixon's part, she still was giving consideration to the probability in her mind that Mr Semmler's delayed healing was due to a deeper infection, possibly osteomyelitis. She also considered the possibility that ultimately they might find glass, a piece of wood or a piece of footwear material in the wound that might only be revealed by an ultrasound.

4.21. Following the 16 April 2008 Foot and Ankle Clinic consultation, Ms Nixon continued to see Mr Semmler on a weekly basis. The wound continued to increase in size and no improvement was recorded. An ultrasound was ordered and the ultrasound report dated 8 May 2008[11] records that no foreign body was identified within the wound.

4.22. On 11 June 2008 Mr Semmler's case was again discussed at the Foot and Ankle Clinic. The outcome of the clinic is recorded in a letter dated 12 June 2008 written by Dr J Fintland who was the foot and ankle fellow for Dr Ferris. The letter records that

[10] Exhibit C6, page 82
[11] Exhibit C6, page 43

the wound was becoming larger, that day measuring approximately 4cm x 3cm. Mr Semmler was referred for an MRI to investigate bony pathology such as osteomyelitis. The plan was that if bony pathology was eliminated, a biopsy would be performed to rule out any malignant condition. It was also contemplated that Mr Semmler would then be taken to theatre for debridement of the wound under anaesthesia. It is to be noted that the letter of 12 June 2008 was the first occasion that any concern that the lesion might be cancerous was documented. This was nearly 15 months after Mr Semmler had first presented with the lesion to his GP.

4.23. The MRI was performed on 25 June 2008. The scan revealed no evidence of osteomyelitis but the report states that the imaging was unable to exclude a malignancy[12].

4.24. Mr Semmler underwent debridement and biopsy of the wound on 1 July 2008. The biopsy revealed that the ulcer involved a malignant melanoma[13]. Mr Semmler was told of this on 2 July 2008. Mr Semmler also underwent a CT of his chest, abdomen and pelvis in order to determine whether the malignancy had spread to other parts of the body. The conclusion of the investigating radiologist was that there was no evidence to suggest a disseminated disease or, in other words, that there was any evidence of metastasis at that point in time[14]. In particular, the report indicated that Mr Semmler's lung fields were then clear.

4.25. The biopsy of 1 July 2008 was the first time that a malignancy was identified.

4.26. Thereafter Mr Semmler underwent surgical excision to obtain a wide margin of the wound with skin grafting. On 19 August 2008 the RAH Melanoma Unit reported that nodes from Mr Semmler's groin were positive for melanoma[15]. He underwent groin lymph node surgery in an attempt to achieve complete clearance of the melanoma which by then had spread to that site. Within a short period of time it was discovered that the melanoma had disseminated more widely to involve the pleura that ultimately caused the development of the large pleural effusion that was drained at the Modbury on 12 November 2008.

[12] Exhibit C6, page 42
[13] Exhibit C6, page 77
[14] Exhibit C6, page 78
[15] Exhibit C5, page 19

4.27. I have already referred to the involvement of Dr Peter Joyner in a review of Mr Semmler's clinical management up to the point of his diagnosis. Dr Joyner originally provided a written report to the Court[16]. In that report Dr Joyner notes that the first documented concern about the possibility of a malignancy occurred on 12 June 2008 following the Modbury Foot and Ankle Clinic consultation of the previous day. Dr Joyner sums up the issue in these terms:

> 'The problem is whether there is evidence of clinical factors that could have triggered this assessment and investigation at an earlier stage.' [17]

4.28. Dr Joyner suggests in his report that when the marked deterioration in the status of the ulcer had been recognised by Ms Nixon in early January 2008, this could have prompted an earlier review. In his oral evidence before the Inquest, Dr Joyner suggested that in a case such as Mr Semmler's one would expect an ulcer to have healed within 4 to 6 months and that on reviewing the lack of healing after that period of time the question needed to be asked whether anything else was responsible for the failure to heal. Dr Joyner suggested that a year was a very long time for an ulcer not to heal. He did say, however, that he had treated patients with ulcers that had not healed within a year, but that he had referred them to the Queen Elizabeth Hospital. He suggests that while it is by no means unknown for an ulcer to take that length of time to resolve, a reassessment process occurring along the way is something that should happen[18]. Dr Joyner also remarked upon the lack of any communication between Dr Skeklios and Ms Nixon and suggested that it would have been desirable for communication to have taken place between them.

