QUEENSLAND COURTS

OFFICE OF THE STATE CORONER

FINDINGS OF INQUEST

CITATION:	**Inquest into the death of Leon Streader**
TITLE OF COURT:	Coroner's Court
JURISDICTION:	Brisbane
FILE NO(s):	COR 573/04(3)
DELIVERED ON:	1 October 2009
DELIVERED AT:	Brisbane
HEARING DATE(s):	20 February 2007, 25 March, 22 April, 15 May and 20 June 2008
FINDINGS OF:	Christine Clements, Deputy State Coroner
CATCHWORDS:	CORONERS: Inquest – Death in care, level 3 accredited accommodation, extreme heat conditions, medication and underlying health all possibly contributing to death, medical record keeping, treating doctor with financial interest in premises issuing cause of death certificate

REPRESENTATION:

Counsel Assisting	Ms J Wilson
Dr Phillip Nyst	Ms J Rosengren (instructed by Avant Mutual Group Limited)

Introduction

Leon Streader was born on 4 October 1935 and died, aged 68, on Sunday 22 February 2004.

At the time of his death Mr Streader lived at Pinjarra Lodge Paddington. Initial information received at the Coroner's office indicated police were informed of the death but were told the treating doctor, Dr Phillip Nyst issued a cause of death certificate.[1] The police considered the death could be a death in care and reported the matter to the State Coroner. The State Coroner directed the police to report the death formally. A form 1 was received on 26 February 2004 which summarised the circumstances as follows;

> *"Leon Streader has been a resident at Pinjarra Lodge since 27/6/1996. According to his doctor, Dr Phil Nyst, Streader suffered from epilepsy, schizophrenia, obesity, blood pressure and intellectual disabilities. He has been institutionalised all his life. On the day of his death, fellow residents of the Lodge stated that Streader had been sitting outside in the heat most of the morning. They said he was not wearing a hat and the temperature was somewhere around 40 degrees. Streader went inside the lodge for lunch and then sat on a couch located in the hallway. He was last seen by the weekend supervisor at approximately 12.40pm. One of the residents attempted to wake him at approximately 3.00pm smoko. The resident could not wake him and called for the weekend supervisor, who believed he was deceased and called for Queensland Ambulance Service. Streader was slumped on the left hand side of the couch. His head and right arm were draped over the arm of the couch. QAS attended but Streader was already deceased. He was subsequently moved to a nearby room out of view of other residents. His temperature was 40.2 degrees Celsius. The facility is not air-conditioned and was extremely hot."*

The State Coroner ordered an autopsy and this inquest inquires into the circumstances of Mr Streader's death.

Attendance by police at scene, observations and Investigations

Police Constable Higgins attended at Pinjarra Lodge on 22 February 2004 with her partner and a senior supervising sergeant. She commenced investigations by speaking with the residents who were all within a common living area. Dr Nyst attended and indicated he was the treating doctor and was prepared to issue a Cause of Death certificate. On that basis the police left the residence. It was only later, after contact with the coroner's office that police recognised the death was a death in care to be reported to the coroner.

Officer Higgins gave evidence before the inquest. She said the facility carer, Donna Norwood was the carer working at the time of Mr Streader's death. Ms Norwood escorted the police officers into the facility indicating she believed Mr Streader was deceased. The ambulance had been notified but had not yet

[1] T 15/5/08, page 5, lines 15-22

arrived. Officer Higgins recalled it was a large meal area set up with tables and chairs and an adjoining television viewing area with a hallway leading to this area. Mr Streader was on the couch in the hallway. Residents came up to the police officer to talk with her and proffered information. It was on the basis of this conglomerate information she completed the Form 1 report to the coroner.

Officer Higgins recalled it was a "*very, very hot day and it was very hot in the facility*". She recalled the other residents appeared to be heat affected and she obtained water for them. The paramedic also obtained water for the police officer.

Her overwhelming recollection was of heat, *"muggy stifling heat*"[2] with no air-conditioning. She did not notice any fans, although there was other evidence there were wall mounted fans but none were operating. Officer Higgins located a jug and cups near the television in the common room. The jug was empty and she filled it in the kitchen. Residents did not have access to the kitchen.

Officer Higgins indicated the common room nature of the environment meant that others would join in conversations as she spoke with residents. The limited mental capacity of some of the residents also impacted the way in which communication with the police occurred. She stated in relation to her recollection of information about Mr Streader being in the sun, one of the female residents told Officer Higgins Mr Streader had been sitting outside in the sun smoking this morning. Other residents joined in the conversation and agreed with this. [3]

However, this information was not explored or recorded in a statement, nor could the officer identify the woman.

The most that could be stated from general comments was Mr Streader had been outside at some time in the heat and there was reference to him not wearing a hat.

Photographs taken at the scene were unavailable to the inquest.

Information from Dr Nyst about the deceased person

At 4.45pm that afternoon, Officer Higgins recorded notes in her notebook of a conversation with Dr Nyst. He identified himself as Mr Streader's treating doctor and summarised his medical history. He told the police officer Mr Streader had a psychiatric history, a mild intellectual disability, epilepsy, obesity, high blood pressure, coronary artery disease and was a heavy smoker. He had lived in institutions for most of his life.

Officer Higgins photocopied Mr Streader's residential case file record and medical record. A subsequent conversation with Dr Nyst noted the facility had

[2] T 15/5/08, page 8, line 3
[3] T 15/5/08 page 8, lines 50- 56

applied for level three accreditation.[4] She obtained information from Dr Nyst that Mr Streader received the aged care pension and did not receive any support from Mental Health Services or Disability Support. Dr Nyst informed her that medication prescribed for Mr Streader had been reviewed by a pharmacist for appropriate dosage. Dr Nyst had seen Mr Streader in the week before he died for a routine visit. There was nothing unusual in his condition. Dr Nyst explained the arrangement in place at the facility in the event of an emergency was to call triple zero for the ambulance.

