IN THE CORONERS COURT

OF VICTORIA

AT MELBOURNE

Court Reference: COR 2016 4031

**FINDING INTO DEATH WITHOUT INQUEST**

*Form 38 Rule 60(2)*

*Section 67 of the **Coroners Act 2008***

I, AUDREY JAMIESON, Coroner having investigated the death of DEVLIN CHARLES DUFFY

without holding an inquest:
find that the identity of the deceased was DEVLIN CHARLES DUFFY
born 22 March 1995
and the death occurred between 23 and 25 August 2016
at 5/15 Bourbon Way, Waurn Ponds Victoria 3216
**from:**

1 (a) ASPHYXIA FROM INHALATION OF HELIUM

Pursuant to section 67(1) of the **Coroners Act 2008**, I make findings with respect to **the following circumstances**:

1. Devlin Charles Duffy was 21 years of age at the time of his death. Devlin lived in Waurn Ponds and was studying Forensic Science at Deakin University. He suffered from connective tissue disease and had undergone multiple surgeries.

2. On Thursday 25 August 2016 at approximately 6.30pm, Devlin's housemate Michael Young checked on him in his bedroom, as he had not been seen for two days. Devlin was located lying on his bed, with two oven bags over his head and a clear vinyl tube attached, leading to a nine

litre helium tank. Mr Young contacted emergency services and police arrived shortly afterwards. Ambulance paramedics attended and declared Devlin to be deceased. Country Fire Authority (CFA) members were also in attendance.

## INVESTIGATIONS

*Forensic pathology investigation*

3. Dr Michael Burke, Senior Forensic Pathologist at the Victorian Institute of Forensic Medicine, performed an external examination upon the body of Devlin, reviewed a post mortem computed tomography (CT) scan and referred to the Victoria Police Report of Death, Form 83. Toxicological analysis of Devlin's post mortem blood identified alcohol at a concentration of 0.04g/100mL.[1] Toxicologist Sophie Widdop reported that the toxicology laboratory is unable to test for helium.[2] Based on the reported circumstances, Dr Burke ascribed the cause of Devlin's death to asphyxia from inhalation of helium.

*Police investigation*

4. Upon attending the Waurn Ponds premises after Devlin's death, Victoria Police did not identify any evidence of third party involvement. Police located packaging and receipts - timestamped 7.38pm and 8.11pm on 23 August 2016 - for various items found with Devlin. It was ascertained that the helium tank was ordered online from the Pump Factory in Dandenong South.

5. Senior Constable Simon Turner, the nominated coroner's investigator,[3] conducted an investigation into the circumstances surrounding Devlin's death, at my direction, including the preparation of the coronial brief. The coronial brief contained, *inter alia*, statements made by Devlin's aunt Jacqueline van der Klooster, housemate Brodee Kurz and General Practitioner at Medical One – Waurn Ponds Dr Hong Nguyen.

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[1] This compares with the 0.05g per 100ml being the legal limit for blood alcohol concentration for fully licensed car drivers.

[2] Authorised by Senior Toxicologist Maria Grazia Pricone.

[3] A coroner's investigator is a police officer nominated by the Chief Commissioner of Police or any other person nominated by the coroner to assist the coroner with his/her investigation into a reportable death. The coroner's investigator takes instructions direction from a coroner and carries out the role subject to the direction of a corner.

6. General Practitioner Dr Hong Nguyen stated that she saw Devlin on two occasions. He first attended on 19 May 2016 for the management of his pain due to connective tissue disease, which caused recurrent limb dislocations and required multiple surgical interventions. Dr Nguyen stated that Devlin was already linked in with a regular General Practitioner elsewhere, a dietician and a physiotherapist. She observed that Devlin's connective tissue disease interfered greatly with his life, both physically and mentally.

7. Dr Nguyen assessed that Devlin was moderately depressed. Devlin advised that he felt low, but was not currently suicidal and had no plans. However, Devlin added that he had been suicidal in the past, and had thought of taking his own life by hanging, but had never attempted to do so. He reportedly told Dr Nguyen that he had never sought help from a psychologist before. Dr Nguyen stated that she prescribed desvenlafaxine[4] 50mg daily to Devlin, and discussed the side effects of this medication. She also prescribed melatonin to improve his sleep. Dr Nguyen referred Devlin to Headspace psychology and organised a mental health care plan. She stated that she physically gave the referral to Devlin, to make contact with Headspace psychology.