4.29. Importantly, in his report and in his evidence Dr Joyner recognised that the difficulty with ulcerated neoplastic lesions is that they do not often look like a classical malignancy. Melanoma is typically dark ranging from black to pale brown spreading superficially on the skin and in many people's experience would never present in an ulcer in their clinical lifetime.

[16] Exhibit C8
[17] Exhibit C8, page 2
[18] Transcript, page 85

4.30. To Dr Skeklios and Ms Nixon, Mr Semmler's lesion presented as a typical diabetic foot ulcer with the usual difficulty in healing as occasioned by retraumatisation through continual walking. In his evidence Dr Joyner was asked this:

> 'Q. This history of the problem starting in an accident in the garden; that would also tend to take clinicians away from looking for a melanoma, away from thinking about melanoma.
>
> A. Yes, because I am sure any person in the medical sense, seeing a patient with that history of diabetes, a polio affected leg, hitting their leg in the garden on a rock, having an ulcer; everything absolutely points towards a traumatic ulcer in that setting…' [19]

4.31. Ms Nixon, for her part, testified in effect that in her experience there was nothing atypical about Mr Semmler's ulcer that would have made her think of melanoma. As well, the timeframe of his wound's failure to heal was not so significantly unusual as to make a healthcare provider think of a malignancy, be it a melanoma or some other malignancy such as a squamous cell carcinoma. To her mind there were explanations why the wound did not heal that included his underlying diabetic condition and the fact that Mr Semmler had apparently not kept off his foot as evidenced by his failure to use crutches. As well, there were a number of predictors involved with Mr Semmler that would suggest that a diabetic foot ulcer ought to have come as no surprise. These included his diabetes, previous history of an ulcer, his chronic callouses and the defect in his left foot caused by polio.

4.32. Ms Nixon did consider other possibilities such as a foreign object or osteomyelitis and it was at Ms Nixon's instigation that the foot and ankle medical expertise was brought into the picture.

4.33. As I understood Dr Joyner's expert evidence, he did not hold the view that there had been an egregious neglect of Mr Semmler's foot ulcer by either Dr Skeklios or Ms Nixon. Rather, the failure to diagnose was the result of circumstances that conspired to cause both of them to believe that Mr Semmler's lesion was a troublesome diabetic foot ulcer. Dr Joyner was of the view that what can be taken out of Mr Semmler's case is the necessity for clinicians to give careful consideration to possible explanations connected with malignancy when ulcers such as Mr Semmler's fail to heal. He believes, I think, that it is more a matter for education of clinicians generally rather than for the criticism of any individual clinician in this particular case.

[19] Transcript, page 101

4.34. Dr Skeklios told me in his oral evidence that he accepts that in January 2008 he should have thought about other possible diagnoses. He indicated that he regretted not having done more in the January / February 2008 period to instigate further investigation[20]. Ms Nixon suggested in her evidence that she was now extremely careful in relation to diabetic foot ulcers and, in particular, is very much alive to the need to have these difficult matters referred to other clinicians at the earliest available opportunity.

4.35. I do note that the Foot and Ankle Clinic consultation of 16 April 2008 appears to be the first occasion on which alternate diagnoses for Mr Semmler's lesion came to be seriously considered. There then followed an extended period of antibiotic therapy, an ultrasound in May that eliminated a foreign object, further consideration at a Foot and Ankle Clinic consultation on 11 June 2008, an MRI scan a fortnight later in June that eliminated osteomyelitis and then the diagnostic debridement and biopsy a week later on the first day of July. The diagnosis of malignant melanoma was made on that day. It has been difficult to detect a sense of urgency in the execution of the diagnostic strategy between April and July 2008.