Officer Higgins also made notes of conversations with the personal carer, Donna Norwood and a resident, Mr Simpson. Subsequently, the carer Donna Norwood expressed to the police officer her concerns that it would be unduly stressful for the resident Mr Simpson to provide a formal statement. He was said to be a sixty year old male with schizophrenia who had suffered previous strokes.

Attending ambulance and police officers recalled the day was extremely hot. An ambulance officer noted the conditions inside where Mr Streader was found were not noticeably cooler than outside. Information from the Bureau of Meteorology recorded the Brisbane temperature as high as 41.1 degrees Celsius at some time that day and in the 30's for the majority of the day.

Accommodation and staffing

The residential facility has two separate residential buildings called Henderson House, which is the main hostel, and Pinjarra Lodge. At full capacity the combined facility could accommodate about 40 people. When Mr Streader died it was not at full capacity. Staffing levels were determined by the proprietors of the facility with no input from the carer whether additional staff was required. The more independent residents lived in Henderson House.

Dr Nyst informed Constable Higgins there was a staff member on hand 24 hours a day. During the weekdays there were always 2 people rostered on at all times, but this was different over weekend periods. At the time of Mr Streader's death only Ms Norwood was working. Constable Higgins was informed by Dr Nyst on 16 March 2004 that the ratio of staff to patients was 2 to 30. There was a care plan in place for his accommodation, medication and welfare.

Evidence at Inquest

The two main sources of information to the inquest were the carer, Donna Norwood, and co-owner of the facility, Dr Phillip Nyst.

The carer, Donna Norwood

Donna Norwood is now an enrolled nurse. At the time of Mr Streader's death she worked as a carer at Pinjarra Lodge. She was qualified in aged care and community nursing. The qualification included basic first aid and she updated her Cardio Pulmonary Resuscitation certification annually. She was employed

[4] Pursuant to *Residential Services (Accreditation) Act 2002*

by Blue Care during the week and worked weekends at Pinjarra Lodge. She had known Mr Streader since 1996.

On the weekend Mr Streader died, Donna Norwood commenced her shift at Pinjarra Lodge at 8.00am on the Saturday morning 21 February 2004. The shift was to conclude at 8.00am on the Monday morning, 23 February 2004. She told the inquest she was working alone that weekend, but she could not remember whether anyone had worked with her on the Saturday morning until 1.00pm. She said *"There was quite a few weekends where I would have to work alone and alone completely."*[5]

Staffing requirements were set by Dr Nyst depending upon occupancy levels. She recalled it was not a full house situation at the time Mr Streader died. The number of residents varied between 30 and 50.

Her duties included being on call overnight and also preparing the breakfasts, morning teas, serving lunches, serving the meals, cleaning up, distributing medications, cleaning, and showering those who required assistance. The carer had a bed next to the office in Pinjarra Lodge, and she checked on the residents and the premises before retiring to bed. In the morning she checked again and during the night she attended to any call outs. There was no intercom system and residents would have to attend on the carer's room to alert her if there was any problem overnight.

Head counts were performed at meal times. Residents in Henderson House were more independent than residents at Pinjarra Lodge but all residents were free to come and go as they pleased.

She described an outside but undercover area used by smokers. It was covered with roofing iron and had seating. There was also an outside covered gazebo and a back porch.

Ms Norwood contradicted Dr Nyst regarding the rostering of a day shift worker as well as a 24 hour supervisor over weekend periods. I accept her evidence she worked every weekend at the time around Mr Streader's death from 8.00am Saturday until 8.00am Monday. Sometimes she was assisted by a second person in the mornings. If that person called in sick there was no back up.

She recalled giving Mr Streader his medication from the sealed Webster pack at about 12.20pm the day he died. Her practice was to place the medication from the pack into the resident's hand and watch them swallow the pills. At the time there was no record keeping of dispensing the medication, but subsequently a record keeping system was introduced.

There was no access to the kitchen by residents at all and Ms Norwood indicated she was only to provide the meals that were set. There were no facilities for accessing drinks in between mealtimes. There was no water

[5] T 15 May 2008, page 21, lines 27-28

dispenser. Residents could access water from their ensuite water taps adjoining their rooms. There could be up to four people sharing one en suite facility. In Henderson House there was a bathroom downstairs and a shower upstairs as well as a kitchenette upstairs.

On the day Mr Streader died, Ms Norwood indicated the jug and cups of water were provided to residents at the suggestion of the police officer. Even on that very hot day Ms Norwood confirmed drinks were only provided at the set meal times. Ms Norwood agreed the weather that weekend was extreme, even stifling, despite all the windows being open. She described it as unbearable and that many were complaining.

Significantly, at the time of Mr Streader's death there was no policy directing staff members to manage residents' need for hydration and cooling in very hot conditions. Dr Nyst expected staff to exercise common sense.

She had no recollection of Mr Streader complaining on that day and she remarked he was not usually reticent in voicing any complaint. Although there were some wall fans in the building, some of these did not work. She indicated management was fully aware some fans did not work. Ms Norwood had repeatedly brought it to managements' attention. There was no air conditioning in any part of the establishment which was quite old.

At breakfast time, tea, coffee and milk were provided. At morning tea there was tea, coffee or cordial, and tea and coffee at lunchtime. Medication was dispensed after lunch.

