

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 3rd, 4th and 5th days of May 2005 and the 2nd day of June 2005, before Wayne Cromwell Chivell, a Coroner for the said State, concerning the death of Marie Green.

I, the said Coroner, find that Marie Green aged 64 years, late of 11 Woolcalla Street, O'Sullivan Beach, South Australia died at the Flinders Medical Centre, Flinders Drive, Bedford Park, South Australia on the 7th day of January 2002 as a result of respiratory arrest secondary to morphine overdosage on a background of mild to moderate emphysema. I find that the circumstances of her death were as follows:

1. Introduction

- 1.1. In the early hours of 6 January 2002, Ms Marie Green was conveyed by ambulance to the Flinders Medical Centre.
- 1.2. Mr Ronald Brandon, who shared a house with Ms Green and acted as her carer, said that Ms Green had consumed approximately half a bottle of port before going to bed at about 1:15am. He said:

'I also went to bed at the same time. From my room I heard her have the Nebuliser. I also heard her go to the toilet and then go to another room before she finally went into her room. Approximately 15 minutes later, she came into my bedroom and said to me, she said 'I can't breathe, I would be better off dead'. I asked her a few questions and it was then that I found out that she had taken some tablets. She said, 'everybody should be happy now I've just taken some tablets'. I put her back into her bed, I noticed that she was becoming very drowsy and that she was losing consciousness. I immediately telephoned the Ambulance, I was advised to keep her on her side and try to keep her awake.

Prior to the Ambulance arriving I located a blister pack of slow release morphine that is used by Marie in the rubbish bin, I also noticed another blister pack of Valium in the bin. I then assumed that she had taken an overdose of the tablets. I then estimated that she had probably taken about 10 to 15 of each type of tablet.'

(Exhibit C5a, p3)

- 1.3. The record compiled by the South Australian Ambulance Officer, which is part of the clinical record (Exhibit C15) states that they arrived at the scene at 2:10am and departed at 2:25am, arriving at Flinders Medical Centre at 2:50am. It records that she consumed seventeen 50mg tablets of morphine and 60mg of diazepam at approximately 2am.
- 1.4. Ms Green was seen by Dr Neil Bartlett in the Emergency Department at 4:21am. Dr Bartlett was an intern who had spent six weeks in the Emergency Department.
- 1.5. Dr Bartlett's note in the clinical record details his attendance upon Ms Green:

PMHx (previous medical history)

CCF (Congestive Cardiac Failure)

Scleroderma

Raynaud's

AF (atrial fibrillation)

Obesity

COAD (Chronic Obstructive Airways Disease) - smoking related.

Granulomatous hepatitis

Hypothyroidism

Cervical carcinoma - hysterectomy

Oesophageal dysmotility

GORD (Gastro Oesophageal Reflux Disease)

(fractured) hip

Back pain

IHD (Ischaemic Heart Disease)

Meds (medications)

Thyroxine

Omeprazole

Amiodarone

Prednisolone

Quinine

Frusemide

(Kapanol- no longer on)

Diazepam 5 mg QID (four times daily)

Allergies

NKA (No Known Allergies)

HPC (history presenting complaint)

Been feeling particularly depressed since Christmas, main precipitants seems inability of partner's children to accept her. Took 850 mg Kapanol plus 60 mg Diazepam around 0200, then told partner. Says was genuine attempt to kill herself and a cry for help. Took tablets on impulse after drinking a few glasses of port.

Glad she was unsuccessful, denies any current suicidal intent, minimal interest, at home alone a lot, appetite okay (on Prednisolone).

Sleep reasonable, some difficulties falling asleep.

O/E (On Examination)

Alert, orientated, cooperative

T (temperature) 36, BP (blood pressure) 130/60, HR (heart rate) 62, RR (respiratory rate) 20, SAT (oxygen saturations) 93 to 94% on 3 litres.