4.36. There is one further matter I should mention in relation to Mr Semmler's foot ulcer as far as the timeliness of its diagnosis is concerned. There remains a question mark as to when it might have been possible for a melanoma to have been diagnosed for the first time. Dr Joyner in his evidence stated that he was unable to know whether the lesion started as a traumatic ulcer or a diabetic ulcer which then became malignant or whether it began as a malignancy. He said:

> 'The answer is that I don't know and on looking at the notes there is no objective way of saying.' [21]

4.37. Dr Joyner suggested that there were a number of possibilities at work, namely that the melanoma was there from the beginning and was simply disturbed and traumatised by the ulcer, that it arose as a change in response to chronic inflammation albeit this would be a very rare occurrence, or it had arisen coincidentally within an ulcer as a separate entity[22]. Dr Joyner also said that he could not be precise as to whether there

[20] Transcript, page 79
[21] Transcript, page 96
[22] Transcript, pages 96-97

was a point in time during the clinical course of this lesion when a melanoma would definitely have been diagnosed[23].

4.38. Dr Singhal, the oncologist, suggested in his evidence that the development of skin cancers from ulcers was a '*very rare scenario*'[24].

4.39. Although the matter cannot be concluded with absolute certainty, having regard to the evidence as to rarity of ulcers becoming malignant it is more probable than not that Mr Semmler's lesion was a melanoma to begin with. I think it is probable that for the entire duration of the ulcer's existence there were opportunities to have diagnosed it as being malignant. The delay in diagnosis could have been minimised and his chances of survival could have been significantly enhanced.

## 5. Dr Joyner's recommendations

5.1. Dr Joyner suggested a number of strategies that might go to the prevention of a missed diagnosis or belated diagnosis of a melanoma that was otherwise understood to be a simple diabetic foot ulcer. In his report he made two recommendations which I set out.

> 'Recommendation 1
> That wherever there is a chronic non healing ulcer being present that anyone concerned in the medical care of that patient should feel free to question the underlying diagnosis. (I have experienced the same problem with a patient who was having a long term ulcer treatment at another tertiary level hospital and it was only when the local GP initiated a biopsy did that reveal that to be in this case a squamous cell carcinoma the treatment of which was luckily successful.)
>
> Recommendation 2
> It is sensible to remind those allied health personnel ie. podiatrists that are dealing on a long term basis with ulcers that where there is a variation to the expected healing process they should always have an open mind seeking a medical opinion regarding an alternative underlying diagnosis. There could be an underlying clinical imperative for any ulcer that is not healing correctly within a defined time ie. 3 or 6 months that it should have at least a review by a medical person as a routine part of podiatry outpatient practice. But I would hesitate from my GP role to be too definitive in what a podiatry clinic's practice should be, but note that podiatry clinics in hospitals do have strong relationships and relatively easy access to surgical and other specialist medical opinions, in an easier and more direct way than GPs working outside of the hospital system.' [25]

[23] Transcript, page 98
[24] Transcript, page 195
[25] Exhibit C8, pages 2 and 3

5.2. In addition, Dr Joyner also suggested a need for education within the profession of podiatry such that podiatrists:

> '… should always be cautious in handling long term non-healing ulcers and be mindful of alternative causes for the ulcer being present and to arrange speedy and correct referral for assessment and investigation where indicated.' [26]

5.3. I intend to say more about these suggestions later in this finding.

## 6. Mr Semmler's eventual hospitalisation and death

6.1. Dr Joyner expressed the view that once there is direct evidence of a melanoma spreading to the groin, as was the case with Mr Semmler, most people would only ever live for a maximum of 3 months from that time. He described a melanoma as a '*time bomb waiting to unfortunately blow up*'[27]. He described the behaviour of a melanoma as unpredictable. Once there was evidence of dramatic spread, the patient's treatment options were very limited.

6.2. In Associate Professor Karapetis' second report dated 1 March 2011[28] he suggests that given the rapid progression of Mr Semmler's cancer his prognosis was poor and that any procedure that might have been performed within the RAH in the days preceding Mr Semmler's death would not have been considered as a life extending procedures.

6.3. Mr Semmler had been considered for a clinical trial involving chemotherapy. In the event Mr Semmler was not considered well enough to undergo the clinical trial.

6.4. It is against that background that Mrs Semmler's concerns about her husband's management within the RAH come to be considered.