She told police she gave out medication, including Mr Streader's at about 12.20pm, and saw Mr Streader about 12.40pm and then again about 2.00pm when she was on the phone.

Mr Streader walked past to sit on the couch which is in the main hallway. Residents frequently sat on the couch and sometimes had a little nap.

She recalled about 3pm she was preparing for afternoon "smoko". She was preparing food in the kitchen when Ken Simpson approached her and said he was worried about Mr Streader. He could not wake him up and he thought he might be dead. She checked Mr Streader and could not detect a pulse. There was no sign of breathing. She was certain he was deceased. She felt him and he was very, very hot but there was no breathing at all.

She tried to contact Dr Nyst which she understood was the procedure, and then she rang the emergency services. I accept her evidence she had sufficient experience to be certain Mr Streader was deceased before she attempted to contact Dr Nyst or ring the ambulance.

On other occasions she had been told to ring Dr Nyst because there were complaints too many people were being taken to hospital. Dr Nyst subsequently disagreed with this evidence, indicating his advice to staff was, *"If in doubt, get them out (to hospital)"*. Ms Norwood was aware from Dr Nyst

that deaths were reportable to the coroner as deaths in care. She understood the death needed to be reported to the police and emergency services.

Ms Norwood told the inquest she had a longstanding concern over staffing levels and had raised this with Dr Nyst. She considered there was insufficient staff to manage sometimes challenging behaviours of residents, particularly at times when there was only one staff member rostered. Dr Nyst contended staff levels varied appropriately with occupancy levels.

After Mr Streader's death, a water cooler was hired which staff would refill with a bucket. There was also a drink vending machine available to residents.

It is acknowledged the residence is not a nursing home and support services do not extend to care that would be offered by a nurse. On the day Mr Streader died the evidence was there were 31 people resident at Pinjarra Lodge.

Ms Norwood had not ever considered that Mr Streader was more affected by heat than other residents. He showed no particular signs of distress on that day. He was mobile and there was no complaint from him. There was no indication he was unwell and she could not recall Mr Streader asking for a drink.

She knew Mr Streader was a smoker who used the undercover smoking area.

Ambulance Officer's recollection

Queensland Ambulance Officer Scott Harrison was an advanced care medic who attended at Pinjarra Lodge at 15.45. He confirmed the day was very hot and inside the building was very hot too.[6] He confirmed he could not feel any difference between the external and internal temperature. He had been told Mr Streader had been observed at about 3pm in this condition. He recorded Mr Streader's temperature by measuring inside his ear. The temperature was 40.2 degrees. This was recorded within ten minutes of arriving at Pinjarra Lodge. He noted dry skin which was hot to the touch. Mr Streader was not sweating. The ambulance officer recalled being called out to a number of similar incidents where people were apparently affected by the heat on consecutive very hot days.

Dr Phillip Nyst

Dr Phillip Nyst is a general practitioner with an interest in psychiatry working in private practice and at various hostels in and around Brisbane. At the time of giving evidence he was also working as a resident in psychiatry at a Brisbane Hospital. He acknowledged he was the owner of a number of facilities where he also acted as treating doctor. [7] He also gave evidence he did not have financial interest in Murray Lodge, Herston Lodge, Windsor Lodge or Montray Villa.

[6] T 15 May 2008, page 62, line 1
[7] Page 84, lines 14-16

He was a co-owner of the Pinjarra Lodge with his brother, Dr Malcolm Nyst at the time of Mr Streader's death. He was also Mr Streader's treating doctor. Dr Phillip Nyst oversaw the upkeep and general running of the lodge, but not on a day to day basis. He attended the residence weekly and conducted a weekly clinic. He issued a cause of death certificate for Mr Streader. The information available to the inquest indicates the certificate issued by Dr Nyst ascribed the cause of death to a cardiac condition. Although referred to by the investigating officer the document was not produced to the inquest.

Dr Nyst could not recall much of the detail of what occurred that day other than he was advised by phone of Mr Streader's death and it was a very hot day. He did not recall telling police he was the treating doctor and could issue a certificate but indicated this could be correct. He recalled he signed a death certificate stating a cardiac cause but did not know what had happened to the death certificate.

He indicated Mr Streader was overweight, a smoker with diabetes and at risk of sudden death at any time.

Record keeping

Dr Nyst acknowledged that his record keeping regarding attending and treating patients was not always reliable. It was brought to his attention his records did not match the indication that Modecate injections were given weekly or that Mr Streader was seen weekly.

Carers kept a record titled "Resident Progress notes" which recorded incidents or illnesses considered noteworthy. It is interesting to note Dr Nyst's notes do not refer to Mr Streader suffering seizures due to his epilepsy whereas the carer's notes have done so.[8] The nature of some comments suggests not all such incidents have been recorded. These notes may be incomplete as there are only four pages commencing June 1996 and concluding December 2003, but nothing for the entire year 1999. Note keeping seems to have declined as the final page covers from October 2000 until December 2003.

The carer's notes also record a number of incidents where Mr Streader's behaviour caused concern for staff or other residents and an occasion when he was assaulted with a bottle to the head by another resident requiring a hospital attendance. There were also several occasions when Mr Streader was "missing" from the facility and subsequently returned by police. None of these matters are referred to in Dr Nyst's notes which invariably record Mr Streader as "psychiatrically as usual".

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[8] Exhibit C1
September 1997, requiring hospitalisation after head injury and foot fractures sustained during seizure in the shower,
March 1998, October 1998, 2 fits in one day,
October 2000, lasting 20 minutes,
July 2001, fitting breathing very hard, Dr advised and taken to hospital,
September 2002, found on ground car-park, fitting

There were only two pages of hand written notes of Dr Nyst that spanned a period from October 1996 to December 2003.

