NATIONAL CORONIAL INFORMATION SYSTEM



NCIS Annual report

2020-21



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Authorisation

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Acknowledgments

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DIRECTOR'S FOREWORD

I am pleased to present the National Coronial Information System Annual report 2020-21.

The year has been extremely productive for the NCIS. The first set of NCIS fact sheets to showcase the New Zealand data within the NCIS collection was published this year. The New Zealand Mortality data series 2014-18 is the newest instalment in a suite of fact sheets examining closed case external deaths due to injury, drug contribution and intentional self-harm. The inclusion of the New Zealand data in the Mortality data series allows for a unique comparison between Australia and New Zealand coronial data across 2014, 2015, 2016, 2017 and 2018.

The development of a promotion roadmap provides the NCIS Unit with a structured approach to increasing awareness of the value of the unique NCIS dataset and services. We are improving our user support through a refreshed training and support program designed to grow users' skills and knowledge of the NCIS.

The NCIS exists as a valuable research database due to the support of Australian and New Zealand State and Chief Coroners, and their staff. I thank them wholeheartedly for their ongoing support and contributions to this unique national dataset. I also thank the Australian and New Zealand justice departments, and the Australian Commonwealth for their continued financial support enabling us to continue providing services to Coroners, death investigators, researchers and the broader community.

The core NCIS dataset is supported by supplementary data supplied by the Australian Bureau of Statistics, the New Zealand Ministry of Health, Safe Work Australia and the Australian Births, Deaths and Marriages registries. I thank these organisations for their continued support and the additional data that enriches the NCIS data collection.

The NCIS remains in a healthy financial position with the NCIS Trust balance being \$762,855 as at 30 June 2021, increase of \$75,092 from the previous closing balance. We ended the year with \$64,315 underspend due to savings achieved throughout the year. This is a positive change from recent year's overspends due information technology costs.

The NCIS Unit continued to work from home throughout 2020-21 due to the COVID-19 pandemic. Productivity remained high and service delivery was not disrupted during this period.

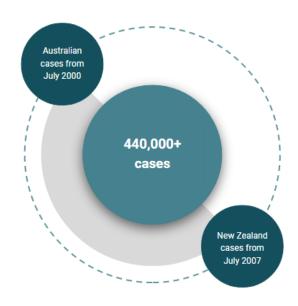
Fiona Dowsley

Director, National Coronial Information System

ABOUT US

The National Coronial Information System (NCIS) is a secure research database of information on deaths reported to a coroner in Australia and New Zealand. Information concerning every death reported to Australian coroners since July 2000 (January 2001 for Queensland) and New Zealand coroners since July 2007 is stored within the system.

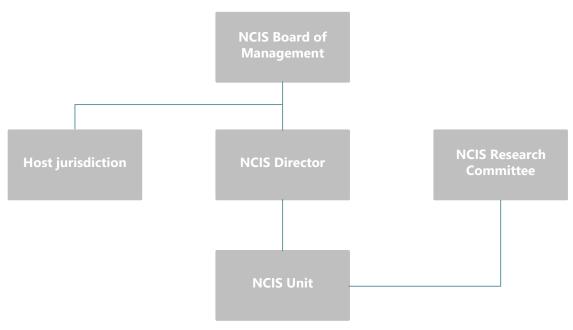
Data includes demographic information on the deceased, contextual details on the nature of the fatality and searchable medicolegal case reports including the coronial



finding, autopsy and toxicology report and police notification of death.

The database is available to coroners to assist investigations and appropriate access is available on application for eligible groups who require coronial data for research or monitoring projects.

Our structure



NCIS Board of Management

The NCIS Board of Management ensures the effective management of funds, provides strategic direction and ensures all legal and financial responsibilities are met in line with the requirements set out in NCIS Memorandum of Understanding.

The Board comprises:

- One coronial representative
- One public health representative nominated by the Australian Government Department of Health
- One representative nominated from the Victorian Department of Justice and Community Safety as the NCIS' host jurisdiction
- One larger jurisdictions representative (Queensland, New South Wales and New Zealand)
- One smaller jurisdictions representative (Tasmania, Western Australia, South Australia, Northern Territory and Australian Capital Territory).