6.5. Dr Nimit Singhal was responsible for Mr Semmler's management within the RAH. Dr Singhal has a Bachelor of Medicine and Bachelor of Surgery obtained in 1996. He worked as an oncology registrar trainee in India until 2004. In 2005 he became a registrar at the RAH. He completed his Australian qualifications in 2007. Since 2008 he has worked as a consultant oncologist at the RAH, the Lyell McEwin Hospital and the Ashford Hospital. His work includes the medical management of people with cancer.

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[26] Exhibit C8, page 3
[27] Transcript, page 93
[28] Exhibit C3b

6.6. Dr Singhal described Mr Semmler's clinical course from the time that he arrived at the RAH on 12 November 2008. When examined upon his admission to the RAH Mr Semmler was cold and clammy. His hands and feet were cold and sweaty to touch and he was visibly short of breath. He had rapid atrial fibrillation and he required significant amounts of oxygen to maintain an adequate oxygen saturation level. Mr Semmler was being administered 10 litres of oxygen, but this was reduced on 13 November 2008 to 3 litres of oxygen which suggested to Dr Singhal that his condition had '*much settled*'[29]. In the event, although there was evidence that suggested that Mr Semmler had developed another right-sided pleural effusion, there was no immediate plan to perform any further drainage. Rather, on the evening of 13 November 2008 there is a note to the effect that a pleurodesis, that would involve fluid removal, was planned for 19 November 2008. A pleurodesis is a procedure designed to seal the pleural space within the chest to prevent it from being invaded by a pleural effusion resulting from a malignancy. It is designed to relieve discomfort that is generally manifested by shortness of breath. In his evidence Dr Singhal explained the reasons why another pleural tap was not undertaken within the RAH. He told the Court that Mr Semmler had achieved a measure of stability. He was responding to medical management. A pleural tap was a procedure not without its risks and that there was no clinical need for it on 13 November 2008. Dr Singhal also referred to the discomfort that is caused by a pleural tap procedure. In short, Dr Singhal was of the view that another pleural tap was neither desirable nor necessary in a man who was by that time stable.

6.7. As to the planned pleurodesis, Dr Singhal suggested that in the light of the presence of large deposits of cancer as revealed at autopsy, it was likely that the surgeons would have abandoned the procedure.

6.8. Basically, Dr Singhal was of the view that it would have been inappropriate to subject Mr Semmler to a procedure that was risky and painful. He would rather control his heart rate and make him comfortable by whatever means available. A pleural tap could be regarded in those circumstances as a '*fall back plan*'[30].

6.9. It was put to Dr Singhal in evidence that a pleural tap earlier than the one that was attempted in extremis may have provided Mr Semmler with some more time. Dr Singhal said a number of things to this. He suggested that it was not appropriate to

[29] Transcript, page 204
[30] Transcript, page 239

subject patients in terminal phase to an unnecessary procedure unless it was thought that it would improve the person's quality of life. In any event Dr Singhal said he could not be sure that an earlier pleural tap would have bought Mr Semmler more time because the fluid causing compression to his lung was not his only concern. There was cancer in the pleural cavities which could not be removed. Dr Singhal also told me that he did not believe that Mr Semmler was in imminent danger of dying on the Friday morning[31].

6.10. I should recite in some detail the opinions and conclusions of Associate Professor Karapetis, the independent expert oncologist. Dr Karapetis' conclusions are as follows:

> 'The central element of this case is the presence of an aggressive and incurable cancer. Despite the drainage of a large volume of fluid on the 10th of November Mr Semmler's condition remained very poor. Mrs Semmler asserts that if the fluid was drained on the day he arrived at the RAH and if he had the pleurodesis performed urgently that he would not have died on the 14th of November. Given the rapid progression of the cancer I think that Mr Semmler's prognosis was poor, even if the pleurodesis had been performed. His fitness to undergo the procedure would also have been questionable, but this is not clearly documented in the medical records as I could not find a note from the surgical team or the anaesthetic unit.
>
> The records do indicate that Mrs Semmler had expected "treatment" to be applied for her husband at the RAH in an urgent fashion. She was aware of the possibility of a clinical trial, she understood that if Mr Semmler was not suitable for the trial that he could then receive standard chemotherapy, and she also expected that the pleural fluid would have been dealt with a surgical procedure. She is clearly disappointed that none of these interventions was applied. I do not believe that Mr Semmler was suitable to enter a clinical trial or to receive chemotherapy as his general medical condition was too poor. If the pleural fluid had been drained on the 12th or 13th, I would have expected a rapid fluid re-accumulation and little or no benefit. I doubt that he would have lived longer. I do have doubts about his fitness to have undergone a surgical pleurodesis. If an attempt was made to perform the pleurodesis then he may not have survived the procedure. The benefit of the procedure is principally for symptom relief and it is not considered a life extending procedure.
>
> In my opinion, the prognosis for Mr Semmler was extremely poor given the lack of benefit following drainage of fluid at the Modbury Hospital on the 10th of November. I doubt that any intervention would have made a substantial difference to Mr Semmler's longevity. I feel that the expectation of a positive outcome from intervention at the RAH was unrealistic.' [32]