PERLA (Pupils Equal and Reactive to Light and Accommodation) 'EOM' ✓ (Extra Ocular Movements)

Skin warm,

mild ↓ power arm + legs

HS (heart sounds) dual + nil

Chest ↓ AE (air entry) nil focal

Abdo soft, mild tenderness lower abdomen

(Exhibit C15)

- 1.6. Dr Bartlett said that he consulted MIMS, the prescribing guide, in order to obtain further information about Kapanol in overdose, having regard to its slow release properties (T20). The relevant extract from MIMS is Exhibit C11b.
- 1.7. Having regard to his relative inexperience, Dr Bartlett wisely discussed Ms Green's case with Dr O'Gorman, the Senior Registrar in the Emergency Department.
- 1.8. During that evening, the nurses took Ms Green's observations at 3:10am, 4am and 6am and they were relatively normal. A blood sample was also taken at 5:20am, and that also was relatively normal, when compared with a sample taken the previous November which was already in the record.
- 1.9. Dr Bartlett's shift finished at 8am. Ms Green's case was handed over verbally to Dr Mohines Pala by Dr O'Gorman and Dr Bartlett.

1.10. Dr Pala did not make a note in the clinical record until 4pm on 7 January 2002, a day later.

1.11. After reviewing the history as he understood it, Dr Pala wrote:

'At around midday (I cannot recall the exact time due to the frantically busy department with new patients), I went to review Ms Green as I had realised she did not have routine blood tests or IVT (intravenous therapy) overnight. Also, given the significant overdose, my opinion was that this lady was not medically fit for psychiatric assessment and therefore I asked the Medical Registrar to see the patient with a view to medical admission.

I took blood from her which showed insignificant levels of alcohol and paracetamol. There were no other abnormalities suggestive of (?) metabolic derangement. Intravenous fluids were also started.

That was the last I saw of Ms Green as she was then admitted to the ward for further observation and management. I heard of Ms Green's demise this afternoon on commencement of my shift.

I had yesterday also noted that Ms Green did not have activated charcoal at any stage and this was mentioned to the Medical Registrar on referral and was agreed that it was too late to administer activated charcoal as it was well over 12 hours since the ingestion.

This note was written in retrospect from my recollection of events yesterday.'

(Exhibit C15)

1.12. Dr Pala said his reference to Ms Green's fitness for psychiatric assessment was prompted by protocols which require that a psychiatric assessment takes place before a patient admitted after an apparent suicide attempt can be discharged (T53). He said that Ms Green would not have been able to undergo psychiatric assessment at that stage, because she was too drowsy. He said that he arranged to have her admitted to a medical ward instead (T79).

1.13. In order to arrange this admission, Dr Pala called upon the Medical Registrar, Dr Jui Ting Ho to examine Ms Green. Dr Ho saw her at between about 2:30 and 3pm on 6 January 2002. After recording Ms Green's history as she understood it, and her medications, Dr Ho noted:

'O/E (on examination) sleepy but arousable

No slurred speech

Able to answer questions appropriately

Afebrile 36°

BP 130/60

PR (pulse rate) 62 regularly irregular

SAO₂ (oxygen saturation) 94% on 2 litre/minute'
(Exhibit C15)

1.14. After recording some further medical information, Dr Ho wrote:

A (diagnosis) overdose

P (plan)

- 1 Admit GMC (General Medical Ward C)
- 2 Usual meds
- 3 Obs (observations) QID (6 hourly)
- 4 Regular Nebs (nebuliser)
- 5 ψ (psychiatry) review in morning
- 6 Amiodarone + TFT (thyroid function test) checked'

(Exhibit C15)

1.15. Dr Ho explained that her direction that Ms Green's observations be taken six hourly, when combined with the regular nebuliser which is given every three to four hours, meant that she would have been seen by nurse roughly every three hours or so (T90). In fact, Ms Green's nebuliser was given at 5pm and 9pm. The next nebuliser was due at midnight. The nursing note reads:

~~0200~~ 2400 Nursing Note 6a Christie Montgomery NASA (Nurses Agency of South Australia)

Patient appeared to be sleeping overnight.

Nebs as charted. Nil given to time of report.

Nil complaints voiced to time of report.'

(Exhibit C15)

It is by no means clear from that whether the nurses took any observations or gave Ms Green her nebuliser at that time.