Dr Nyst indicated he had some short hand computer keys that he would type in. This was apparent from the record. The last page of the record is representative of the computer generated history made by Dr Nyst. It commences with the concluding section of a consultation on 22 November 2003 and states;

> *"Seems psychiatrically as usual, no complaints, Modecate injection given by doctor."*

On the issue of recording the administration of the weekly Modecate injection, I note this was either not performed weekly or only occasionally recorded.

From June 2003 to November 2003 the records indicate Mr Streader was seen on six occasions and the injection was given. This appears to be a monthly administration of a medication the doctor had prescribed to be administered weekly.

The document record may also be unreliable as it records attendances on two consecutive days on 23 and 24 December 2003 and documents the weekly Modecate injection was given on both those days, but the patient *"seems psychiatrically as usual, no complaints".*

After these entries there are then two entries for January and one in February 2004 which record Modecate being given but otherwise "*seems psychiatrically as usual and no complaints*". The computer record provided to the inquest ends on 10 February 2004. Mr Streader died on 22 February 2004.

Dr Nyst acknowledged this was an incomplete record. He indicated he had some 300 patients with psychiatric conditions he visited in hostel accommodation as well as his private patients.

He advised there was an annual review of medication by a pharmacist and Mr Streader was also seen at the Royal Brisbane Hospital from time to time as required. There are records of two such reviews for Mr Streader.

Dr Nyst considered a suggestion of the pharmacist to prescribe newer anti psychotic medication but decided against changing Mr Streader's medication because they had provided stability for the patient with control of symptoms over a long period.

Dr Nyst stated he was aware Largactil and Benztropine and Modecate can cause an impact on the body's ability to manage temperature.

No steps were taken to instruct the carer to monitor residents such as Mr Streader who were at greater risk of heat due to medication.

Usually the carer was not informed as he considered the doctor was responsible. Dr Nyst's opinion was that Mr Streader had been on this medication for a number of years through a lot of very hot Queensland summers without experiencing any adverse side effects noted by Dr Nyst. He has never encountered a situation where he considered the cause of death involved heat stroke contributed to by medication.

Dr Nyst has not changed his practice or prescription of this range of drugs since Mr Streader's death.

He considered the issue of hydration as universally applying to all residents. He considered residents could always access cups.

Dr Nyst explained new staff receive a staff orientation manual. There is difficulty in obtaining staff.

He accepted it was the doctor's responsibility to report a reportable death rather than the carer, but in regard to Mr Streader, he said it did not occur to him this death was reportable at the time.

He considered the staffing level was adequate for what was required to be done.

He acknowledged that although desirable, not all staff have first aid training.

Dr Nyst acknowledged the fans were old and some were unserviceable. The expense and practicalities of air-conditioning such an old and multi-roomed facility was impractical.

Dr Nyst indicated Pinjarra Lodge was better than some other facilities he visited regarding staffing where there were times when no staff were working to supervise.

In thirty years practice of medicine Dr Nyst had not had a patient die of heat stroke or related illness while taking this range of medications. He said he had been involved in Mr Streader's care since the early 1980's and was his sole practitioner since 1996.

He could not recall any other occasion when Mr Streader exhibited signs of difficulty coping with heat.

Dr Nyst considered the possibility of heat stroke due to the medication as "*rare as rare. I'd never heard of it happening, I wasn't concerned about it, it was just a rare written down side effect*". [9]

Dr Nyst said Mr Streader's schizophrenia was very well controlled and had not experienced an exacerbation for years. Mr Streader's overall condition had improved from previously being locked up in Wolston Park to living in the

[9] Page 110, lines 41-43

community. In Dr Nyst's opinion the benefits of the medication outweighed the remote risk of heat related death.[10]

> *"The drugs he was on have been keeping him well for a very long time. I didn't see the need to change it to an unknown quantity"*[11]

Dr Nyst confirmed Mr Streader was allowed to come and go as he pleased and did not need supervision although he sometimes needed prompting in personal care matters.

I remark that although strictly correct that Mr Streader could come and go as he pleased, there were several occasions documented in the carer's notes when he was recorded as "missing" from the facility and subsequently returned by police, sometimes the next day.

Dr Nyst was invited to respond to a proposed comment that a doctor with a financial interest in an institution where a patient is being treated by that doctor should not certify the cause of death. Dr Nyst acknowledged any death in these hostels were deaths in care and had to be reported. He did not directly respond to the suggestion but emphasized that people in these types of hostels "*have no-one else…..The hostels can't get other doctors to go there".*[12]

Autopsy

Dr Beng Ong examined Mr Streader and performed an internal autopsy. Dr Ong examined the body and conducted toxicology and histology tests. He noted the information that Mr Streader's body temperature was recorded by the attending ambulance officers at 40.2 degrees. He concluded the cause of death was heat stroke and that coronary atherosclerosis contributed to his death. The brain showed signs consistent with the clinical history that Mr Streader suffered from epilepsy.

Dr Ong stated, "*I think the - the main reason why I came to a conclusion was a recorded body temperature of more than 40 degrees by - and that was taken by the paramedics I believe*."[13] Dr Ong explained usually there are no other signs of heat stroke to be observed at autopsy.

