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 15th, 16th, 17th and 18th days of August 2005 and the 12th day of January 2006, by the Coroner's Court of the said State, constituted of Anthony Ernest Schapel, Deputy State Coroner, into the death of Shaun Michael Evans.

The said Court finds that Shaun Michael Evans aged 22 years, late of 123a Walkerville Terrace, Walkerville, South Australia died at the Royal Adelaide Hospital, North Terrace, Adelaide, South Australia on the 1st day of October 2001 as a result of mixed Diflunisal and Buproprion toxicity. The said Court finds that the circumstances of his death were as follows:

1. Introduction and reason for Inquest

1.1. This is a matter of considerable complexity. The deceased, Shaun Michael Evans, aged 22 years, presented at the Emergency Department of the Royal Adelaide Hospital (the RAH) very early in the morning of 1st October 2001. It is clear that he had ingested a significant quantity of Zyban tablets. Zyban is the commercial name for the drug Buproprion and has been utilised as an anti-depressant. In recent years the drug has more frequently been used as an aid to give up smoking. References in these findings to Zyban and Buproprion should be understood as references to the same substance. The deceased had recently been prescribed the drug to assist him to quit smoking. He had been supplied with 120 x 150mg tablets, one tablet to be taken daily for three days and thereafter twice daily. The date of supply, as typed on the empty box located by police at his premises, was 17/9/01 (Exhibit C19). By 30 September 2001, on the assumption that he had taken them at the prescribed

frequency, he would have still had about 95 tablets in his possession. The fact that he had ingested a large quantity of Zyban was made clear to those responsible for his treatment at the RAH Emergency Department. Complicating the matter, however, is the fact that unknown to those concerned in his treatment, the deceased had also ingested a large quantity of another substance, the anti-inflammatory drug Diflunisal, commercially known as Dolobid. References in these findings to Diflunisal and Dolobid are to be taken as references to the same substance. The deceased did not make his ingestion of that substance known to those treating him.

1.2. It appears that the deceased had, earlier in the evening, entertained the idea of killing himself and as evidence of that desire he had also cut one of his wrists, although not fatally. What had motivated the deceased to take his own life needs no discussion here but it is evident that after the deceased had ingested the substances described and had cut himself, he had a change of heart. He telephoned his father, Mr Terry Evans, at about 12:15am on 1st October 2001. He said he had tried to take his own life. His father was at that time in Melbourne. Mr Evans senior in turn telephoned the deceased's brother Derek at about 12:30am. Derek Evans drove to the deceased's home in Walkerville and then conveyed the deceased to the RAH Emergency Department. Although the deceased had mentioned to his father that he had taken Zyban and, as well, some anti-inflammatory tablets that he had in his possession for back pain, which I take to mean the Diflunisal, it appears that he only mentioned his ingestion of Zyban to his brother.

1.3. The deceased was triaged at the RAH Emergency Department at approximately 1:19am according to triage records, although he appears to have been seen by a nurse approximately 25 minutes earlier. The time of 1:19am is the time recorded on a form known as a UR9 which is the document upon which a patient's triage assessment is noted and which then becomes the first page of the patient's clinical record within the Department. Triage is the procedure, performed by the triage nurse, by which presenting patients are accorded priority of treatment within the Department. The deceased was triaged as category 3, which means that he should be seen by a doctor within half an hour.

1.4. The deceased was seen by a doctor at 1:40am. Certain treatment was attempted by way of decontamination for what was perceived to have been a Zyban overdose only. In the event, the deceased died in the Emergency Department at 4:39am at which time

he was certified life extinct. The cause of his death was plainly related to the significant overdose of the two substances he had ingested, either in combination or separately. I discuss the cause of the deceased's death more fully within.

1.5. When the deceased first presented at the RAH, there was no hint of the tragic outcome that was later to occur. That he was to die was unexpected. In this Inquest I examined whether the deceased had received timely, competent and appropriate treatment following his presentation to the RAH and whether his death could or should have been prevented. As part of this examination I also considered the complicating factor that the deceased had not told those treating him about the ingestion of Diflunisal and whether this compromised the ability of those endeavouring to save his life from so doing.

2. Zyban (Buproprion)

2.1. Buproprion was originally approved as an anti-depressant in the United States in 1986 but was withdrawn due to a high incidence of seizures occurring at therapeutic doses. It was ultimately reintroduced in 1989 with modified recommended doses. The drug was found to be efficacious in maintaining smoking abstinence and was marketed in Australia in 2001 as an anti-smoking aid. At that time it was available in packets of 120 tablets of 150 milligrams each and was listed on the Australian Schedule of Pharmaceutical Benefits if acquired in that quantity.

2.2. The drug, known as Zyban commercially, is a sustained release drug designed to activate and be absorbed into the blood stream over a period of time. This property, as will be seen, carries some implications both in relation to the acuteness of its toxicity and in relation to the appropriate method of decontamination.

2.3. There was evidence before me to suggest that in overdose the drug has certain neurological manifestations such as seizures. Tachycardia (significantly increased heart rate) and cardiac arrest have also been observed. Overdoses involving ingestion of less than 10 grams of the substance are said to have produced fatalities. The toxic effects of the drug may be delayed in onset because of its slow release properties. No specific antidote exists for Buproprion overdose.

3. Diflunisal (Dolobid)

3.1. Diflunisal is an anti-inflammatory drug commercially known as Dolobid. In overdose it may have a toxic effect in itself and may give rise to a synergistic effect in conjunction with an overdose of a drug such as Buproprion. Seizures from Buproprion would greatly increase the penetration of Diflunisal into the brain and thereby increase the toxicity of Diflunisal. Conversely, the acidosis that might be obtained from Diflunisal toxicity and which may have an adverse effect on heart function would increase the cardiac toxicity of Buproprion. There is no antidote to the toxicity created by this substance.

3.2. I later discuss measures that might be utilised to decontaminate a patient who had taken an overdose of these substances.

4. Objective evidence of the deceased's ingestion of both Zyban and Diflunisal

4.1. At post mortem, the deceased's stomach still contained a bolus, or pharmacobezoar, of residues measuring 8 x 6 x 5 cm consistent with tablet ingestion. This was in effect a conglomeration of tablets he had consumed but which had not been absorbed into the blood stream prior to death.

4.2. In addition, toxicological analysis of his blood revealed a Buproprion level at 0.54mg/L which is greater than therapeutic level. Toxicology also revealed a level of Diflunisal of 265mg/L which is described as a lethal concentration.

5. The deceased's presentation at the RAH

The deceased was triaged and was seen by a doctor at 1:40am. The presenting complaint and triage assessment is recorded as *"OD Zyban + slashed wrist. Suicidal"*. Although the UR9 triage form states a time of 1:19am, it is evident that the deceased was seen earlier than that at 0:55am (five minutes to 1:00am). This is the time recorded on the Nursing Assessment Form (UR9.2). The discrepancy may be explicable on the basis that although he may have been triaged earlier, the form was not printed until 1:19am. The nurse who examined the deceased at 0:55am was Stuart Elliott who gave evidence in the Inquest. Nurse Elliott recorded that the deceased had cut his wrist with a chef's knife, had claimed to have taken *"Approx 110 Zyban Tablets"* and said that he had consumed what Elliott has recorded as about eight

beers. There is no record on this document as to the time at which the Zyban tablets were said to have been consumed. Nurse Elliot consulted a Dr John Adie about the matter. Dr Adie also gave evidence in the Inquest. At some stage, certain enquiries were conducted by clinical staff about the drug Zyban. Neither Nurse Elliot nor Dr Adie had experience of any significance with the drug. It had only been on the market for a matter of months. Dr Adie examined the deceased at 1:40am. Although Nurse Elliott played a role in the deceased's early management, responsibility for his care essentially fell to Dr Adie. Dr Adie was on duty as an emergency Registrar at the Emergency Department on that occasion. He had a responsibility to supervise the resident medical officers and intern on duty and was basically responsible for running the Department during that shift.