1.16. Dr Ho said that she did not receive any call in relation to Ms Green for the rest of that evening. Observations noted in the clinical record indicate:

- At 5pm, when Ms Green was admitted to the medical ward, her observations were relatively normal except that the respiratory rate had dropped to 12;
- At 7pm, a nurse has noted in the clinical record 'since arrival to ward patient has been drowsy but rousable. Patient has remained RIB (rest in bed). Offered a sandwich for dinner but patient too sleepy to eat it as yet.'

- At 8pm, Ms Green's oxygen saturations had dropped to 81%. This is quite a significant drop, and yet Dr Ho was not notified. Her oxygen was increased to three litres per minute;
- At 9pm, Ms Green's oxygen saturations had improved to 92%.

1.17. At 8pm, Ms Green was visited by Dr Allan Nelson, who was then a Resident Medical Officer in the Psychiatry Department. He was described as an 'on-call registrar' that evening. It was his function to review all patients admitted with overdoses or other self-harming behaviour. Dr Nelson explained that he saw Ms Green's name on the computer as being a patient in that category, and so he visited her when he was able to do so. It would appear that Dr Pala and the nursing staff did not expect a visit from the Psychiatry Registrar until the following morning.

1.18. Dr Nelson noted in the clinical record:

'Attempted to interview Ms Green
She intended to kill herself because of family problem
IV (interview) impossible to continue because of sedation and dysarthria (incoherent speech)
P (plan) ψ (psychiatry) review in am.'
(Exhibit C15)

1.19. Dr Nelson explained that he was focussing on Ms Green's psychiatric condition, and so he did not examine the medical record in order to assess the degree of her sedation or to compare her condition with earlier observations taken. He said that her sedated condition was not uncommon in a patient who might have been agitated earlier, and was then sedated in hospital (T147). Ms Green's condition did not alarm him sufficiently to cause him to alert Dr Ho.

1.20. Dr Aeneas Yeo, a Medical Registrar, was called to Medical Ward C at around 2am on January 2002. His statement reads:

'The night shift nursing staff started duty at 2200 hours and one of the nursing staff checked her at midnight, when she was found to be breathing so she was left alone.

Ms Green was again checked at approximately 0200 hours and it was discovered that she was unresponsive and cold to touch. Immediately I was called to the ward as part of the arrest team. Ms Green was immediately intubated and ventilated with oxygen. CPR was also commenced. We worked on her for about 25 minutes without any response. At 0245 hours I pronounced life extinct.'

(Exhibit C2a, p2)

2. Cause of death

2.1. A post-mortem examination of the body of the deceased was performed by Pathology Registrar Dr Michael Shrapnel under the supervision of Consultant Dr Phil Allen. Their report is Exhibit C3a.

2.2. Drs Shrapnel and Allen noted that when blood samples taken from Ms Green during her stay at Flinders Medical Centre were analysed after her death, they produced the following results:

- At 5:20am on 6 January 2002, neither codeine nor morphine were detected in the blood;
- At 2:15pm on 6 January 2002, approximately 0.1mg of morphine per litre was detected (this was noted as being of uncertain significance);
- At 2:45am on 7 January 2002 (in other words at the time Ms Green's life was declared extinct), 0.77mg of morphine per litre was detected (this was described as a potentially lethal level).

2.3. The pathologists concluded that the cause of Ms Green's death was:

'Respiratory arrest secondary to morphine overdosage on a background of mild to moderate emphysema.'

(Exhibit C3a, p1)

2.4. In their clinicopathological correlation, the pathologists commented:

'There are major causes for concern in this case. She was apparently fairly well for the first 12 hours of admission, and the morphine level just over 3 hours after the patient entered the Emergency Department on 6-1-02 was zero. A psychiatrist noted that she was 'sedated' at 8pm, that is around 17 hours after arrival, and was virtually unconscious by then. No questions were asked as to why a patient admitted because of overdose should have been sedated. There is no record of the patient having been given morphine in hospital. She was next examined after 2am of the next day, 7-1-02, that is nearly 24 hours after arriving at emergency. By this time, she was virtually dead. Her underlying medical conditions could not have caused death. It is not clear when she received nor how she absorbed the morphine, but she must have received it after 5.20am on 6-1-02, and before 8.00pm of 6-1-02, probably around 1400 hours of 6-1-02.'