He explained the interaction between the heart condition and heat stroke. He said,

> *"It's actually the other way around with the heatstroke exacerbate his heart condition. What I find in heatstroke is that he - you get - one of the complications you get is low blood pressure and because his heart condition was really so bad it compromise further the circulation of blood to the heart and - and as a result that he probably collapse and - and die."*[14]

[10] Page 11, lines 38-40
[11] Page 112, lines 1-3
[12] Page 118, lines 43-44
[13] 20 June 2008, page 2, lines 54-57
[14] Page 3, lines 13- 21

Dr Ong confirmed there are no signs at autopsy to confirm whether or not Mr Streader exhibited any particular symptoms of heat stroke. He agreed that Mr Streader might have died quite quickly due to the inter-relationship of the impact of heat stroke and his heart condition.

Concerning the possible side effects of affecting the body's control of temperature, Dr Ong said; *"I know that Chlorpromazine effect temperature regulation but I'm afraid that that's all to the extent I know."*[15]

He acknowledged that the extent of coronary atherosclerosis disease suffered by Mr Streader was sufficient in itself to be the cause of death.

Dr Ong also explained *"we can only tell for certain that he - he actually dies from coronary atherosclerosis if there's any acute changes to the arteries or to the heart".*

He confirmed there would be no evidence at autopsy if a person died of a fatal arrhythmia.

It was the recording of a body temperature of 40.2 degrees which caused Dr Ong to prioritise heat stroke over coronary atherosclerosis as the cause of death. He acknowledged this was an after death reading.

It was put to Dr Ong that Mr Streader was last seen alive at about 2pm and his temperature was taken at approximately 4pm. It was suggested to him that after death the temperature of the body would tend to become that of its environment.

Dr Ong responded that the process of equalising the temperature with the environment takes *"really hours".*

He explained, for example if Mr Streader's body temperature at the time of his death was 37 degrees, it would be most unlikely to rise to 40.2 in 2 hours.

He accepted it could be possible that Mr Streader's temperature at death was just below 40 degrees (which does not constitute heat stroke) and rose to 40.2 degrees within 2 hours of his death.

Given information that it was unknown how long Mr Streader was outside and unknown whether it was in direct sun or not, Dr Ong considered he would downgrade heatstroke to the second cause of death contributing to death primarily caused due to coronary atherosclerosis.

He acknowledged it was possible Mr Streader could die just from coronary atherosclerosis irrespective of the temperature that day.

[15] Page 3, lines 51-52

Dr Ong agreed that if there was no evidence of other symptoms of heat stroke demonstrated this would militate against heat stroke being a contributing cause of death.

In re-examination it was clarified the evidence was residents had found Mr Streader apparently deceased at 3.00pm and it was about 4.00pm when ambulance officers took the temperature. This might be significant and Dr Ong wanted to understand the environmental temperature. For example, if the environmental temperature was 40 degrees it would be quite difficult for the body temperature to rise above the immediate environment. There was no direct evidence of the room temperature. Attending ambulance and police officers indicated they felt the temperature inside the facility was no different to the outside temperature.

Information form the Bureau of Meteorology for Brisbane that day recorded the temperature as follows;

2.00pm - 40.9 degrees
2.30pm - 38.2 degrees
3.00pm - 37.9 degrees
3.30pm - 37 degrees
4.00pm - 35.7 degrees

Clarification of the evidence confirmed the body temperature was taken between 3.30pm and 4.00pm. The evidence was the external temperature was declining and was below 40 degrees by 2.30pm and down to 37 degrees by 3.00pm.

The obvious conclusion drawn by Dr Ong was that if the environmental temperature within the facility was below 40 degrees at the time of death, it is impossible for the body temperature to have risen after death to 40.2. An assumption would have to be made that indeed the inside temperature was less than forty degrees, but the trend of temperature was downward from 2.00pm and therefore I consider this assumption can be made. .

Dr Ong was resolute in his conclusion;

> *"I still think based on - based on the temperature taken that Mr Streader's body temperature was probably above 40 when - by the time he - when he died."*[16]

Medical conditions and history

Dr Nyst was Mr Streader's sole treating general practitioner since 1996 until his death in 2004. Mr Streader suffered from epilepsy, schizophrenia and obesity.

There was nothing in Mr Streader's documented medical history indicating any previous problem with heat related illness while subject to the medication

[16] Page 11-12, lines 58-3

regime. Given the very limited extent of the documentation maintained by Dr Nyst, I decline to draw any conclusion that Mr Streader had no history of heat related symptoms. There is simply insufficient information recorded in the medical record to consider it a complete and reliable document.

Medication

Mr Streader was prescribed the following medications at the time of his death.

Antenex tablet (diazepam) - 5mg - one twice daily to treat anxiety

Benztropin tablet (cogentin) - 2mg - one twice daily, but being taken only once daily according to the medical record, to treat side effects from anti-psychotic medication

Dilantin tablet - 100mg - one daily, to treat epilepsy

Largactil tablet (Chlorproamzine) - 100mg - one twice daily, to treat schizophrenia

Modecate injection - 50mg/2ml - weekly, to treat schizophrenia

Expert pharmacology and toxicology evidence

Professor Olaf Drummer is a forensic pharmacologist and toxicologist. He heads the Forensic and Scientific Services at the Institute of Forensic Medicine and Monash University Department of Forensic Medicine. He reviewed information to provide an expert opinion on likely effects of drugs on the deceased person either alone or in combination, how these effects might manifest themselves and the appropriateness of medications.

It is noted Professor Drummer was briefed with initial information from the police report which included the assertion Mr Streader was sitting in the sun for most of the morning. Subsequently at inquest that assertion was queried and I consider it unreliable. However, I do accept the evidence that Mr Streader's body temperature was recorded by ambulance officers at 40.2 degrees, as reliable.

Professor Drummer referred to Dr Nyst's medical notes as "sparse". I would agree. Professor Drummer also noted in the weeks leading up to Mr Streader's death that Dr Nyst's record was "*seems psychiatrically as usual, no complaints"*.