6. <u>Statements made by the deceased as to his consumption of substances</u>

6.1. The deceased told his father in the phone conversation to which I have referred that he had taken all of the Zyban tablets in his possession. Mr Evans calculated that his son had taken about 98 tablets. This was an estimate based upon the number that the deceased was thought to have consumed since they had been prescribed. The deceased also told his father that he had taken some anti-inflammatory tablets which he possessed for back pain. He did not say what type they were. When police attended at the deceased's premises after his death, they located an empty box of Zyban (120 x 150mg) and an empty jar of Diflunisal. There were also six empty cans of beer.

6.2. The deceased told his brother Derek that he had taken about 110 Zyban tablets and said that he had actually counted the number he had consumed. At the time Derek Evans had attended at the deceased's premises, sometime before 1:00am, the deceased asserted that the pills he had taken had not affected him at all (Statement of Derek John Evans verified by affidavit (C5, C5a). Derek Evans' statement does not mention anything about the deceased having consumed any drug other than Zyban and he does not claim to have seen the Zyban box or the Diflunisal jar.

6.3. Derek Evans accompanied the deceased to the RAH where he was spoken to firstly by a triage nurse, then Nurse Elliott and then Dr Adie. In his statement, Derek Evans describes conversations with hospital staff about treatment for Zyban overdose but no other substance. Mr Evans senior states that he spoke on the telephone to his son

Derek on two, perhaps three occasions, at least once when Shaun and Derek were at the RAH. Mr Evans does not claim to have imparted to Derek the fact that Shaun had taken two separate substances.

6.4. In the event, it is clear to me and I so find that neither the deceased, nor anyone else on his behalf, told RAH staff anything about the fact that the deceased had consumed Diflunisal, whether by name or otherwise, in what was later discovered to have been a potentially fatal quantity in itself. The deceased told Nurse Elliott that he had taken approximately 110 Zyban tablets, a quantity that was in keeping with what he had told his brother Derek, and he said the same thing to Dr Adie. Nurse Elliott told me that the deceased needed *"a little bit of coaxing"* (T21) to describe what he had consumed. Nurse Elliott said that given the self-inflicted wrist injury, it was his standard practice to ask if a patient had "taken anything". The deceased had not volunteered the Zyban consumption and only mentioned it when specifically asked whether he had taken anything. He did not mention anything other than Zyban and alcohol consumption. Nurse Elliot did not ask the deceased whether he had taken anything else, which given what is a common feature of overdose scenarios that people take multi substances, was unfortunate (T33). Whether in these circumstances the deceased in any event would have then volunteered consumption of the Diflunisal is another matter. I think that if it had been made clear to him that it was important for the sake of his well-being that he divulge all that he had consumed, in the nature of things he may well have told Elliott about the Diflusinal whether by name or otherwise.

6.5. When Dr Adie saw the deceased at 1:40am, the deceased told him that he had taken what the doctor noted as *"2030 – swallowed 110 x 200mg Zyban = 12,100mg"*. Dr Adie stated that the erroneous figure of 200mg was given to him by the deceased himself (T63). We know, however, that the tablets came in 150mg form. The end calculation of 12,100mg, as a total consumed, is in any case mathematically incorrect. It should read 22,000mg on the basis of 110 x 200mg. However, on the basis that the tablets were in reality of 150mg magnitude, a proper calculation would have been 16.5 grams. The deceased was always consistent as to the number of tablets he had taken, namely 110. Accordingly, for the purposes of these findings the figure of 16.5 grams is a fair estimate of his ingestion of Zyban. Whatever the figure, Dr Adie told me that he was to treat the quantity ingested as a *"potentially lethal overdose"* (T71).

6.6. The deceased did not divulge his consumption of Diflunisal to Dr Adie. It is not possible to quantify the amount of that drug taken in terms of milligrams or number of tablets. Suffice to say, it was a potentially lethal quantity as was ultimately discovered at post mortem. Dr Adie noted that he asked the deceased about current medication and he recorded *"Meds – Zyban – 2 weeks – to stop smoking"*. There is no mention of any other medication. Dr Adie was unclear as to whether he specifically asked the deceased if he had taken anything other than the Zyban. He stated, however, that it would have been his normal practice to so ask. (T129). He had no recollection as to what if anything the deceased had said by way of reply. A note to the effect that the question was asked of the deceased and of his reply, if any, would have been helpful in the resolution of this issue. On objective analysis, it seems unlikely to me that Dr Adie did ask the question. If the answer was no, that the deceased had not consumed any other substance, this would have been a lie and it is difficult to see what would have motivated the deceased to be deceitful in that fashion. On the other hand, he had not been particularly forthcoming with information and for some reason had chosen not to disclose the Diflusinal consumption in the first instance. But he had been consistent about the Zyban and I am not prepared to make a positive finding as to whether Dr Adie did ask the deceased whether he had consumed other substances. In any event, it occurs to me at this should be a standard enquiry in these circumstances. It should be made at triage, by the first nurse who sees the patient substantively and by the treating doctor. The fact of the question being asked and the reply should be noted.

7. <u>The blood tests</u>

7.1. At some point in time during the course of the deceased's treatment, a blood examination revealed that there were present in the deceased's blood stream Paracetamol and salicylate in therapeutic concentrations. The circumstances in which those tests were ordered and conducted, and in particular the time at which they were ordered and conducted are far from clear on the evidence. Also unclear is the time at which the results of the tests were made available and were seen by clinical staff.

7.2. Although there is no suggestion that either Paracetamol or salicylate (Aspirin) in any way contributed to the deceased's death, the suggestion is made in the Inquest that a detection of these substances ought to have alerted clinical staff to the possibility of a

multi-drug overdose, which perhaps may have led to the detection of the Diflunisal ingestion and appropriate treatment therefor.

7.3. Dr Adie stated that in the circumstances that prevailed, checks are conducted to ascertain haemoglobin levels, aspirin salicylate levels and Paracetamol levels. He admitted that at some point in time he received the blood results, but was unsure as to when he received them or when he noted them. It is clear that he has in fact noted the results in the clinical record, including the presence of both salicylate and Paracetamol, but suggested they may not have been available until after the deceased had passed away. At T98 Dr Adie was asked:

> 'Q. When you received the results of the paracetamol and salicylate tests, did you at that time realise that the history of tablet-taking you had taken from Shaun was deficient and that he must have taken other tablets.
>
> A: I can't remember receiving the results, I can't remember the thought processes I was having at that particular time, it may have been some hours afterwards, even after Mr Evans had passed away, that that might have been happening. So looking at those, I didn't think that he had taken a significant overdose of other tablets.
>
> Q. But you would recognise now in hindsight, having not only seen those results but written them down at some stage on the second page of UR9, you would recognise that you had not in fact taken a complete history from him of his tablet-taking.
>
> A: Looking at those results now, I understand there was paracetamol and a therapeutic range of salicylate in his blood, so that implies to me that he was taking other tablets.
>
> Q. And the conclusion that you would draw from that is that the history you took from him was not a complete one.
>
> A. The history that I had taken hasn't included those, he hasn't given me that information.' (T98)

7.4. Whether, if Dr Adie had seen the results I have described, he should have taken further action to establish with precision the true nature of the overdoses, was a matter dealt with in the expert evidence to which I will make reference in due course. Suffice to say, there was no test undertaken at the RAH to test the deceased's blood specifically for Diflunisal. The presence of Diflunisal was only established after a Dr Nicholas Buckley, a toxicologist, had suggested to those investigating this matter that the substance be looked for post mortem. Dr Buckley, who gave evidence in the Inquest, was asked at T208 by me:

> 'Q: Why did you suggest diflunisal.
>
> A: It's a good question. My memory of this is this was mentioned in one of the statements made but not in the medical record, so it was not something that was

recorded in the notes, but I think it was something mentioned in someone's statement that he was on these tablets.