(Exhibit C3a, p3)

2.5. I received an opinion from Dr Sepehr Shakib, the Director of Clinical Pharmacology at the Royal Adelaide Hospital. Dr Shakib agreed with the opinions of Drs Shrapnel

and Allen as to the cause of Ms Green's death (T158). However, as I will presently discuss, he gave a different explanation for Ms Green's delayed toxic morphine levels which did not involve her taking further morphine in hospital

- 2.6. On the basis of the above evidence, I find that the cause of Ms Green's death was Respiratory arrest secondary to morphine overdose on a background of mild to moderate emphysema.

3. Issues arising at inquest

3.1. Interpretation of morphine levels

On the results of the blood tests referred to above, Ms Green's morphine levels had risen to only 0.1mg per litre at 2:15pm on 6 January 2002. The clinicians who gave evidence at the inquest expected Ms Green's levels to have peaked by then (see for example the evidence of Dr Ho at T95). In the following twelve hours, signs of sedation began to show, and after the expiration of another twelve hours or so, the level had risen to 0.77mg per litre, a potentially lethal level. This unusual scenario was explained by Dr Shakib as follows:

- Ms Green had an underlying condition known as scleroderma, which often leads to gastrointestinal difficulties. Patients can complain of loss of oesophageal motility due to neuromuscular dysfunction. In other words food passes more slowly through the oesophagus, and therefore delays gastric emptying. Ms Green had complained of 'tablets getting stuck' in December 1998. On endoscopy she was found to have moderate reflux oesophagitis but no obvious evidence of obstructions. Her gastroenterologist concluded that the most likely cause of these symptoms was oesophageal dysmotility. Dr Shakib wondered whether these difficulties may have led to Ms Green retaining the slow release Kapanol capsules in her oesophagus for a longer than normal period before they passed into the intestine and were absorbed into the bloodstream. Dr Shakib also pointed out that at autopsy, Ms Green's stomach still contained partly digested food despite the fact that she had not eaten for at least twelve hours (depending on how one reads the nursing entry for midnight on 6 January 2002 quoted above), which may be evidence of delayed gastric emptying. However, Dr Shakib conceded in cross examination that the evidence for Ms Green suffering slow gastric emptying was slim and that his opinion was somewhat speculative in this regard (T190-T192).

- The pharmacokinetics of Kapanol are that it is a slow release formulation of morphine so that peak concentration is not achieved until approximately eight hours after ingestion, compared with one hour in the usual formulation. He said:

'In overdosage, the morphine plasma concentration can continue to increase for up to twelve hours after initial ingestion in patients with no evidence of gastrointestinal dysmotility.'

(Exhibit C8a)

Dr Shakib added that, in overdosage, the pellets of Kapanol, after the gelatine capsule has dissolved, can clump together in concretions known as pharmaco-bezoars, which slows absorption further, to the extent that the peak plasma concentration may not be achieved until two or three days later (T168).

- Ms Green was administered 10mg of Maxalon (metoclopramide) intramuscularly at 1:45pm at Dr Pala's direction, presumably because she was complaining of nausea (although the complaint is not recorded). This is an interesting symptom in itself, as it may indicate that Ms Green was beginning to feel the effects of the slow release Kapanol by this time, as one of the side effects of morphine is nausea (T172). The administration of Maxalon enhances gastric motility and increases the resting tone of the lower oesophageal sphincter, which may have resulted in greater amounts of Kapanol pellets being moved through to the small intestine and therefore greater dissolution and absorption of morphine. This may have accelerated Ms Green's plasma levels of morphine during the afternoon of 6 January 2002.
- One effect of morphine itself is that it can cause a slowing of gastric emptying.