8. At their second and final appointment on 1 June 2016, Dr Nguyen observed that Devlin seemed brighter; he reported he was responding well to the antidepressant medication and his sleep and pain had improved. Dr Nguyen stated that they then focused on Devlin's issues of high blood pressure and cholesterol; she ordered an ultrasound to look for fatty liver, and asked him to return in two weeks. She observed no signs of suicidal ideation at this appointment. Devlin did not return to see Dr Nguyen.

9. Housemate Brodee Kurz stated that when Devlin was home, he was always in his room; he would only come out for food or to use the toilet. Mr Kurz said that Devlin always appeared upbeat when he spoke to him. However, he observed that Devlin appeared to drink alcohol constantly. Mr Kurz added that Devlin's medical condition meant his knees were weak, and it hindered him from working or going out.

10. Devlin's aunt Jacqueline van der Klooster, who is a psychologist, stated that his family were not aware of any suicidal thinking or plans. Ms van der Klooster stated that Devlin's family were never contacted, despite the fact a mental health care plan was located in his room after his death. She added that Devlin appeared to have actively tried to avoid alerting his family of

[4] Desvenlafaxine (Pristiq) is a serotonin and noradrenaline reuptake inhibitor antidepressant (SNRI) used for the treatment of major depression.

any intent to end his own life. Ms van der Klooster stated that Devlin was very close to his parents and had a large number of supportive friends and family.

11. Devlin was last seen by his housemates in the mid to late afternoon of Tuesday 23 August 2016.

12. Mr Kurz stated that Devlin's death came out of the blue for him; Devlin never referred to being depressed nor expressed suicidal ideation. However, Mr Kurz acknowledged that in hindsight it was obvious that Devlin was suffering from depression.

*Family concerns*

13. In her statement to police, Ms van der Klooster expressed a number of concerns. Ms van der Klooster queried whether steps were made to include Devlin's family or other supports for monitoring, when he was commenced on desvenlafaxine. In addition, she referred to Beyond Blue's 'Clinical Practice Guidelines for Depression in Adolescents and Young Adults',[5] and noted that it deems that the use of desvenlafaxine is not currently recommended for people of this age group. Ms van der Klooster queried why desvenlafaxine had apparently been used as a first line of treatment. She also asked about the extent of Headspace psychology's involvement with Devlin.

14. By way of email dated 25 January 2017, Devlin's father, Warren Duffy also expressed concerns to the Court. Mr Duffy reiterated Ms van der Klooster's concerns that Devlin was prescribed desvenlafaxine, as he was under the age of 25. He also queried whether efforts were made to monitor Devlin, and asked why his family were not advised. Mr Duffy also expressed concern as to why there did not appear to be communication between Dr Nguyen and Headspace psychology, to enquire as to how Devlin was going, and whether or not he had appointment.

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[5] See: https://www.beyondblue.org.au/health-professionals/clinical-practice-guidelines; 'Clinical Practice Guidelines for Depression in Adolescents and Young Adults', February 2011, pg 54.

*Coroners Prevention Unit* [6]

15. In light of his family's concerns, I requested that the Coroners Prevention Unit (CPU) review Devlin's medical records and the circumstances of his death, particularly in relation to whether desvenlafaxine was appropriately prescribed to him in May 2016. I also requested up-to-date information concerning the prescribing guidelines for desvenlafaxine.

Prescribing Guidelines for Antidepressants

16. The CPU commented that the various guidelines for prescribing antidepressants predominantly refer to children, adolescents and young adults (18 – 24 years); the guidelines rarely distinguish between the evidence pertaining to these age groups. Devlin was 21 years old and much of the pooled data included in the product information is specific to studies completed on children to 18 years.