Q. That is an anti-inflammatory, I think, isn't it; diflunisal.

A. An anti-inflammatory drug which is relatively uncommon compared to more common anti-inflammatories, like Brufen and so on.

MS HODDER: C7A.

MR BONIG: P.3.

+EXAMINATION BY MR BONIG

Q. In fact, when you asked the laboratory to test for the diflunisal, you had one very important piece of information that the hospital didn't have, and that was that the police, when they went to Mr Evans' house after his death, had found an empty jar of a medication known as Dolobid. Does that refresh your memory.

A. That's correct. I think it actually has been mentioned in a couple of places. My memory is it wasn't in the hospital notes, but it was in some other piece of evidence I was provided with.

Q. You had also seen it in the statement, I think, from Mr Evans' father, in that Mr Evans, Shaun Evans, relayed to his father that he had taken, I think, some tablets of anti-inflammatory as well as the Zyban during the course of a telephone conversation between the two of them prior to Mr Evans going to hospital. I think that is another area where it appears.

A. Yes.' (T208-209)

There is no suggestion that anyone concerned in the deceased's clinical management at the RAH had the benefit of the knowledge that Dr Buckley and those investigating this matter were subsequently to acquire.

7.5. I return to this topic later.

8. <u>Available measures for treatment of Zyban overdose in October 2001</u>

8.1. It is to be emphasised that in October 2001 there was limited clinical experience of the effects of and treatment for an overdose of Zyban specifically. The drug had not been released in Australia for a long period of time. Neither Nurse Elliott nor Dr Adie had any significant previous experience with the drug.

8.2. However, there were a number of matters concerning the drug that had been documented and which were generally known. This information included its potential to cause seizures, that it was a slow or sustained release drug and that there had been fatalities from overdoses at certain levels.

8.3. The Royal Adelaide Hospital "Overdose (Intentional and Accidental) Management Protocol", said to have been implemented in September 2001 (Exhibit C18), suggested that medical staff could use the following resources for poison information:

- ' Hypertox System in ED/ICU
- Poisindex (Resource Computer in ED)
- Poisons Information Centre (131126)
- Drug Information on extension 25546 (0900 to 1700 hours)
- Clinical Pharmacology and Toxicology Registrar'

(Exhibit C18)

The protocol advises in strong terms that reference should not be made to MIMS Annual.

8.4. The Protocol also gave the following information in relation to Gastro-Intestinal decontamination, namely:

'GI Decontamination

Give activated charcoal (50G) if all 3 are applicable:

1) awake & cooperative

   or

   unconscious with ETT (via NG tube) **AND**

2) Sustained release medication

   or

   <2-4 hours elapsed since ingestion **AND**

3) Not contraindicated (alkali, acid or hydrocarbon ingestion)'

(Exhibit C18)

I was told during the Inquest that activated charcoal binds the toxic material remaining in the gastrointestinal tract and prevents or limits its absorption into the body. It is generally administered orally, but sometimes by way of nasogastric tube (NGT). Potential complications include aspiration of charcoal into the lungs if administered to a patient with a depressed level of consciousness, or to a patient who has a seizure or cardiac arrest in the hours following the administration of charcoal.

8.5. Whole bowel irrigation is another method of gastrointestinal decontamination. This procedure involves completely emptying the gastrointestinal tract of unabsorbed toxic

material by the administration of a polyethylene glycol solution which can be taken orally or by an NGT passed into the stomach. The solution, known commercially as Golytely or Colonlytely, requires an administration rate of 2 litres per hour, which is substantial and may be unpleasant for the patient whether administered orally or by NGT. The process is continued until a clear rectal effluent passes and this may take several hours.

8.6. It is fair to say that during the course of this Inquest there was debate about the appropriateness or efficacy of the administration of these procedures. Although the RAH protocol in general terms recommended the use of activated charcoal as a decontaminant, the document did not refer to Zyban specifically. Information placed before me in the Inquest fell short of establishing that charcoal administration was regarded as a universal and fail safe panacea, particularly where there had been a delayed presentation of a Zyban overdose.

8.7. The evidence suggested that gastric lavage (or stomach pumping to use the colloquial term) was contra indicated because of certain risks. In addition, there is no known antidote to Zyban toxicity.

9. The management plan adopted by Dr Adie

9.1. Both Nurse Elliott and Dr Adie gave evidence about their attempts to find information about Zyban. The circumstances in which they came to do so differs between one witness and the other. Nurse Elliott stated at T16 that although he was aware that Zyban was a drug that was used to help cut down on smoking, he was not aware of its effect. However, he regarded the deceased as being at “some risk” (T18) based on the bare fact that he had taken such a large amount of medication (T22). He told me that he consulted Dr Adie at a time before Dr Adie saw the deceased, as a result of which Dr Adie said that he would endeavour to find some computerised information about Zyban while Nurse Elliott telephoned the Poisons Information Centre (PIC). Thereafter, Nurse Elliott went back to Dr Adie to tell him what had been said by the PIC. Dr Adie, on the other hand, stated that he saw the deceased immediately after Nurse Elliott had spoken to him and had advised him that he had a patient who had taken an overdose and was looking “a bit grey” (T58). Dr Adie stated that he then took a history from the deceased which included reference to the consumption of Zyban. He told me that he had not on any prior occasion encountered a patient who

had overdosed on Zyban, but was aware of seizures as a possible side effect. Dr Adie claimed at T73 that when he first saw the deceased, the latter told him that he, that is the deceased himself, had already called the PIC and that they had told him that he should not be given charcoal but should be given whole bowel irrigation. Dr Adie noted this within his notes of examination compiled on the UR9 form in this fashion:

> 'Patient seen when asked to by nurse after being told patient had taken 110 Zyban tablets after domestic with girlfriend & that he had rung the poisons center (sic) who suggested not giving charcoal because of delay in presentation & to give whole bowel irrigation because of quantity of ingestion'
>
> (Exhibit C13)

9.2. Dr Adie told me that this piece of information, unusually imparted as it was by the patient himself, caused Dr Adie to instruct Nurse Elliott to contact the PIC to confirm the advice about the inappropriateness of giving charcoal while Dr Adie consulted the TOXINZ database on a computer. TOXINZ is a database promulgated in New Zealand. Dr Adie had some familiarity with this source of information as he had practised in New Zealand. I received in evidence two versions of the TOXINZ data in so far as it related to the drug Zyban. They became Exhibits C14 and C14a respectively. The former is said to be the TOXINZ information that was available between the months of April and September 2001 and the latter was said to encapsulate the information as it existed on the database from October 2001. For present purposes they are not materially different. I understood Dr Adie to say that both documents represent the information about Zyban that Dr Adie accessed and saw in the early hours of the morning of 1 October 2001.

9.3. Nurse Elliott did not corroborate Dr Adie’s odd assertion that the deceased himself had stated that he had rung the PIC and had been told what Dr Adie was later to record in the note set out above. In addition, there is no suggestion on Nurse Elliott’s evidence that his own enquiry of the PIC was as the result of anything the deceased had said needing to be confirmed. Rather, Nurse Elliott portrays his efforts in ringing the PIC as having occurred at a time before Dr Adie had even had an opportunity to speak to the deceased personally.