3.2. In summary, Dr Shakib concluded that Ms Green did not begin to absorb significant quantities of morphine until about 1pm on 5 January 2002. The administration of Maxalon for the treatment of nausea may have had the unfortunate effect of increasing gastric motility, causing an increase in the delivery of Kapanol pellets to the small intestine, where they would have been dissolved and subsequently absorbed into the bloodstream. Her apparent deterioration at around 7pm, approximately five hours after the administration of the Maxalon, was consistent with the pharmacokinetic profile of absorption of Kapanol in someone without a gastric emptying disorder (Exhibit C8a, p7).

- 3.3. Dr Shakib said that Ms Green's was a complex case. Her medical history was complex, particularly the fact that her underlying scleroderma may have had an unexpected effect upon the absorption of Kapanol. He said that if the risks inherent in her condition had been recognised, Ms Green could have been managed adequately in the Emergency Department with proper monitoring. However, her transfer to a medical ward in circumstances where the staff did not appreciate the risks made her a 'time bomb' (T178).
- 3.4. Dr Shakib pointed out that Dr Bartlett may have gained false reassurance from consulting MIMS, in that it specifically states that a peak morphine concentration can be expected after twelve hours after ingestion of Kapanol (T178). In cross examination, Mr Ralph Bonig, counsel for the Department of Health, pointed out that Dr Bartlett might have received the same reassurance had he consulted 'Hypertox', which is a more acceptable resource for clinicians faced with overdose situations. On page 2 of that publication, the following passage appears:
- 'Oral controlled release formulations of morphine and oxycodone and topical preparations of phentonyl are also available and are frequently used in palliative care. Absorption from these preparations will continue for up to twelve hours.'
- (see attachment to Exhibit C8a)
- 3.5. Dr Shakib said that any patient who has taken a slow release opiate in overdose should be closely observed, and any change should result in the institution of active treatment (T179-T180).
- 3.6. Appropriateness of treatment given
I received a report from Dr Helen Parker, Staff Specialist in Emergency Medicine at the Western Hospital, Footscray, Victoria, and a Forensic Physician and the Victorian Institute of Forensic Medicine and Honorary Lecturer in the Department of Forensic Medicine, Monash University. Dr Parker's report is Exhibit C14.
- 3.7. Dr Parker also said that, like Dr Shakib, she has not so far in her career been called upon to manage an overdose of Kapanol. She said this was in contrast to cases involving overdoses of heroin or morphine, which are quite common (T107).

3.8. Dr Parker said that there were a number of options for treatment of Ms Green when she presented to the Emergency Department:

- Decontamination - this could involve either the administration of activated charcoal or whole bowel irrigation. Dr Parker thought that such measures were 'probably desirable in this instance' (Exhibit C14a, p3), although she acknowledged that Ms Green's gastro-oesophageal reflux disease might have been a contra-indication. Dr Parker also acknowledged that conservative treatment might be preferred. She said:

'One could however argue that the anticipated effects of such an overdose would be readily amenable to supportive care, thus the omission of such decontamination measures need not necessarily have resulted in the catastrophic outcome.'

(Exhibit C14a, p3)

In oral evidence Dr Parker confirmed that she was not critical of the clinicians for their decision not to implement such treatment (T109).

- Conservative treatment - Dr Parker said that, ideally, Ms Green should have been admitted to a High Dependency Unit where very frequent observation of her conscious state and respiratory function could have occurred in order to detect the onset of toxicity of the morphine (Exhibit C14a, p5). As soon as any signs of toxicity became apparent, the antidote naloxone (Narcan) could have been administered. Because this has a much shorter half life than morphine, repeat administrations or a continuous infusion of Narcan might have been required in view of the slow release morphine Ms Green had ingested. Dr Parker commented:

'The use of naloxone would be indicated when the conscious state had deteriorated to a point where continuous rousing by staff was required, or protection of the airway was becoming endangered, or respiratory function was depressed. There does not appear to be sufficient evidence to indicate that naloxone was indicated during her time in the Emergency Department. It would seem however that it was perhaps indicated at around the time she was assessed by the psychiatry resident – when she was too drowsy to continue with a conversation.'