17. The CPU identified that the 2010 Beyondblue clinical practice guidelines concerning depression in adolescents and young adults promotes the use of fluoxetine or escitalopram as first line antidepressants. However, these guidelines are qualified by a comprehensive warning that they are out of date.[7] The guidelines could not identify any evidence related to the treatment of depression in adolescents using duloxetine, desvenlafaxine, mirtazapine, agomelatine and reboxetine. Further research is required before any conclusions can be drawn about the effectiveness or harms of any of these agents.[8] Additionally, the national youth mental health service 'Headspace' suggests that psychological therapy, combined with fluoxetine if necessary, is appropriate for moderate to severe depression. This suggestion contains a reference to the out-of-date 2010 Beyondblue clinical practice guidelines.

18. The CPU reported that the Therapeutic Guidelines 2013 suggest management of moderate-to-severe depression in adolescents should be assertive and prompt, typically including a

[6] The Coroners Prevention Unit (CPU) was established in 2008 to strengthen the prevention role of the coroner. The unit assists the coroner with research in matters related to public health and safety in relation to the formulation of prevention recommendations, as well as assisting in monitoring and evaluating the effectiveness of the recommendations. The CPU comprises a team with training in medicine, nursing, law, public health and the social sciences.

[7] Current beyondblue Warning on this publication: This publication is more than 5 years old and may no longer reflect current evidence or best practice. While the information in these guidelines may still be useful and/or relevant, beyondblue gives no assurance to the accuracy or relevance of the information contained and strongly suggests that clinicians and health professionals always check for, and be up-to-date with, the latest research.

[8] Psychotropic drugs In: eTG complete [Internet]. Melbourne: Therapeutic Guidelines Limited. Disorders usually first diagnosed in childhood and adolescence, published 2013, page 2 of 3.

combination of psychological and pharmacological interventions.[9] The Therapeutic Guidelines state that, while medications have been associated with a small increase in thoughts of suicide, there is no clear evidence that antidepressants actually increase the risk of suicide. For moderate to severe depression, the potential benefits from medication treatment seem to outweigh the potential risks.[10]

19. Finally, the CPU identified that the Royal Australian and New Zealand College of Psychiatrists clinical guideline is a 2005 document, is noted to be out of date, and is currently under review. According to the College, the new guidelines are unlikely to be available prior to mid-2018.[11]

Prescribing Desvenlafaxine

20. The CPU reviewed the 2004 Therapeutic Goods Association (TGA) Alert (2004), a current document, in relation to the prescription of anti-depressant medication to young people. The Alert states:

> None of the SSRI[12]s, and indeed no antidepressant, is currently approved in Australia for the treatment of MDD[13] in children and adolescents (persons aged less than 18 years). Fluoxetine, but none of the other SSRIs, is approved in the US for MDD in young people without a specified lower age limit. Two of the SSRIs, fluvoxamine and sertraline, are approved in Australia for children and adolescents with obsessive compulsive disorder (OCD). The SSRI antidepressants included are citalopram, escitalopram, fluoxetine, fluvoxamine, paroxetine and sertraline, and the related medicine, venlafaxine.
>
> There are indicators venlafaxine (as opposed to desvenlafaxine which is the metabolite of venlafaxine and an antidepressant in its own right) should be avoided in

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[9] Psychotropic drugs In: eTG complete [Internet]. Melbourne: Therapeutic Guidelines Limited. Disorders usually first diagnosed in childhood and adolescence, published 2013, page 2 of 3.

[10] Psychotropic drugs In: eTG complete [Internet]. Melbourne: Therapeutic Guidelines Limited. Disorders usually first diagnosed in childhood and adolescence, published 2013, page 2 of 3.

[11] Clinical Guidance on the use of antidepressant medications in children and adolescents, March 2005. Email from Dr Huseyin Mustafa, Manager, Practice and Partnerships, RANZCP, dated 20 October 2017.

[12] "Selective serotonin reuptake inhibitor".

[13] "Major depressive disorder".

children and adolescents due to reports of hostility and suicide-related adverse effects.[14]

21. The CPU also reviewed the Therapeutic Guidelines (2013) concerning safe and effective treatment for depression in young people. The guidelines include the following information:

> When prescribed and monitored carefully, taking medication is a safe and effective treatment for depression and youth. Fluoxetine (aka Prozac) and escitalopram (aka Lexapro), are selective serotonin reuptake inhibitors that are well-tested and FDA-approved treatment for youth with Major Depressive Disorder. There are times, however, when other medications can and should be used.[15]

22. Furthermore, the CPU identified that desvenlafaxine is approved by TGA and recommended by Therapeutic Guidelines as a first line antidepressant in the treatment of major depression disorder in adults. This was updated in February 2015.