9.4. What does seem clear is that whatever the circumstances in which Nurse Elliott and Dr Adie acted may have been, Nurse Elliott did phone the PIC and Dr Adie did consult TOXINZ.

9.5. Attached to the affidavit of Senior Constable Paul Gross (Exhibit C9) is a document which purports to be a job card relating to an enquiry of the NSW PIC from the RAH about ingestion of Zyban timed at 1:59am (Exhibit C9a). I find that this document is a record relating to the enquiry made by Nurse Elliott about the deceased. The time of 1:59am is Eastern Standard Time and thus it is that it would seem that the enquiry would have been made at about 1:29am, South Australian time, some 10 minutes before Dr Adie records having seen the deceased for the first time. This would seem to suggest that Nurse Elliott's version of events ought to be preferred, but for reasons that will become clear, in my view nothing really turns on whether the PIC enquiry was made before or after Dr Adie saw the deceased or whether the enquiry was prompted by the statement that Dr Adie attributes to the deceased about the latter having already made his own enquiries of the PIC.

9.6. Although it does not identify persons by name, that Exhibit C9a is a record of Nurse Elliott's enquiry is borne out by its reference to the date and time, to the drug Zyban and most particularly by its reference to the patient having consumed 110 tablets as well as eight beers and having slashed his wrists, information that was given to Nurse Elliott by the deceased.

9.7. The document does, however, contain a number of discrepancies as compared to information apparently given by the deceased or to the reality of the matter. I speak here of the fact that the document records the time since exposure to the drug as 90 minutes whereas at 1:29am, on what the deceased had told, or was to tell, Dr Adie, he had consumed the tablets some five hours earlier at about 8:30pm. In addition, the document, records the following as having been the advice tendered to Nurse Elliott by the NSW PIC:

> '**Advice:** has also (sic) had 8 beers and slashed his wrists feels lightheaded paraesthesia tachycardic <u>has been given charcoal</u> WBI should be considered especially as SR prep seizures likely serious OD as per PI'
>
> (Exhibit C9a) The underlining is added

WBI is a reference to whole bowel irrigation. OD is a reference to overdose. SR means slow or sustained release. PI means product information. That the provider of this advice had held the belief that charcoal had already been given cannot in my view be doubted. But the record represents a serious departure from the facts that existed and that were known at the time of this communication. Neither Nurse Elliott nor Dr

Adie had any knowledge of any earlier administration of charcoal and this is borne out by the fact that, indeed, the deceased had not been given the same and, in the event, was never given charcoal. This reference will forever remain unexplained as I find that Nurse Elliott did not say to the NSW PIC that charcoal had already been given.

9.8. Nurse Elliott's version of the advice that he obtained from the PIC about activated charcoal was the following: *"because of the time delay that it had been some hours since the medication had been consumed that that probably wasn't an appropriate treatment and that a whole bowel irrigation should be undertaken"* (T24). Nurse Elliott said he passed on that information to Dr Adie after he had made his call to the PIC.

9.9. For his part, Dr Adie stated in effect that Nurse Elliott returned from having contacted the PIC and confirmed that what the deceased had said about charcoal administration had been correct, namely that the PIC had advised not to give charcoal but to give whole bowel irrigation (T74). This piece of information, imparted as it was second hand from a nurse and generated, so Dr Adie says, from a very unusual statement made by the patient himself, seems to have formed the basis of Dr Adie's management plan. He said:

> 'The only reason why I discounted the charcoal was because the Poisons Centre had advised against it'
>
> (T74)

Dr Adie vehemently rejected the suggestion that he had decided not to give activated charcoal because he had acted on the deceased's statement alone. He said:

> 'No I didn't take the patient's word for it. I asked Mr Elliott to ring up and confirm that particular piece of advice. I didn't want to discount what Mr Evans had said but I didn't want to take his word for it without checking out what the Poisons centre actually said.'
>
> (T101)

Dr Adie was further asked:

> 'Q: And so as far as the decision was concerned not to give him charcoal what was the primary piece of information that you acted upon.
>
> A: Nurse Elliott calling the Poison Centre.
>
> Q: What about the search that you'd done on the database.

A: That as well. I probably would have given charcoal if it wasn't for the fact that the advice that I had was not to give it. The material on the toxins database mentioned two options which is Charcoal and whole bowel irrigation and I saw the advice that I got from the Poison Centre via Mr Elliott as you know in the ballpark of what they were saying, so that's why I followed the advice of the Poison Centre.' (T103- 104)

9.10. I am bound to say that a lot of what Dr Adie has said about not giving activated charcoal is difficult to comprehend, especially when it is remembered that the RAH protocol in general terms advocated the administration of charcoal in the deceased's circumstances as did the very database that Dr Adie himself says he consulted. The TOXINZ database stated the following about charcoal decontamination for Buproprion overdose:

> 'DECONTAMINATION
>
> Ingestion
>
> Activated Charcoal
>
> Administer up to 30-60 minutes following a potentially toxic ingestions of liquid formulations and 4 hours for solid (e.g. tablet or capsule).
>
> Administer up to 12 hours following potentially toxic ingestions of sustained release or enteric coated formulations and follow with whole bowel irrigation.
>
> Single dose activated charcoal
>
> Child: 1 to 2 g/kg orally
>
> Adult: 50 to 100g orally
>
> Nasogastric administration of activated charcoal is not recommended for this overdose if oral administration is unsuccessful.' (my underlining)
>
> (Exhibit C14)

9.11. The underlined section of the above passage was a fit for the deceased's circumstances. By 1:40am only about five and a half hours had passed since ingestion, if the deceased was to be taken at his word that he had consumed the Zyban at 8:30pm. This was well within the stipulated 12 hours. The tablets were in the form of a sustained release preparation. This then begs the question as to why Dr Adie considered that at 1:40am the administration of activated charcoal was not an appropriate measure. Dr Adie made a number of statements as to this which, when considered as a whole, are perplexing. Dr Adie was asked:

'Q: Having been told apparently by the patient in your memory that he had obtained information from the Poisons Centre and having made a decision that that information or advice should be checked, why did you not do that yourself.

> A: The reason why I didn't do it by myself is because I wanted to go and look up what the toxins database said because that was usually what I relied on and that was just one particular point of disagreement that I wanted to check out. So I wasn't asking Mr Elliott to ring up the Poisons Centre to advise me how to manage the whole case, it was that particular piece of information that I wanted to find out.' (T101)

However, when asked by me as to why he did not give activated charcoal, Dr Adie said:

> 'It was on the advice of the Poison Centre. When I read the toxins database had mentioned whole bowel irrigation and also charcoal and then after I had that information confirmed by Mr Elliott, that the deceased advised not to do that, I saw them as a higher authority than the toxin's database.' (T102)

If Dr Adie regarded the PIC as a higher authority than the TOXINZ reference, it is puzzling as to why he did not ring the PIC himself and it seems inconsistent with his earlier assertion that he chose to look up the TOXINZ database because that is what he usually relied on.