Host jurisdiction

The NCIS is hosted by the Victorian Department of Justice and Community Safety as an independent unit.

NCIS Unit

The NCIS Unit's function is to develop and maintain a high-quality information service for coroners, policy makers and researchers to benefit the Australian community by contributing to a reduction in preventable death and injury.

NCIS Research Committee

The NCIS Research Committee (NRC) reviews all applications from third party researchers seeking direct access to Australian data on the NCIS to assess whether the application is suitable for referral to the ethics committee.

The NRC comprises:

- An Australian state or chief coroner (or their delegate) on a rotating basis
- NCIS Manager
- NCIS Access Liaison Officer

Ethics committees

The NCIS utilises the Justice Human and Research Ethics Committee (JHREC) convened by the Secretary of the Victorian Department of Justice and Community Safety for third party research projects seeking access to national data.

Third party research applications seeking access to Western Australian data are also considered by the Western Australian Coronial Ethics Committee (WACEC).

Read more about the NCIS

COVID-19 RESPONSE

All NCIS staff continued to work from home on a full-time basis throughout 2020-21. Corporate tools and secure systems have enabled the NCIS Unit to remain fully functional.

The NCIS Unit is not a real-time reporting service due to the time taken to finalise coronial processes and close cases on the NCIS. As a result, any data requests on deaths associated with COVID-19 have been unable to be facilitated and were instead referred to the relevant coroners court.

Capturing COVID-19 deaths in the NCIS

Consistently coding deaths related to the COVID-19 pandemic is essential to ensure the deaths can be accurately identified within the court systems, the NCIS and the ICD-10 coding performed by the Australia Bureau of Statistics (ABS).

The NCIS Unit created a multiple fatality event (MFE) to identify COVID-19 related deaths on the NCIS. Whilst technically a pandemic does not meet the all the requirements of a MFE as the dates are spread across weeks or months, utilising the MFE functionality within the NCIS allowed for immediate identification of COVID-19 related deaths without the need to implement system changes.

View the Coding COVID-19 deaths on the NCIS advice

KEY ACHIEVEMENTS

Provision of comprehensive coronial data to those who need it. *This is our mission*Saving lives through the power of data. *This is our vision*

The NCIS Strategic Plan 2017-21, approved by the Board of Management in December 2017, outlines four strategic goals to support our mission and vision:

- Ensure efficient and comprehensive acquisition of data
- Ensure data quality is of the highest possible standard
- Provision of quality coronial data to stakeholders
- Assurance of system continuity and security

The NCIS Unit continued to make progress against its strategic goals through the 2020-21 business plan which identified three key focus areas:

Promoting our data collection and services

This is about our value

Implementing opportunities to work smarter

This is about our practices

Improving frameworks that underpin the database

This is about our system

Promoting our data collection and services

This focus area concentrated on activities to ensure the NCIS' unique value is clearly articulated, our service offering is better defined, and NCIS data is promoted to a wider audience. Key achievements included:

Activity	Aim	Outcomes delivered
Publish New Zealand mortality data series	To develop and publish fact sheets based on New Zealand data to promote the value of the NCIS	Publication of 15 fact sheets for 2014-2018 data (three for each year)
Undertake Fatal facts review	To identify improvement areas for NCIS Fatal facts in terms of search tool functionality and user experience, mode of delivery (PDF/search tool) and preparation processes	Review report with recommendations (internal document)
Document LCMS service parameters for coronial courts	To develop clarity surrounding the type and volume of support the NCIS Unit can provide to the courts which	Service offering document (internal document)