Warnings Contained in Anti-depressant Product Information

23. The CPU identified that all precaution sections on anti-depressant product information include reference to "clinical worsening and suicide risk", and contain the same or similar worded information as provided by the TGA. The evidence referred to in product information the Beyondblue recommended fluoxetine, is the same as that in the product information for desvenlafaxine. The TGA warning is as follows:

> Patients with major depression, both adult and paediatric, may experience worsening of their depression and/or the emergence of suicidal ideation and behaviour (suicidality) or unusual changes in behaviour, whether or not they are taking antidepressant medications, and this risk may persist until significant remission occurs. Suicide is a known risk of depression and certain other psychiatric disorders, and these disorders themselves are the strongest predictors of suicide. Antidepressants may have a role in inducing worsening of depression and the emergence of suicidality in certain patients during the early phases of treatment. As improvement may not occur during

[14] Psychotropic drugs In: eTG complete [Internet]. Melbourne: Therapeutic Guidelines Limited. Disorders usually first diagnosed in childhood and adolescence, published 2013, page 2 of 3.

[15] Psychotropic drugs In: eTG complete [Internet]. Melbourne: Therapeutic Guidelines Limited. Disorders usually first diagnosed in childhood and adolescence, published 2013, page 3 of 3.

the first few weeks or more of treatment, patients should be monitored appropriately and observed closely for clinical worsening and suicidality, especially at the beginning of a course of treatment or at the time of dose changes, either increases or decreases.

Pooled analyses of short-term placebo-controlled trials of antidepressant medicines (SSRIs and others) showed that these medicines increase the risk of suicidality in children, adolescents, and young adults (ages 18-24 years) with major depression and other psychiatric disorders, generally during initial treatment (1-2 months). Short-term studies did not show an increase in the risk of suicidality with antidepressants compared to placebo in adults beyond the age of 24 years; there was a reduction in the risk of suicidality with antidepressants compared to placebo in adults aged 65 years and older.

The pooled analysis of placebo-controlled trials in children and adolescents with major depression, obsessive compulsive disorder, or other psychiatric disorders included a total of 24 short-term trials of nine antidepressant medicines in over 4400 patients. The pooled analyses of placebo -controlled trials in adults with major depression or other psychiatric disorders included a total of 295 short -term trials (medium duration 2 months) of 11 antidepressant medicines in over 77,000 patients. There was considerable variation in risk of suicidality among medicines, but a tendency toward an increase in the younger patients for almost all medicines studied. There were differences in absolute risk of suicidality across the different indications, with the highest incidence with major depression.

No suicides occurred in any of the paediatric trials. There were suicides in the adult trials, but the number was not sufficient to reach any conclusion about the medicine effect on suicide.

It is unknown whether the suicidality risk extends to longer-term use, i.e. beyond several months. However, there is substantial evidence from placebo-controlled maintenance trials in adults with depression that the use of antidepressants can delay the recurrence of depression.

Consideration should be given to changing the therapeutic regimen, including possibly discontinuing the medication, in patients whose

depression is persistently worse or whose emergent suicidality is severe, abrupt in onset, or was not part of the patient's presenting symptoms.

It is particularly important that monitoring be undertaken during the initial course of antidepressant treatment or at times of dose increase or decrease.[16]

Conclusion

24. The CPU concluded that, as toxicological analysis of Develin's post-mortem blood did not detect common drugs nor poisons, it is impossible to determine: the effect that desvenlafaxine had on his increased risk of suicidality; if he took the medication; at which dose he consumed the medication; the period of time during which he took the medication. Devlin's prescribed dose, route and frequency of desvenlafaxine was within prescribing guidelines. According to his family, a packet of desvenlafaxine was found in Devlin's room with two tablets left. Desvenlafaxine is dispensed in quantities of 28 tablets and can have five repeats on a single script. There is no evidence to suggest that Devlin filled the prescription more than once. If he did not, and if he had taken the medication as prescribed, he would have ceased the medications sometime between seeing Dr Nguyen on 1 June 2016 and his appointment with Dr Song on 22 June 2016.