9.12. Dr Adie referred to some other factors affecting his decision. He stated at T103 that doctors were encouraged at the Royal Adelaide Hospital to give activated charcoal if patents presented within one or two hours of ingestion and that the efficacy of charcoal was significantly diminished after four hours. But the Royal Adelaide Hospital protocol, which Dr Adie claimed he was unaware of, recommended charcoal administration for awake and cooperative patients who had consumed sustained release medication and it did not stipulate any time constraint. Zyban was a sustained release medication and the TOXINZ data referred to the possible administration of charcoal for up to 12 hours following a potentially toxic ingestion of sustained release formulations as this was. Dr Adie at T107 stated that he did not know whether the Zyban that the deceased had consumed was a sustained release preparation. But the TOXINZ data which Dr Adie examined referred to this type of preparation and gave the green light for its use in the deceased's circumstances. Dr Adie, in relying on what Nurse Elliott relayed to him about the advice the latter received from the PIC, does not seem to have considered whether that advice was based upon a sustained release preparation or otherwise. The advice given by the PIC was fundamentally flawed in any case because it appears to have been given on the misunderstanding that charcoal had already been administered. I do not know how that misunderstanding arose. There was obviously a difficulty in communication between Nurse Elliott and the PIC representative. That difficulty may well have been overcome if Dr Adie had

telephoned the PIC himself. I cannot see any reason as to why Dr Adie should not have conducted the PIC enquiry himself. Whether or not Dr Adie asked Nurse Elliott merely to confirm through the PIC what the deceased himself had said about his own enquiry or whether Dr Adie thought that the PIC should be consulted in any case, Dr Adie was the medical officer in charge of the deceased's management and he should have ensured that decisions made as to his management were based upon first hand knowledge rather than through the intermediary, Nurse Elliott. I heard evidence from a Dr Nick Buckley who is an experienced toxicologist and pharmacologist whose views about this issue were as follows:

> 'Yes, I have fairly strong, if you like, non-expert opinions that they should be talking to specialists directly in order to get the best utilisation of the advice. I guess that's based on my experience on being on the poisons centre roster over about 10 years. The most frustrating situation is where you are speaking to a nurse and she says the doctor is too busy to talk to you, and 'Can you tell me what I need to tell them'. And this Chinese whispers approach to handing over what is often key bits of information I think is not the best way to utilise the poisons information centre.'
>
> (T194)

The wisdom underlying these observations seems to me to be self-evident.

9.13. In the event, I do not need to decide whether the deceased made the statement about his contacting the PIC himself because whatever the circumstances in which Nurse Elliott made his own PIC enquiry, and whatever was said during that enquiry, it was on anyone's version conveyed to Dr Adie that the PIC had for whatever reason not recommended activated charcoal. So, it appears, Dr Adie chose to rely on that information rather than the plain result of his own research on the TOXINZ database.

9.14. Thus it came to pass that Dr Adie did not give activated charcoal to the deceased. Whether that state of affairs could have compromised the deceased's welfare is a matter that was heavily debated during the Inquest, and was complicated by the fact that the deceased had ingested a significant quantity not only of Zyban, but of Diflunisal as well. I return to this issue when I discuss the expert evidence that was called before me.

9.15. Dr Adie decided to administer whole bowel irrigation as the preferred method of decontamination. I now turn to the events surrounding the attempts to administer that measure.

10. The course of the deceased's treatment

10.1. This can be stated relatively briefly. Attempts were made to administer whole bowel irrigation with an ingestion of Golytely or Colonlytely. The deceased who was still alert, cooperative and oriented, elected in the first instance to have the Golytely administered by way of a NGT. There was some delay in obtaining the liquid as it was not available within the Emergency Department itself. It had to be obtained from the ward. Dr Adie on a number of occasions in his evidence stated that he had expressed some anxiety about the time it was taking to secure the substance. When it was obtained, no less than four attempts were made to insert an NGT, with the deceased ultimately pulling the tube out at the fourth attempt. These attempts may have occurred at about 2:30am or 2:35am according to Dr Adie. The deceased then elected to drink the substance which he commenced doing. Bear in mind that about two litres of this liquid had to be ingested. I heard evidence that it was not especially palatable. The deceased was unable to tolerate it.

10.2. At 2:40am, Dr Adie requested the trauma registrar, a Dr Michael Sweeney, to come to the Department to assist in the insertion of the NGT. Dr Sweeney was able to successfully insert the tube at the first attempt and administration of the liquid was commenced. At this stage, an hour had passed since Dr Adie had first seen the deceased, and longer since the deceased had arrived at the RAH. By the time the administration of the Golytely was commenced, Dr Sweeney noted that the deceased had become pale, clammy, sweating and was tachycardic, that is, he had a fast heart rate, although this had been observed previously. At 2:45am, however, the deceased had a seizure lasting several seconds. He was then observed to be "drowsy" and his Glasgow Coma Score (GCS) had fallen from the maximum 15, recorded at about the time he had arrived at the Royal Adelaide Hospital, to 10, which was reflective of the fact that the deceased was deteriorating. It is recorded in the clinical record that the deceased had nil verbal response. There was some debate in the evidence about the significance of this GCS score, but I find that it was reflective of a deterioration in the deceased's conscious state and not merely the manifestation of a lack of cooperation. It is inconceivable that both Dr Adie and Dr Sweeney would both record scores of about 10 if they did not consider it reflective of a deterioration.

10.3. By 3:00am, about a litre of the liquid had been administered. At or shortly after that time, the deceased had a further seizure lasting about 20 seconds for which

intravenous Diazepam was given . The administration of Golytely was discontinued. At this stage, his GCS was recorded as 3 with nil eye opening, nil verbal response and nil best motor response. At about 3:10am an ECG was performed which suggested an abnormality in heart function.. At 3:15am, a Guedel's airway was inserted. This is a plastic tube designed to prevent the tongue from falling back onto the airway of a person who has a low conscious state. It is essentially used to keep the airway open. At about 3:38am, or possibly a few minutes earlier on one version, the deceased was fully intubated. Dr Sweeney had taken over the deceased's management and all further efforts at treatment were devoted to attempts to stabilise and resuscitate the deceased. In particular, the deceased's heart was experiencing abnormal rhythms and at one time his pulse stopped and at another he had to be defibrillated. Further efforts at resuscitating the deceased were unsuccessful and he was certified deceased at 4:39am.

11. Appropriateness of treatment given and cause of death

11.1. I received in evidence reports from Dr Nick Buckley (two) and Dr Lindsay Murray. Both doctors gave evidence in the Inquest. The reports became Exhibits C16, C16a and C17 respectively. I also received in evidence a letter from Dr Chris Baggoley which became Exhibit C6a. Dr Baggoley did not give evidence.

11.2. Dr Buckley is Director of Clinical Pharmacology and Toxicology at Canberra Hospital and is also a consultant to the New South Wales Poisons Information Centre. He is a Fellow of the Royal Australian Collage of Physicians with a sub-speciality in clinical pharmacology and toxicology.

11.3. Dr Murray is a senior lecturer in emergency medicine at the University of Western Australia and a consultant emergency physician and clinical toxicologist at the Charles Gairdner Hospital in Western Australia. He has a paid position as the medical director of the New South Wales PIC and is the unpaid medical director of the Western Australia PIC.

11.4. Dr Baggoley is currently the Executive Director of the Public Health and Clinical Coordination Branch of the Department of Health, and was at the time of his compilation of his letter (Exhibit C6a), the Executive Director of Medical Services at the Adelaide Community Healthcare Alliance.

11.5. Views were expressed by the experts about myriad issues connected with the deceased's treatment and cause of death. These issues can be crystallised as follows:

(a) the deceased's actual cause of death;

(b) should activated charcoal have been given to the deceased in an effort to prevent or limit the further absorption of toxic material;

(c) was the administration of whole bowel irrigation delivered in a timely manner;

(d) should the possibility of an overdose of a substance other than merely Zyban have been recognised, and if so whether it should have dictated a different course of action;

(d) was sufficient consideration given to the delivery of life supportive measures, such as the maintaining of the deceased's airway and monitoring for signs of toxicity;

(f) in the event, did anything that was done or that was omitted to be done contribute to the fatal outcome.