Professor Drummer noted the pathologist's observations of dilated heart and extensive atherosclerosis and signs consistent with epilepsy. He noted the pathologist concluded the cause of death was heat stroke and that coronary atherosclerosis was a contributing factor.

Professor Drummer helpfully summarized the general effects of the prescribed medication.

Antenex is an anti anxiety drug known as diazepam. A daily dose can be up to 40mg and the prescribed dose of 10mg split into two doses is quite common and safe. It also helps prevent seizures and there are very few drugs that cannot be used in association with it.

Benztropin (Cogentin) is a drug used to treat the side effects including shaking, of anti psychotic medication namely the Largactil and Modecate. The recommended dose is up to 6mg daily. The drug can cause hyperthermia in hot weather by reducing the ability to sweat (anhidrosis). Mr Streader's medical notes indicate he was only taking one dose per day of 2mg which is a third of the recommended dose. Professor Drummer conceded it was logically consistent that the lower dose could be expected to reduce the risk of elevated temperature although he had not seen any literature to this effect.

Dilantin is a commonly used anticonvulsant to treat epilepsy. A dose can be as high as 1000mg per day and the therapeutic dose is from about 8-20mg/L. Professor Drummer noted testing of the level of this drug was performed on 28 October 2003 and gave a low result of 4.8mg/L but the dose remained the same at the time of his death.

Largactil is one of the older style anti-psychotic medications used to treat schizophrenia. Daily doses can range up to 300mg. This drug can also affect temperature regulation and has the ability to cause heat stroke in hot weather.

Modecate is an injection of an anti psychotic drug Fluphenazine to treat schizophrenia. The recommended dose includes 50mg weekly by intramuscular injections if the patient has become accustomed to the drug. The drug is counter-indicated if there is marked atherosclerosis. It also reduces the threshold for seizures in people with epilepsy, but can be given to people suffering with epilepsy who are taking anticonvulsants.

Professor Drummer considered the overall range of prescribed drugs for the diagnosed conditions was not unusual, although he could not say whether they were appropriate because he had not assessed the patient clinically. However, he considered the fact Mr Streader was obese and suffering cardiovascular disease as adding to his risk of becoming heat affected having regard to the use of two medications which can affect temperature regulation.

Professor Drummer confirmed the obvious expectation that a treating doctor should be familiar with contra-indications of various drugs to avoid unnecessary adverse combinations.

Professor Drummer considered Mr Streader had a complicated medical overall condition with a number of conditions affecting him and all he could say was the two identified drugs had the potential of exacerbating exposure to heat and could exacerbate heat stroke. He could not state that Mr Streader had heat stroke or that this was exacerbated by the drugs, and he deferred to the pathologist if he was able to reach a conclusion. He considered there was a possibility the two drugs could have affected Mr Streader's ability to cope with heat. If there was any evidence of dehydration he would expect this could

also be a relevant factor. He accepted that if the evidence was that the inside temperature was not discernibly cooler than outside, which was in excess of 40 degrees, and Mr Streader was taking the two drugs then he could still be at risk of heat stroke.[17]

Professor Drummer noted the toxicology level for Antenex (Diazepam) was very low at .01mg/kg. This suggested he had not been taking the medication for some time, although he could not say how long. The chlorpromazine (Largactil) level of .13mg/kg was consistent with the prescribed dose. The Phenytoin (Dilantin) was also on the "low side" at 3mg/kg in the Professor's opinion, which would reduce his ability to withstand any convulsions. It is important to note Mr Streader's most recent documented seizure event was in July 2001. I agree therefore with the proposition his epilepsy was under control.

Although the antipsychotic drug chlorpromazine (Largactil) was said to be an older style typical antipsychotic, its choice was not subject to adverse comment by reviewing witnesses. There had been a long history in the practice of medicine over a fifty year period of prescribing the combination of Benztropine (which may reduce sweating) with Chlorpromazine and Fluphenazine. Both may increase body temperature.[18] The regime is less common now with the introduction of newer antipsychotic medications, but these newer drugs also have adverse side effects.[19]

Professor Drummer agreed with the listed known symptoms for heat stroke and emphasized the main one to be a core body temperature over forty degrees.

Professor Drummer stated he was not able to comment on drug related heat stroke being a rare event nor would he comment on clinical medical matters.

He noted from the toxicology test the diazepam (Antenex) was low at .01 milligram per kilogram. It suggested he had not taken the Antenex for some time.

He confirmed the particular range of drugs prescribed was appropriate for the medical conditions under treatment, namely epilepsy and schizophrenia.

In concluding his evidence Professor Drummer considered if the pathologist's opinion was that heat stroke caused Mr Streader's death, then these two drugs could have a contributing factor in the death but he could not say that this possible side effect had or had not in fact occurred in Mr Streader's case.

Associate Professor of Pharmacology Lindsay Brown assisted the court with his review of information. He is based at the School of Biomedical Sciences at the University of Queensland.

[17] Transcripts 22/4/2008, page 8, lines 7-22
[18] T2 page 28
[19] Transcript 22/4/2008, page 12

He explained there were documented cases reviewed in the literature which recorded instances of heat stroke in association with particular medications. He referred to a case from Hong Kong where the person suffered heat stroke and was taking medications similar to Mr Streader. In that instance the person was aged 48, and working outside in a car park within a recorded day temperature of 36.2 degrees on the day he developed heat stroke. He was treated over a two week period and survived, but then suffered another episode of heat exhaustion six weeks later.