25. The CPU review noted that Devlin had a depressive disorder and was therefore at increased risk of suicidal thinking and behaviours. He had not engaged in community counselling and had stopped taking the antidepressant. Based on the available information, Devlin was not being treated for his depression at the time of his death, which significantly increased his risk of suicidal thoughts and behaviours, one of his symptoms when he initially presented to Dr Nguyen on 19 May 2016. The suicide method does not suggest the act was impulsive.

26. Furthermore, the CPU commented that, although the TGA desvenlafaxine product information does not state it should not be prescribed, it does state that '(s)*afety and effectiveness in the paediatric population have not been established*'.[17] Similarly, the MIMS product information for desvenlafaxine does not state it should not be prescribed but does include, "Safety and effectiveness in patients less than 18 years of age have not been established".[18]

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[16] TGA Product Information – Desvenlafaxine (refer to Court file).

[17] TGA Product Information – Desvenlafaxine (refer to Court file).

[18] MIMS – Product Information (refer Court file).

27. The CPU advised me that the current guidelines and pool of data available to assess the safety of prescribing antidepressants for a young adult, in this case 21 year old Devlin Duffy, are largely considered out of date, or require an amount of interpretation and judgement of their specific reliability and application across child, adolescent and young adult age groups. Prescribing is in part based on the prescriber's clinical preference for a medicine, nevertheless what data is available supports fluoxetine and possibly escitalopram as the preferred choices for antidepressant in children to 24 years of age.

**COMMENTS**

Pursuant to section 67(3) of the **Coroners Act 2008**, I make the following comments connected with the death:

1. The investigation into Devlin's death has identified that helium was sourced from the Pump Factory in Dandenong South. In the Finding into the Death of Miki Yamamoto without Inquest,[19] delivered on 22 February 2016, I noted that helium gas bottles are often sold off shelves, and photographic identification is not required to purchase them. I also noted that the Coroners Prevention Unit had identified 81 Victorian deaths, between 2000 and 2014, where helium was used to facilitate the death. The source of the helium could only be positively identified in 32% of the deaths. The most common source that was identified, was helium sold as a party supplement intended for inflating balloons. The frequency of suicides involving helium gas was found to have increased in recent years. I commented that, presently, the sale of pure helium gas is largely unregulated.
2. By way of letter dated 13 May 2016, the Court received a response from Neville Matthew, General Manager of the Consumer Product Safety Branch at the Australian Competition and Consumer Commission (ACCC). Mr Matthew advised that the ACCC was concerned about the statistics of helium gas misuse and consequent deaths. Mr Matthew added that he had asked his staff to look into the process for making an application for amendment of the Standard for the Uniform Scheduling of Medicines and Poisons (the Poisons Standard), as the most effective restriction of access to potentially harmful drugs and poisons is typically achieved through scheduling. It was also intended that the ACCC would write to national suppliers of helium party gas to reinforce their understanding of the risks of supplying these substances to potentially vulnerable consumers.

[19] COR 2014 5424.

3. In the Finding into the death of Lauren Pilkington,[20] I recommended that the ACCC consider working to restrict the ease of access to helium gas, by members of the Australian public. By way of letter dated 4 May 2017, I received a response from Mr Matthew at the ACCC. Mr Matthew advised that the ACCC has commenced an investigation into the extent of the use of helium gas in suicides in Australia, and the availability of helium gas cylinders to the public.

4. Specifically, Mr Matthew advised that the ACCC had received a report from the National Coronial Information System (NCIS), which showed that nationally approximately 400 deaths have occurred using helium from 2000 to 2016, and the use of helium gas in suicides is increasing. Mr Matthew advised that the ACCC have begun preparing a paper for the Advisory Committee on Chemicals Scheduling (ACCS) to discuss options for controlling asphyxiant gas helium, through changes to public access through amendments to the Poisons Standard; amending labelling or inclusion of new warnings; limiting cylinder sizes available to the public; changes to cylinder/nozzle operation or controls; and inclusion of gaseous 'bitterant'. Mr Matthew wrote that the ACCS meets three times each year, and this issue is expected to be heard at the November 2017 meeting. At that time, I commented that the ACCC's movement towards facilitating a more regulated approach to the sale of helium was a positive step.