11.6. Cause of death

The post mortem examination on the deceased's body was conducted by Dr Ross James whose report verified by affidavit was received in evidence (Exhibits C2 and C2a). Dr James expressed the cause of death as:

'1. Haemorrhage due to incised wrist wounds associated with

2. Buproprion (Zyban) overdosage.'

(Exhibit C2)

It is evident that at the time Dr James compiled his report he was not aware of the fact that there had also been the large ingestion of Diflunisal, a fact that was not reported until December 2002 after Dr Buckley had suggested that it be looked for (see report verified by affidavit of Janice Gardiner, Exhibits C4 and C4a). Ms Gardiner reported that there had been a lethal concentration of Diflunisal in the blood, some 265mg per litre.

11.7. Dr Buckley and Dr Murray both expressed the view that death in this case was due to the probable combined effects of both drugs. I have referred earlier to the possible synergistic effects of both drugs in combination. I accept the evidence of both Dr Buckley and Dr Murray in this regard. Certainly as Dr Buckley has reported, the clinical toxicity observed is in accordance with published experience of severe Buproprion poisoning but was also consistent with Diflunisal toxicity. In my view there was no evidence to suggest that the blood loss from the wrist wound contributed

in any meaningful way to the deceased's death or, for instance, complicated his treatment for the drug toxicity.

11.8. I find the cause of death to have been mixed Diflunisal and Buproprion toxicity.

11.9. The administration of activated charcoal as a possible method of decontamination

Dr Buckley in his two reports suggested that gastrointestinal decontamination was likely to be effective for slow release preparations, such as Buproprion, even if presentation was delayed as was the case here. He referred to the administration of charcoal in a single dose as 'standard treatment' at the time with which this Inquest was concerned. He said:

> 'I'm unclear why anyone would have suggested that activated charcoal was not indicated. There seems no particularly good rationale for it not being indicated.'
>
> (T191-192)

11.10. Dr Buckley could not see any contraindications for the administration of charcoal in this situation. The only concern may have been the risk of aspiration but the point is well made that the risk applied in the same if not greater measure to whole bowel irrigation which was in fact commenced. Dr Buckley found it difficult to understand why the PIC would have advised against activated charcoal in this situation, but the point of course is that the NSW PIC only recommended whole bowel irrigation as the preferred method of decontamination because of the apparent misunderstanding that charcoal had already been given. It was acknowledged that the risk of aspiration after a delayed presentation had to be considered, as the imminent onset of seizures had to be guarded against. Neither Nurse Elliott nor Dr Adie however, could articulate what they thought would have been the harm in administering charcoal in the first instance. It seems to have been widely recognised that with an overdose of a slow release preparation, charcoal may have been indicated as an effective measure for up to 12 hours post ingestion. However, Dr Baggoley suggests in his report that the NSW PIC had indicated to him that there was a belief that Buproprion was not particularly well absorbed on to charcoal and that it was therefore not particularly effective. In addition, Dr Baggoley reported that "there was no consensus as to the use of activated charcoal amongst their (PIC) toxicologist panellists and advice could well be given (and could have been given) not to use it". Dr Buckley, on the other hand, stated that in his view the vast majority would have recommended activated charcoal, at least a

single dose, and that some might have recommended repeated doses. In addition, Dr Buckley, an extremely experienced clinical pharmacologist and toxicologist, said that there was no particular reason to think that charcoal was ineffective in absorbing Zyban. He said:

> 'The only sense in which it would be poorly absorbed to charcoal is it wouldn't be bound to charcoal while it was still in its slow-release tablet. But once it comes into solution there is nothing there that wouldn't be absorbed into charcoal based on what we know, or what we knew back then. Most medications that are a carbon base bind charcoal to a useful degree.'
>
> (T220)

In the event, I was persuaded that the administration of charcoal in the deceased's case could have had some beneficial effect in limiting further absorption of Buproprion into his bloodstream. At post mortem, there was still a large pharmacobezoar of unabsorbed material in the deceased's stomach. There was in reality no evidence to contradict Dr Buckley's assertion that charcoal was an appropriate measure of decontamination in respect of a slow release preparation, of which Buproprion is but one. No-one suggested to me that any of the recognised texts, such as TOXINZ, in their present form no longer recognise the efficacy of activated charcoal as an appropriate measure of decontamination. It was clearly considered to have been an appropriate measure by that particular text at the time, even up to 12 hours after ingestion.

11.11. There is, however, an issue surrounding the safety of such an administration where there is a late presentation. In this respect, Dr Murray was guarded in relation to the use of activated charcoal, mainly based upon safety issues. In his report, Dr Murray said that in his opinion it would have been appropriate to administer a single dose of activated charcoal to the deceased on arrival given that he was clinically stable and cooperative. Whilst recognising that in 2001 there would have been some disagreement among toxicologists in regard to the preferred method of decontamination for a large Buproprion overdose patient who presented early, he would have favoured charcoal in this situation because of concerns that the time consuming process of whole bowel irrigation might still have been in progress at the time of deterioration, giving rise to the possibility of seizures that were likely to increase the risk of aspiration into the lungs. When asked to consider the relevance of

the four and a half hours interval since ingestion at 8:30pm, Dr Murray said this in evidence:

> 'Look, I will repeat what I said earlier. I think this is a very hard call whether or not to give activated charcoal. You are balancing the potential advantage of preventing absorption of a drug which given its sustaining release nature which is still in the gut being absorbed for many hours – it could be 12, 18 hours after ingestion – against the potential compilations of administering it shortly in the hour of two before someone becomes unconscious and has a fit which may result in charcoal going into the lungs and complicating the case. It is a very hard call. When in doubt, I don't give it. I wait and see what happens and then I give it after I have controlled the airways but it is always a hard call.'
>
> (T256)

In addition Dr Murray stated:

> 'Q: … Would you alter that opinion given that you are now aware it was at least four and a half hours after ingestion of the charcoal.
>
> A: Yes, I would be less likely to give it without securing his airway first. You know, this is a really hard call. If this patient presented to my office in Perth, I would jump in the car and I would be next to the bed beside him in less than 10 minutes so I can see him myself. I think it's a very hard call. The sort of thing I would want to discuss with the treating doctor because we are all making a decision here. Now, given the dose that was taken is 16 g, any amount prior to this time, then I certainly would have been discussing the option of just intubating there and then on arrival so we could safely administer charcoal. Had it been one or two hours and I was confident about that time, I may have been prepared to give the charcoal, watch him very closely, if he deteriorated clinically, bail out and intubate him. This is the sort of thing that, you know, we spend time – I spend time discussing on the phone with doctors all around the country every week. Sometimes there is no right answer.'
>
> (T257-258)

11.12. In the light of that evidence, it is difficult to be dogmatic as to whether the deceased should have been given charcoal. But I bear in mind that the decision not to give it in this case does not appear to have resulted from a weighing of the competing considerations to which the experts have referred. Rather, Dr Adie's decision not to give charcoal had been, as it transpired, based in the main upon a somewhat ham-fisted attempt to obtain appropriate information from the New South Wales PIC and on a garbled and second-hand account based upon a flawed understanding of the facts. I do not criticise Nurse Elliott here because it simply was not his job, in my view, to communicate with the PIC.

11.13. That Dr Adie did not himself speak to the PIC was most unfortunate. There would have been consultants available through that service with whom he could have conferred. The only contraindication to the use of charcoal was that articulated by Dr Murray, that is to say, the risk of complications of administering it after a delay in presentation of four and a half hours. Even then, Dr Murray was of the view that with proper precautions taken, such as intubation, charcoal could have been administered. It is not in my view being wise after the event to suggest that this unfortunate scenario amply illustrates the wisdom of the contention that treating doctors should personally communicate with PIC staff so that they have the opportunity of speaking with qualified specialists so as to enable them more properly to consider the various clinical options. Both Dr Buckley and Dr Murray spoke of the folly of doctors not personally making use of this valuable resource. I agree with what they said.