He was quite clear that Benztropine can cause heat stroke or exacerbate heat stroke in the right environmental conditions.[20]

Both the Chlorpromazine and Fluphenazine also have this potential impact. The mechanism of these drugs inhibits the neurotransmitter Dopamine. Some of the affected receptors in the brain are responsible for temperature control so when the receptors are blocked the body cannot moderate body temperature in the usual manner. He expected the effects of Benztropine and Chlorpromazine would be additive in impacting together to reduce the body's ability to regulate core body temperature and to produce sweat which is a mechanism to reduce body temperature.

He also confirmed heat stroke can occur due to the extreme nature of the environment and does not necessarily require exertion.[21] Obesity also increased the risk but Professor Brown was not convinced that coronary atherosclerosis would worsen heatstroke.

Professor Brown thought it was very unlikely that the Benzodiazepam taken by Mr Streader may have contributed to heat stroke.[22] He also considered the low level of diazepam, which was taken to reduce risk of seizures, was unlikely to have masked the convulsions which might otherwise be signs of Mr Streader suffering from heat stroke.

He expressed a similar hesitation to comment on clinical matters and could only say there was a high probability the medications did worsen his heat related illness. [23] He said it was likely these two drugs could have worsened the effects of any exposure to hot weather.

There are references available to medical practitioners to check for contraindications when prescribing medications. The most recent reference book, the Australian Medicine Handbook, did not provide a warning of heat related illness in relation to the drug, Largactil.[24]

Not every person taking these medications has the same susceptibility to develop heat stroke in adverse environmental conditions. It was interesting in

[20] T 2 page 26, lines 26-36
[21] T page 25, lines 35-40
[22] T2, page 24, lines 18-20
[23] T2, page 29, lines 39-44
[24] T 2 page 34 line 10

this country to discover there are no documented studies on heat stroke causing death according to Professor Brown's research.

Professor Brown said it was a "*high probability that given their mechanism of action, the combination of Benztropine, Chlorpromazine and Fluphenazine could worsen heat related illness*". [25]

Heat exhaustion can worsen and become heat stroke very quickly, but not all symptoms necessarily are evident in every case.

Professor Brown expected there would be evidence of some of the symptoms of heat stroke which include throbbing headache, dizziness, confusion, nausea, agitation, disorientation, and hallucination. However he noted where a person was asleep he was not sure how they would show these effects.

Professor Brown confirmed heat stroke was a rare illness documented at one in a million from United State figures. Drug induced heatstroke is a small proportion of that group.[26] He declined to draw the conclusion that people with drug induced heat stroke who did not demonstrate any symptoms would be very small because he considered this may be explained as symptoms not being noticed and treatment not being provided.

At its highest, Professor Brown agreed that if Mr Streader died of heat stroke it was possible this was associated with prescribed drugs. He could not be precise to state it was merely possible or probable, but leaned towards "*probable because the mechanism of action of these drugs are very clear to worsen the symptoms of heatstroke*".[27] On re-examination Professor Brown confirmed his opinion it was highly probable the drugs worsened the heatstroke.

Professor Brown noted the similarity of case reports which led him to consider Mr Streader's death was one of those extremely rare cases of drug related heat stroke.[28]

He also emphasized that although Mr Streader had been on the range of medication for many years and lived in Queensland, the particular weather conditions at the time of his death were extreme even for Queensland, being one of the hottest weekends experienced in Brisbane.

Professor Brown acknowledged the combination of chlorpromazine, Benztropine and Fluphenazine has been applied for fifty years and although not as common today, has had very wide application in the past. He noted the introduction of newer anti psychotic drugs with fewer side effects. He did however confirm that if a patient is being managed adequately with those medications then there would be no reason to change them. The evidence suggests the comment is applicable to Mr Streader's situation. As well, there

[25] T 2 page 29, lines 35-45
[26] T 30, lines 40-46
[27] T2 page 37, lines 40-60
[28] T2 page 39, ;lines 20-35

was no documented indication Mr Streader had experienced heat related illness in the past. I note in this regard the medical record was sparse.

All medications were prescribed within the appropriate range and none were found to be in high levels in toxicology testing. This was confirmed by both Professor Drummer and Professor Brown.

Accredited Residential Care

The legislation aims to regulate the conduct of residential services to protect the health, safety and basic freedoms of residents. The legislation aims to encourage service providers to continually improve the way the residential services are provided and to support fair trading in the industry. A residential service must be registered including the person providing the service and the place.

On 19 December 2003, Dr Phillip Edmond Nyst was registered as the service provider of the residential service known as Pinjarra Lodge which operated at 171 Kennedy Terrace Paddington. On 20 August 2004 he lodged an application for accreditation of accommodation (level 1), food (level 2) and personal care (level 3). The service was duly accredited on 6 February 2006.

A Senior Accreditation Officer from the Residential Services Accreditation Branch, Mr Gary Liston, told the inquest the service was investigated in July and November 2007 after complaints. No evidence of any breach of the Act was substantiated.[29]

No ratio of staff to residents is stipulated but a service is required to have "sufficient" staff.

He confirmed there is no requirement for a qualified nurse to be on site at a level three accredited premise.

In the officer's opinion he considered Pinjarra Lodge was one of the better operated facilities even though the building was an older style accommodation.

Findings required by s45

I am required to find, as far as is possible, who the deceased was, when and where he died, what caused the death and how he came by his death. I have already dealt with this last issue, the manner and circumstances of the death. As a result of considering all of the material contained in the exhibits and the evidence given by witnesses at the inquest, I am able to make the following findings in relation to the other aspects of the death.

Identity of the deceased:

The deceased person was Leon Streader.