5. During November 2017, the Therapeutic Goods Administration (TGA) sought comments from interested parties concerning various proposed amendments to the Poisons Standard,[21] including an application by the ACCS to create new entries which include helium in Schedules 6[22] and 7[23] and Appendices E[24] and F[25]. The proposal also requires helium gas to be in pressurised gas canisters or cylinders containing an aversive when being sold to or hired by consumers intended

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[20] COR 2016 4013, delivered on 19 April 2017.

[21] The Poisons Standard is an Australian federal legislative instrument and is the legal name for the 'Standard for the Uniform Scheduling of Medicines and Poisons' (SUSMP).

[22] Schedule 6 includes '*Poison(s) – Substances with a moderate potential for causing harm, the extent of which can be reduced through the use of distinctive packaging with strong warnings and safety directions on the label.*'

[23] Schedule 7 includes '*Dangerous Poison(s) – Substances with a high potential for causing harm at low exposure and which require special precautions during manufacture, handling or use. These poisons should be available only to specialised or authorised users who have the skills necessary to handle them safely. Special regulations restricting their availability, possession, storage or use may apply.*'

[24] Appendix E includes '*First Aid Instructions for Poisons – First aid instructions for poisons (other than agricultural and veterinary chemicals and chemicals packed and sold solely for industrial, dispensary, manufacturing or laboratory use.*'

[25] Appendix F includes *'Warning Statements and General Safety Directions for Poisons – Warning statements and general safety directions for poisons (other than human medicines, agricultural and veterinary chemicals and chemicals packed and sold solely for the industrial, dispensary, manufacturing or laboratory use).'*

for household or domestic use. Mitigating public health risks by asphyxiation was the reason listed for the proposal.

6. The current edition of the Poisons Standard is dated 3 October 2017 and does not include a reference to helium. I await further information via the outcome of the ACCC investigation per Mr Matthew's letter dated 4 May 2017.

**FINDINGS**

The investigation has identified that Devlin suffered from connective tissue disease, which caused recurrent limb dislocations and required multiple surgical interventions. The evidence indicates that this painful physical condition impeded Devlin's mobility and impacted upon his mental health, for which he sought treatment on 19 May 2016. I remain unclear as to the extent of Devlin's medical treatment after his final appointment with Dr Nguyen on 1 June 2016.

The precise precipitating factors that led Devlin to adopt the course of action he ultimately chose have not been identified with any degree of certainty. However, on the evidence available to me it appears as though his depression was a contributing factor. And, in the absence of the identification of desvenlafaxine in post mortem toxicological analysis, I am unable to make findings about the role, if any, of this medication to Devlin's death.

I accept and adopt the medical cause of death as identified by Dr Michael Burke and find that Devlin Charles Duffy intentionally took his own life by means of asphyxia from inhalation of helium.

**RECOMMENDATIONS**

Pursuant to section 72(2) of the **Coroners Act 2008,** I make the following recommendations:

1. With a view to improving public health and safety in relation to the prescribing of anti-depressants to children, adolescents and young people; I recommend that The Chief Psychiatrist instigate and perform a supervisory type role in respect of research, with the aim of updating clinical guidelines for the prescription of antidepressant medication to children, adolescents and young people.

2. And, in performing this supervisory type role, I recommend that The Chief Psychiatrist ensure that the aforementioned research contemplates children, adolescents and young people as distinct cohorts.

3. And, in light of the Office of The Chief Psychiatrist's duty to provide clinical leadership, and continual improvement of public mental health services per the *Mental Health Act 2014* (Vic), I

recommend that The Chief Psychiatrist perform this supervisory type role with a view to providing current and clear clinical guidelines to all medical practitioners who prescribe antidepressant medication to children adolescents and young people, including general practitioners.

In accordance with section 73 of the *Coroners Act 2008* (Vic), I direct that a copy of this finding be published on the internet.

I direct that a copy of this finding be provided to the following:

Mr Warren Duffy

Dr Hong Nguyen, General Practitioner, Medical One – Waurn Ponds

Mr Neville Matthew, General Manager, Consumer Product Safety Branch, ACCC

Dr Neil Coventry, Office of the Chief Psychiatrist

Senior Constable Simon Turner

Signature:


AUDREY JAMIESON

CORONER

Date: **1 February 2018**