11.14. In all likelihood, there would have been less risk in administering charcoal than whole bowel irrigation. Whole bowel irrigation is more time consuming and requires the ingestion of more liquid, all of which gives rise to a greater risk of aspiration into the lungs upon seizure or loss of consciousness.

11.15. As to whether the administration of charcoal would have made a difference to the outcome is a moot point. There are many other factors that complicate the question, such as the Diflunisal ingestion and what the experts have perceived to have been the need for better supportive care, an issue I separately deal with. The question of the chances of the deceased's survival must be examined in a holistic fashion. I return to this issue in a moment. Suffice to say, in my view, the issue of whether activated charcoal should have been given was an issue that on the night in question was given insufficient and timely consideration. If information about treatment had been obtained by the appropriate person from the appropriate source, it may well be that charcoal would have been given and that the necessary precautions such as early intubation would have been taken. It seems to me, regrettably, that the deceased was denied proper consideration of a measure that may have had life-saving potential.

11.16. Whole bowel irrigation

In the event, this did not prove to be efficacious. The deceased had presented at the Royal Adelaide Hospital at some time before five minutes to 1:00am when he was seen by Nurse Elliott. At some point in time, he was triaged as Category 3 which means he should be seen within half an hour. He was seen by Dr Adie at least 45

minutes after his presentation. This occurred at 1:40am. I think the deceased should have been seen by a doctor earlier. If it had been recognised that the overdose of Buproprion bore a significant toxicity potential~~in itself was potentially life threatening~~, leaving aside the unknown Diflunisal ingestion, ~~was potentially fatal,~~ then a more appropriate~~then a more appropriate~~ triage category would have been 2, which means that he should have been seen by a doctor within 10 minutes. It is difficult to criticise those responsible for this triage category, or for the delay in the deceased seeing a doctor, and I say this because there is no evidence that anyone concerned with triage had a full understanding of Buproprion toxicity at the time. However, it would be hoped that in future, cases involving massive overdose of medication, as this was, will be accorded appropriate priority and be dealt with as a matter of urgency.

11.17. This delay, as with the delay in securing the decontaminant from the ward, meant that the delivery of whole bowel irrigation was not attempted for perhaps an hour and a half after presentation. It is not overstating the position to say that the decontaminant is a potentially life saving substance. That it was not immediately available within an Emergency Department of a major public hospital is difficult to understand. One would hope that this experience would have already caused such an unsatisfactory state of affairs to be rectified.

11.18. Further minutes were lost in the unsuccessful administration of the NGT and the unsuccessful attempt on the part of the deceased to drink the liquid. Dr Sweeney successfully administered the NGT at about 2:40am, by which time the deceased had been at the Department for at least one hour and 45 minutes, based on Nurse Elliott's note of having first seen the deceased at five minutes to 1:00am. This delay to my mind was unacceptable. Dr Murray said:

> 'Q: …One of the things that concerned me was by the time that procedure actually started, the patient had deteriorated significantly and already had a level of consciousness (sic) and, in fact, I think it started just before the first fit and then after the first or second fit was, it started again.' (T240)

It is not difficult to see why Dr Murray should be so concerned. The deceased was a man who had to be treated on the basis that he had taken an overdose of 110 Zyban tablets with its concomitant sequelae of seizures, and other possible adverse effects, that might arise in time. Moreover, time was also relevant as to whether or not decontamination measures such as the administration of activated charcoal and/or

whole bowel irrigation could be safely performed. In the event, before the deceased's first seizure at about 2:45am, there had been only time for the administration of about a litre of the decontaminant, a fraction of what was usually required. While it is difficult to be critical of any individual in relation to the question of delay, it is hard to escape the conclusion that delay had a significant role to play in what transpired here. The deceased, because of time, had suffered a significant deterioration. Attempts at appropriate decontamination were frustrated at just about every turn and the delay meant that it had become a non-viable option.

11.19. The appropriateness of supportive measures

Dr Buckley and Dr Murray were unanimous in their view that in any poisoning or overdose scenario, supportive care is a matter that has to be accorded high priority. Dr Murray went so far as to say that supportive measures should take precedence over decontamination.

11.20. Dr Buckley explained what was meant by supportive care in these terms:

> 'Supportive care in an overdose situation particularly refers to just monitoring a pulse and blood pressure and saturation of oxygen and level of consciousness. And earlier intervention to make sure that problems with those things which may be minor at first are detected earlier and treated appropriately. So, for example, if his blood pressure dropped a bit, some intravenous fluids would be given to him to ensure he had an adequate blood volume. If his oxygen saturation dropped then he would be given oxygen. If his level of consciousness dropped significantly he would be intubated. And if he had seizures he would be given anticonvulsants and intubated.'
>
> (T190)

11.21. Dr Murray stated this:

> '…And for me the most important principle is to recognise that an overdose is potentially life-threatening and the mechanisms – and the consequences of the overdose is that may be a threat to life and that life support measures always take precedent (sic) over decontamination.'
>
> (T229)

11.22. Concern was expressed about the delayed intubation of the deceased. It is to be remembered that at 2:45am, the deceased's level of consciousness was seen to have deteriorated. He had a seizure at that time and a further seizure at about 3:00am. He was intubated at about 3:38am or a few minutes earlier. In this regard, Dr Murray stated the following:

> 'For me the appropriate – it could have been anticipated from that dose that Shaun was almost certainly going to have seizures and that they may well have been recurrent and difficult to control. The moment someone is having recurrent seizures if affects their respiration and I think that you could have made a very good argument for early intubation and control of the airway in Shaun so that there would never be any problem with his ventilation or oxygenation and so that drugs designed to prevent further seizures could have been administered without concern of their potential depression of level of consciousness. Certainly after he had a seizure and was looking very unwell and did not rapidly recover a normal level of consciousness, or anywhere near a normal level of consciousness, in my opinion it should have been intubated.'
>
> (T230-231)

In his view, it would have been better if the deceased had been intubated and ventilated earlier. Such a measure in Dr Murray's view meant, inter alia, that adequate breathing and adequate oxygenation could have been maintained, and this was important particularly when there exists the risk of further seizures during which the patient would not be ventilating normally. Dr Murray also referred to the suspicion that Buproprion had a direct effect on the heart. Intubation and ventilation may have prevented an exacerbation of the effects of the drug on the heart resulting from low blood levels of oxygen (T234). Dr Murray also suggested that the diazepam given after the second seizure in an effort to control further seizures could have been given after the first seizure, with intubation taking place at the same time (T235). Dr Murray told me that the ECG taken at 3:10am showed two significant abnormalities. Firstly, it demonstrated a very fast heart rate. Secondly, the ECG exhibited evidence of some impairment of the conduction of electrical activity through the conductive system in the heart, usually reflective of a drug effect and of the heart function being compromised by what the deceased had overdosed on. Dr Murray stated that the ECG result at that stage would not have required specific intervention beyond controlling the airway for breathing. But he went on:

> 'A: ….But I would have continued to monitor the effects. If that conduction problem becomes more severe, then one of the treatments is to give sodium bicarbonate, which he got through the attempt stages of the resuscitation which can improve that cardiac function. But it was an indicator at that point. The trouble is a lot of these drugs effects will get worse if oxygen levels are low and if the patient isn't ventilating properly, they become more aperiodic in the blood, and that exacerbates the toxic effect on the heart. That can be reversed by equally ventilating the patient or by administering sodium bicarbonate.
>
> Q: We know then that at 3.38 intubation was achieved. Now, that appears to be about 30 to 35 minutes after that ECG trace was obtained.