I have no reason to doubt Dr Karapetis' conclusions and I accept them.

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[31] Transcript, page 244
[32] Exhibit C3b

6.11. All that remains to be said on the issue is that it is most unfortunate if Mrs Semmler had been led to the belief that Mr Semmler would undergo the draining of his pleural cavity and its pleurodesis on Thursday, 13 November 2008. Although notations were made in Mr Semmler's progress notes to the effect that he would need a further pleural tap at some point in time, there is no documented evidence that clinicians intended to perform such a procedure either on 12 or 13 November 2008. A nursing note timed at 2100 on 13 November 2008 suggests that in the light of Mr Semmler's current observations no action was to be taken in respect of his condition at that time. There is then reference to the fact that a pleurodesis would be scheduled for 19 November 2008[33]. I accept Dr Singhal's evidence that for the reasons he gave he would not have considered it appropriate to perform a pleural tap on or before 13 November 2008. His position on this issue is supported by independent expert evidence from Dr Karapetis.

6.12. I have already referred to the differing views as between Dr Singhal and Dr Gilbert, the pathologist, about the mechanism of death. In an addendum post-mortem report Dr Gilbert explains why he believes that it was the pleural effusion that was the immediate cause of Mr Semmler's death[34]. Dr Gilbert reported that a 4 to 5 litre pleural effusion, as was ultimately located at autopsy, ought to have resulted in a significant loss of function of the affected lung. As well, examination of the heart showed no intrinsic disease such as coronary atherosclerosis or metastatic melanoma that could have compromised his cardiac function. The effusion at autopsy was heavily blood stained and contained a blood clot. In addition raised pressure in the right pleural cavity as a result of the effusion could have compromised return of venous blood to the heart, thus causing a reduction in cardiac output. It was for that reason that Dr Gilbert was prepared to acknowledge that there may have been some cardiac component to Mr Semmler's cause of death, but this in his view did not alter the significant contribution made by the pleural effusion. I have preferred the view of Dr Gilbert over that of Dr Singhal. Dr Gilbert was the pathologist who performed the post-mortem examination and identified at first hand the pathology involved in Mr Semmler's condition at the time of death. While not in any way derogating from Dr Singhal's expertise, Dr Singhal was viewing Mr Semmler from a clinical viewpoint. As well, it has to be recognised that Dr Singhal's opinion that the pleural effusion was

[33] Exhibit C5, page 263
[34] Exhibit C2b

not the immediate cause of Mr Semmler's death is expressed in a context in which criticism has been raised that he should have relieved Mr Semmler's fatal pleural effusion at an earlier point in time. This is another reason why in my view Dr Gilbert's independent opinion ought to be preferred. Dr Gilbert is an independent expert whose expertise is dedicated to the finding of cause of death and I have no hesitation in accepting his cause of death as stated in his second report and as stated in the preamble to these findings.

6.13. There is no evidence that the attempted pleural tap administered upon Mr Semmler's collapse at 5:10am on the morning of 14 November 2008 in and of itself caused Mr Semmler's death. It is clear from the nursing note relating to the incident that when Mr Semmler was sat up in order for the tap to be administered it was at that time that he became unconscious and his respirations ceased[35].