(Exhibit C14a, p5)

- As an alternative to naloxone, Dr Parker also suggested that in the event Ms Green's respiratory and conscious state became compromised, she might have been intubated and ventilated in order to support her airway and breathing until the drugs had been metabolised and excreted naturally. Ms Green's compromised

respiratory function, as a result of her chronic airway disease, might have argued against this option being considered, however.

- 3.9. It is difficult now to form conclusions about when these options should have been considered. Dr Pala's retrospective note indicates that at noon on 6 January 2002 he considered that Ms Green was unfit for psychiatric assessment. He failed to make a note to that effect in the clinical record, and so Dr Ho did not have the benefit of his observation when she assessed Ms Green at between 2:30pm and 3pm. This might have provided another piece of evidence that Ms Green's conscious state was slowly deteriorating.
- 3.10. This illustrates the importance of clinicians making contemporaneous notes in the clinical record so that other clinicians can make use of the information at the appropriate time. Making the entry a day later rendered the information useless clinically.
- 3.11. The critical time at which these decisions were called for was at the time Ms Green was seen by Dr Ho at between 2:30pm and 3pm on 6 January 2002. Dr Ho noted, as I have already outlined, some signs of sedation, in that she was 'sleepy but arousable', and the observation chart maintained by the nursing staff recorded that her pupils were consistently restricted, at size two, suggesting sedation.
- 3.12. Another sign which Dr Ho might have taken into account was that Ms Green had been administered Maxalon at 1:45pm on Dr Pala's instruction, presumably after complaining of nausea. Again, this is a common side effect of morphine. It is perhaps only in hindsight that Dr Ho's failure to appreciate the significance of these symptoms might be questioned. Against these considerations is Dr Ho's clinical impression of Ms Green, and in particular that she was able to answer questions appropriately, and that her speech was not slurred.
- 3.13. Dr Ho's decision to admit Ms Green to the medical ward, and to direct six-hourly observations and 'regular nebs' which should have resulted in her being seen every three hours was, in Dr Parker's view, inadequate. She argued that Ms Green should have been closely observed more frequently than that (T117).
- 3.14. Dr Ho argued that admission to General Medical Ward C, which is a Respiratory Unit and where the staff might be expected to be experienced in monitoring respiratory

function, was appropriate (T88). I am not convinced of the merits of this argument, particularly as the entries in the clinical record seem to have been made by agency nurses, rather than nurses with particular expertise in respiratory medicine. Dr Ho's response also misses Dr Parker's point that there was no clear plan documented as to the particular way in which Ms Green should have been cared for. She said:

'If you were admitting someone and you were concerned about the onset of narcosis, it would be prudent to document in your notes a direction to the nursing staff as to what exactly you are looking for, and in particular looking for the conscious state and a list of perhaps directions about what to do, for example, ... if the respiratory rate reduced to a certain level to call the doctor. And those sorts of directions specifically about what you were looking for and what you were worried about.' (T120)

3.15. This is apparent when one examines the clinical record. The entries made by Dr Nelson and by the nurses at various stages in the evening indicate that Ms Green's conscious state was gradually reducing, and yet the significance of this was not appreciated, and Dr Ho was not recalled to the ward at any stage. It must be conceded that the evidence for Ms Green's deteriorating conscious state is somewhat sparse in the clinical record. This is no doubt because she was not being observed closely, and the nurses did not have specific instructions to perform neurological observations at frequent intervals. If these instructions had been given, then in retrospect there is little doubt that these signs would have been apparent at a stage earlier than around 2:15am when her condition was essentially moribund.

3.16. Dr Parker acknowledged that this was an unusual case, and commented:

'This relative lack of exposure to an experience with such cases by medical staff has undoubtedly contributed to their failure to recognise the potential for a delayed onset of symptoms and signs of toxicity. I suspect that many doctors, unless working in the toxicology field or having undertaken specialist study in emergency medicine, would not appreciate the slow release and long-acting nature of this drug.'

(Exhibit C14, p5)

3.17. The fact that Ms Green was still relatively unaffected by the overdose at 13 hours after ingestion may have falsely reassured the medical staff that her condition was likely to resolve without undue harm. It is not surprising that they did not anticipate that, as Dr Shakib has already explained, the ingestion of the Maxalon, and Ms Green's underlying scleroderma and other factors have complicated the picture substantially, and possibly led to a sudden and unexpected deterioration in her

condition at a point after it might have been expected that her plasma morphine levels would have peaked.