A. Yes.

Q. When should he have been intubated ideally in relation to the obtaining of that ECG result in your view.

A. I would never intubate him on the basis of that ECG. I would have intubated him on the basis of his declining level of consciousness and the seizures and knowing that this was a Zyban overdose where drug is continuing to be absorbed and the patient is only going to get worse.'

(T242-243)

11.23. In the light of the delay that had existed in this case, Dr Murray's views are worrying. The advice from the New South Wales PIC had suggested that this was a serious overdose with seizures likely. Dr Adie knew of the possibility of seizures. It was to be anticipated that the deceased would worsen rather than improve with the passage of time. When the deceased was observed to have declined at about 2:45am, there appears to have been a disquieting lack of urgency. I appreciate that Dr Adie attempted to obtain more specialised care by contacting or attempting to contact the Intensive Care Unit and High Dependency Unit. I also appreciate that it would have taken some time for intubation and ventilation measures to have been established. However, in my view there appears to have been an inordinate delay in dealing with the deceased's deterioration. He had one seizure at 2:45am and another at about 3:00am and there does not appear to have been an optimal response in terms of the delivery of appropriate measures to arrest the further adverse effects of seizures by timely intubation and medication. This may have been occasioned by a limited level of familiarity with the effects of the drug Buproprion.

11.24. <u>The Diflunisal ingestion and the significance of blood tests</u>

In my view, no one can be criticised for failing to recognise that the deceased had taken an overdose of Diflunisal as well. I think it would be a counsel of perfection to suggest that clinical staff should have considered Diflunisal poisoning simply on the basis of recorded therapeutic Paracetamol and salicylate levels. Dr Buckley's detective work seems to have been influenced by knowledge that was gained subsequent to these events. On the other hand, the presence of Paracetamol and salicylate in the blood, together with a presentation of overdose as part of a suicide attempt, would rather suggest, even to the layman, that this was a patient who had ingested whatever had been available. In my view, practitioners should not implicitly accept the word of the patient as to what has been ingested, especially, as here, the

possibility of a multi drug overdose was, in the light of the blood tests, reasonably evident.

11.25. Dr Buckley suggested that if the positive salicylate level had been noted, there would have been a case for better monitoring and correction of blood acid base status, but that other aspects of the deceased's management would have remained the same. Dr Buckley thought that the lack of knowledge of Diflunisal overdose could have compromised the deceased's treatment and he referred to an apparent lack of concern about a possible acidosis, for example, that may have been engendered by Diflunisal poisoning. Dr Buckley seemed to suggest, however, that the positive salicylate level, albeit in a therapeutic quantity, perhaps in itself should have led to closer monitoring of acid base status. The evidence about this issue lacked clarity. Dr Buckley was unable to locate evidence in the clinical record of close attention having been paid to acid base status. There is in my view insufficient evidence one way or the other as to blood acid base status at any given time, nor as to whether that issue played a role of significance in this particular death. Although there does not appear to be any evidence that acidosis was sought to be corrected by, say, the administration of sodium bicarbonate, there is no proper evidentiary foundation to suggest that in the prevailing circumstances that night, that blood acid base status should have been uppermost in the minds of those treating the deceased. Having said that, it occurs to me that if this set of circumstances were to be repeated, the possibility of multi drug overdose, with routine checks on acid base status, are matters that ought to receive attention.

11.26. In an ideal world, the salicylate level might have been regarded as a "crucial clue" as Dr Buckley has suggested (T198), but it is not clear on the evidence presented to me whether the timely recognition of this fact alone would have affected the outcome. Dr Murray said that he did not think that knowledge of co-ingestion of Diflunisal would have altered the deceased's management at all. He said:

> '…What is clear that the co-ingestion of diflunisal only made things more serious and worse but it has not changed the need to provide good supportive care of consider decontamination once the airway was secured.'
>
> (T254)

11.27. <u>Could or should the deceased's death have been prevented</u>

This is a very difficult issue. A number of shortcomings in the deceased's care have

been identified. In the main they stem from delay. In my opinion it is impossible to suggest that with perfect clinical management the deceased would have survived. As Dr Murray points out in his report:

> 'However, the fact remains that Sean (sic) had taken a very large combined overdose of bupropion and diflusinal (sic) and it remains likely that even had received optimal aggressive management – intubation and ventilated at the first signs of clinical deterioration followed by decontamination of the gastrointestinal tract by either administration of activated charcoal via a nasogastric tube or attempted whole bowel irrigation – the outcome may still well have been fatal.'
>
> (Exhibit C17)

11.28. Dr Buckley's views as to this vexed issue were also informative. When asked as to whether, for example, if the deceased had been given activated charcoal his death was likely to have been prevented, he said:

> 'I think that's a very big call. Diflunisal, in particular, seems to be – we don't have a lot of information on it, but I find it interesting that half the cases reported in the literature are of people who died, and the lethal drug concentrations that people report are only three to six times that of a therapeutic dose. So, I think the diflunisal, in particular, may well have resulted in a lethal outcome, despite anything that was one. I don't want to get into the business of saying with hindsight everything could have been different. I think it is more useful to say whether things should have been done without necessarily deciding that that would have changed the outcome.'
>
> (T197)

11.29. In my view, Dr Buckley's assessment of that issue represents an appropriate way of examining the matter holistically. The deceased had taken a massive dose of Zyban and a lethal quantity of another substance. He did not disclose that latter fact. In my view, for the reasons expressed, his treatment was not optimal. Certain alternative measures could have been considered, or considered and implemented in a more timely fashion, but the evidence in this case falls short of establishing that the outcome would or may have been different if a different level of care had been delivered to the deceased.

12. Recommendations

12.1. By virtue of Section 25(2) of the Coroners Act 2003, I am empowered to make recommendations that might, in the opinion of the Court, prevent or reduce the

likelihood of a recurrence of an event similar to the event that was the subject of this inquest. The Court makes the following recommendations:

(a) In my view an unnecessarily large quantity of Zyban had been placed in the deceased's possession by virtue of the particular prescription. The evidence is not entirely crystal clear as to whether prescriptions of that magnitude are still required in order to attract pharmaceutical benefits. The Court recommends that the relevant authority gives consideration to ensuring that prescriptions of this magnitude are in future not made available to patients.

(b) The Court recommends that the Director, Clinical Systems of the Department of Health gives consideration to the following matters:

(i) the clarification, for the benefit of clinical staff in emergency settings, of the appropriateness or otherwise of administering activated charcoal in respect of slow release drug overdoses in general and of Buproprion overdoses in particular;

(ii) encouraging doctors in emergency settings to personally utilise the services of Poison Information Centres, such as the telephone services provided by specialist clinical toxicologists, as a source of information relative to the treatment of drug overdoses;

(iii) discouraging the practice of doctors delegating to nursing staff the responsibility of communicating with Poison Information Centres;

(iv) instructing clinical staff responsible for triage to accord to drug overdose presentations triage category 1 or 2 to in order to minimise delay;

(v) ensuring that appropriate decontaminants are always made immediately available within an emergency department;

(vi) ensuring that in drug overdose presentations a thorough enquiry is made of all presenting patients as to the number, quantity and identity of all substances ingested, and ensuring that the fact of and result of all such enquires are adequately noted;

(vii) ensuring that in drug overdose presentations thorough consideration is given to the possibility of multiple overdose, which would include the timely administration and evaluation of blood tests and the payment of closer attention to acid base status.

Key Words: *Zyban; Multi Overdose; Diflunisal; Decontamination Measures; Supportive Care in Overdose Scenarios; Triage*

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

Seal the 12th day of January, 2006.

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Coroner

Inquest Number 19/2005 (2558/2001)