## 7. Recommendations

7.1. Pursuant to Section 25(2) of the Coroners Act 2003 I am 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.

7.2. I have already referred to the recommendations that Dr Joyner set out in his report. The gravamen of the two recommendations is that an ulcer that fails to heal within a defined time should be the subject of review by a medical practitioner as a matter of routine. There was considerable debate during the Inquest about the feasibility of implementation of such a recommendation. It will be noted within Dr Joyner's second recommendation that has suggested that the defined time was 3 or 6 months for review. In his evidence at Inquest, Dr Joyner suggested that the re-evaluation or review should take place at 4 to 6 months and then suggested that perhaps 6 months was a '*reasonable time to stand back and have a careful evaluation*'[36]. As I indicated during the course of argument, reasonable views could well differ about a timeframe that ought to trigger a review and, in particular, what ought to trigger the necessary diagnostic procedures involved in the identification of malignancy, be it a melanoma or some other malignancy associated with a foot ulcer. It is very difficult for this Court to be dogmatic about any particular timeframe, particularly having regard to Ms

[35] Exhibit C5, page 265
[36] Transcript, page 104

Nixon's evidence that diabetic foot ulcers may commonly fail to heal even within 12 months or more. It was also suggested that the infliction of trauma that a biopsy entails might well be counterproductive in the treatment of foot ulcers if they are not in fact malignant. In the Court's opinion, however, it seems clear that there is considerable room for misdiagnosis in circumstances where diabetic foot ulcers fail to heal. This is evidenced not only by this case but also by the literature to which I have already referred. I therefore intend to make a general recommendation concerning the need to medically review foot ulcers that fail to heal within a reasonable time frame. I intend to direct that recommendation not only to the podiatry profession but also to general practitioners.

7.3. In her evidence, Ms Nixon suggested that a team approach to the management of troublesome foot ulcers was a much more preferable approach. She gave this evidence:

> 'What you have to understand is all the other hospitals are larger, including the one, Lyell McEwin where I work, and we're in a multi-disciplinary full clinic, so the patient gets referred in, initially into the multi-D clinic with a vascular surgeon and an endrocrinologist and all the podiatrists see and treat them, so you don't have to refer them to anyone because it all automatically happens, it's like a one stop shop and you get much better outcomes with amputations, etc.' [37]

Ms Nixon told me that the hospitals that provide multidisciplinary services include the Lyell McEwin Hospital, the Royal Adelaide Hospital, the Queen Elizabeth Hospital and the Flinders Medical Centre. She singled out the Modbury Hospital as one institution that did not have such a service. Ms Nixon suggested that, in Mr Semmler's case, if he had been referred earlier to the RAH or the Lyell McEwin Hospital, he would have gone straight to a multidisciplinary clinic where his chances of earlier diagnosis would have been enhanced.

7.4. Another subject for recommendation that this Inquest has identified is the need for this matter to be drawn to the attention of the wider medical and allied health professions for the purposes of education.

7.5. I believe that there is also a need for the establishment of the role of 'patient advocate' within the public health system to promote better communication between patient's family members and clinicians and to avoid tension between the wishes of a patient's

[37] Transcript, pages 190-191

family members and the clinical opinions of medical practitioners responsible for the patient's management.

7.6. I make the following recommendations:

1) That the Australian Health Practitioner Regulation Agency draw to the attention of the medical profession and the podiatry profession the need to medically review and re-evaluate the diagnosis of foot ulcers that fail to heal within an expected time frame;

2) That the Australian Health Practitioner Regulation Agency and the Australian Medical Association (SA) draw this matter to the attention of the wider medical and allied health professions for the purposes of education;

3) That the Minister for Health and the responsible person at the Modbury Hospital give consideration to establishing a multi-disciplinary clinic, such as those that exist in the Lyell McEwin Hospital, the Royal Adelaide Hospital, the Queen Elizabeth Hospital and the Flinders Medical Centre, that is designed to manage, treat and properly diagnose foot ulcers in a timely manner;

4) That the Minister for Health give consideration to the establishment of the role of a 'patient advocate' within the public health system to promote better communication between patient's family members and clinicians and to avoid tension between the wishes of a patient's family members and the clinical opinions and judgments made by medical practitioners responsible for the patient's management.

*Key Words: Medical Treatment - Medical Practitioner; Podiatry*

*In witness whereof the said Coroner has hereunto set and subscribed his hand and Seal the 5th day of August, 2011.*

*Deputy State Coroner*