- 3.18. We now have Dr Pala's retrospective note that he considered at noon that Ms Green was 'not medically fit for psychiatric assessment', however he failed to make an entry in the clinical record to that effect and so Dr Ho did not have the benefit of his observation when she assessed Ms Green at between 2:30pm and 3pm. If she had, then that might have provided another piece of evidence that Ms Green's conscious state was slowly deteriorating. This is an example of the need for clinicians to make contemporaneous notes where possible in the clinical record rather than, as here, leaving it until a day later when it is no use clinically and can only be assessed in retrospect.

4. Conclusions

- 4.1. Ms Green was treated at the Emergency Department at the Flinders Medical Centre, having taken an overdose of Kapanol, a slow release form of morphine.
- 4.2. Her initial assessment and treatment by Dr Bartlett, the Intern, was appropriate in that he performed a careful examination and reported his findings to the Registrar, Dr O'Gorman. Their decision not to implement active interventions at that stage in the form of gastric decontamination measures cannot be criticised in view of the fact that Ms Green was not showing signs of toxicity then.
- 4.3. Dr Pala's assessment of Ms Green at around noon on 6 January 2002 was not recorded until the following day. His findings that Ms Green was not fit for psychiatric assessment were, in retrospect, significant but because they were not noted in the clinical record at the time, they did not assist later clinicians in dealing with Ms Green.
- 4.4. Dr Ho assessed Ms Green between 2:30pm and 3pm. She conducted a thorough examination and assessment and although there were, in retrospect, some emerging signs of sedation, her failure to take active interventions at that stage cannot be criticised.
- 4.5. Dr Ho's decision to admit Ms Green to a medical ward and to establish a regime whereby she was observed only six-hourly and given nebulisers every three to four

hours was insufficient to adequately monitor Ms Green's neurological status. Active interventions could have been implemented when deterioration in her conscious state became apparent.

- 4.6. The effects of the Kapanol took an unusual and unpredictable course. Ms Green's underlying scleroderma, and other factors, may have caused its effects to be delayed beyond the usual twelve hours when peak plasma levels might have been expected. At around that time, the administration of Maxalon may have accelerated absorption of morphine, leading to a more rapid deterioration in Ms Green's condition at a time when she might have been expected to be improving.
- 4.7. In view of her experience and training, it is unreasonable to expect that Dr Ho might have taken all of these factors into account in making these decisions.
- 4.8. In view of the large amount of Kapanol Ms Green ingested, and the unusual course which her symptoms took, she should have had the benefit of treatment from consultants with particular expertise in toxicology and/or emergency medicine. It is not clear on the evidence before me whether this could have best been achieved by her remaining in the Emergency Department, being admitted to a High Dependency Unit, or being admitted to a medical ward with directions for more frequent observations.

5. Recommendations

- 5.1. In view of my conclusions, pursuant to Section 25(2) of the Coroners Act, I recommend:
 - That the Director, Clinical Systems of the Department of Health draw these issues to the attention of the College of Emergency Medicine, to consider the development of a protocol for the treatment of patients presenting at Emergency Departments with an overdose of slow release opiates;
 - Such protocol should make it clear that the effect of slow release medication can be highly unpredictable, particularly where patients have complex comorbidities, and that expert input into the treatment of such patients is called for at an early stage of the presentation;

- Particular consideration should also be given to the most appropriate placement for such patients in the hospital;
- That the Director, Clinical Systems of the Department of Health consider the desirability and feasibility of establishing a dedicated toxicology ward in tertiary public hospitals in South Australia for the treatment of patients with drug overdose.

5.2. As to the last recommendation, I note the evidence of Dr Shakib that no such dedicated toxicology ward presently exists in South Australia. Such wards are relatively uncommon, but some have been established interstate.

Key Words: Drug Overdose; Kapanol; Slow Release Opiates; Emergency Departments

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

Seal the 2nd day of June, 2005.

Coroner