[29] Exhibit B4, , paragraph h.

Place of death:

He died at Pinjarra Lodge, Paddington in Queensland.

Date of death:

Mr Streader died on Sunday 22 February 2004.

How Mr Streader Died:

Mr Streader resided in a level three accredited facility named Pinjarra Lodge at Paddington. He had a range of known medical conditions including mild intellectual disability, schizophrenia, epilepsy, obesity, elevated blood pressure and coronary artery disease.

He and other residents were inside the general eating and common area of the facility. Other residents alerted the carer they could not rouse Mr Streader who was apparently sleeping in a seated position on a couch. The carer confirmed he was deceased at about 3.00pm. It was a very hot day with a recorded maximum temperature in Brisbane of 40.9 degrees. The hostel was stiflingly hot with no cooling. The facility was only ventilated by open windows. Mr Streader's post mortem body temperature taken at 4.00pm was recorded as 40.2 degrees.

The Cause of Death:

I have regard to the evidence of the pathologist who performed the autopsy and modified his opinion of the cause of death at the inquest and his further evidence at the inquest.

I have regard to the expert evidence on the known rare side effects of some of Mr Streader's prescribed medications.

It is concluded Mr Streader died due to the effects of coronary atherosclerosis worsened by heat stroke.

At the time Mr Streader was taking two medications known to inhibit the body's ability to cope with extremes of heat by lessening the body's ability to regulate temperature and lessening the ability to sweat. The medications had been used by Mr Streader for many years without apparent ill effect but the environmental conditions on 22 February 2004, including inside the premises of Pinjarra Lodge, were extreme.

The medications were Benztropine (Cogentin) and Chlorpromazine (Largactil).

Concerns, comments and recommendations

Section 46 provides that a coroner may comment on anything connected with a death that relates to public health or safety, the administration of justice or ways to prevent deaths from happening in similar circumstances in the future.

Level Three accredited hostels, treating doctor and death certificate

Level three accredited hostels provide accommodation and personal services including distribution of medication to clients who typically require some level of support and structure in their lives. Often these residents have complex medical, psychiatric and social conditions which place them at a disadvantage in general society. These hostels typically provide modest facilities, such as Pinjarra Lodge. This facility was co-owned by Dr Phillip Nyst and his brother Dr Malcolm Nyst. Dr Phillip Nyst also acted as the primary medical practitioner for residents, including Mr Streader. Although the document was not presented to this inquest, Dr Nyst confirmed in the inquest he issued a cause of death certificate in relation to the death of Mr Streader indicating some form of cardiac cause of death. While it is not suggested there is anything sinister or untoward in the issue of the certificate it is recommended that this practice be reviewed.

It is recommended that where a doctor has a financial interest in a level three accredited facility in which the doctor treats a resident, the doctor is not to issue a cause of death certificate for that resident, or alternatively the certificate is to be countersigned by another independent doctor.

Staffing, resourcing and training

The evidence of arrangements at Pinjarra Lodge indicated a degree of stress in managing the number of residents who may demonstrate difficult behaviours from time to time. Management of 31 patients by one person on this very hot day was a difficult task.

The absence of any intercom facility overnight to alert the on site carer of any problems was noted. Any problem overnight would require a resident to be able to walk to the carer' s room or get the attention of another resident to do this on their behalf. Not all staff were trained in first aid. Although Dr Nyst assumed staff would exercise common sense, the facility did not require staff to ensure residents' adequate hydration in hot conditions. The facility has since provided a water cooler and drink dispenser directly accessible to residents.

I recommend a review be undertaken by the accrediting authority for level three accommodation to consider an appropriate ratio of residents to staff, and an appropriate level of training of staff and procedures.

Medications

Evidence in the inquest indicated that one of the prescribed medications, diazepam, was identified in significantly lower levels than would be expected if it had been consumed in accordance with the prescribed dose. The evidence was that the pre-packed webster packs of medication were administered by staff members who observed the resident consuming the medication. There was no explanation of this discrepancy. At the time of Mr Streader's death there was no proper record of administration of medicines. Residents include

people with intellectual impairment who may not be otherwise capable of managing, monitoring or regularly consuming their prescribed medications.

I recommend that level three facilities which distribute medication are required to properly document this process and that consideration be given to some form of audit to ensure medication is being received regularly by the residents.

In making this recommendation it is noted that Pinjarra Lodge has since implemented a system of documenting the administration of medication.

Medical Record keeping

Dr Nyst demonstrated a commitment to residents of Pinjarra Lodge and many other similar hostels he visited in the capacity as their treating medical practitioner. He indicated he visited as many as three hundred patients in such hostels where he was the visiting doctor as well as attending to his private patients. Unfortunately in relation to Mr Streader his record keeping was sadly inadequate and unreliable in providing an accurate record of this patient's medical history and administration of medication. (see reference to Modecate injections).

This issue will be referred to the Medical Board for their advice and consideration.

Risk of heat stroke as a side effect of Benztropine (Cogentin) and Chlorpromazine (Largactil)

Although the evidence indicates drug induced heat stroke is an extremely rare side effect of these medications, it is recommended the reference guides relied upon by prescribing doctors be reviewed to ensure there is sufficient advice of this risk.

Conclusion

The mandatory reporting of deaths occurring in level three accredited accommodation to the coroner was introduced in the *Coroners Act 2003*. It is important that such deaths are reviewed to ensure the more vulnerable members of our society are receiving sufficient and appropriate care.

I thank all those who assisted in investigating, preparing and appearing in the inquest into the death of Leon Streader. The inquest is now closed.

Chris Clements

Deputy State Coroner
1 October 2009