Activity	Aim	Outcomes delivered
	have NCIS maintained local case management systems	
Establish key stakeholder engagement program	To develop a program of engagement opportunities/events/meetings designed to promote the NCIS and engage directly with key stakeholders throughout Australia and New Zealand	 An annual engagement schedule developed Monthly meetings for the NCIS Leadership team have been scheduled to discuss upcoming engagement
Develop business development roadmap	To develop a roadmap to identify and acquire new user pay clients, and to find opportunities to drive the NCIS' financial growth and reach within the death and injury prevention industry	NCIS Promotions roadmap (internal document)
Expand training and support program	To review current training offerings and identify new opportunities that better support NCIS users and streamlined user management and processes for the NCIS Unit	 Training and support program offering (to be released on the NCIS website in late 2021) Updated general information session Internal resources to support training
Review access fees	To complete a review of current access fees and develop recommendations for a new structure that better reflects users and NCIS needs	Proposed fee structure options documented (internal document)
Investigate coding quality of pre-2004 cases	To undertake an analysis of the non-natural cases closed and reviewed prior to March 2004 to: - identify extent of non-compliance with contemporary coding practices and rules to the data - develop plan to undertake review activity	 Scoping report (internal document) Roadmap for the review of applicable cases (internal document)

Implementing opportunities to work smarter

This focus area concentrated on identifying ways to make our tools and process work harder and to improve access to information to better support informed and evidence based decisions. Key achievements included:

Activity	Aim	Outcomes delivered
Develop promotional material	To develop collateral that can be used to promote the NCIS	A series of promotional material that can be used online, be sent to interested parties and included in conference material
Identify case details during QA process which can support NCIS data reports	To identify opportunities to capture specific information to reduce the number cases that need be manually reviewed in the production of certain data reports	Implementation of additional fields in the QA spreadsheet for the extra data collection at the time of quality review
Review the standard NCIS Access agreement	To review and identify opportunities to improve the standard NCIS Access agreement	NCIS Unit review (internal document)
Introduce a case summary repository	To implement a short term solution to store all relevant case summaries in a standard format on the existing network, along with a method of identifying which cases on NCIS have existing summaries. To investigate longer term options for storing case summaries	Options paper (internal document)
Review accounts receivable process	Identify opportunities to streamline accounts receivable processes and reduce the risks with current practices	Review report with recommendations (internal document)
Increase strategic use of QA data	To ensure that the NCIS quality management process collects data in a manner which supports the reporting and training needs of the NCIS	Scoping report with recommendations (internal document)
Investigate secure file transfer	To identify a suitable platform to enable secure file transfer data extract delivery, data	Options paper (internal document)

Activity	Aim	Outcomes delivered
	report delivery and other sensitive information that needs to be shared with external parties	Implementation of a new secure file transfer platform
Develop governance map and core function frameworks	To articulate the governance operating structure of the NCIS Unit	Overarching governance map and four function frameworks

Improving frameworks that underpin the database

This focus area concentrated on making improvements to how the NCIS database operates and its functionality. Key achievements included:

Activity	Aim	Outcomes delivered
Classification structures - scope ANZSCO occupation coding analysis	To undertake a review in relation to Usual occupation (ANZSCO) coding and identify opportunities to improve use/reporting, application and presentation of this data.	Scoping report with recommendations (internal document)
12 month evaluation of new restricted cases process	To determine the effectiveness, successes and any process adjustments that could be made to the existing restricted cases process	 Evaluation report with recommendations for improvement (internal document)
Database roadmap - Opportunities to improve user management functions in the NCIS database	Identification of short and longer term needs surrounding the organisation, access and display of user information in the NCIS.	 Requirements report with short and long term recommendations (internal document)
Database roadmap - clean up back end of NCIS	Identify which tables, functions and procedures need to be archived or removed to improve simplicity of administration and enable decommissioning of certain items once approval obtained from NCIS leadership.	Review report (internal document)
Making system usage data more available	To better understand the needs and possibilities surrounding improved access to NCIS system usage data.	Scoping report with recommendations (internal document)

Activity	Aim	Outcomes delivered
Database roadmap - document Oracle backend structure and supporting procedures	Document and outline details of the tables and scheduled tasks that comprise the NCIS for internal and external use.	Oracle Backend dictionary

OPERATIONAL REPORT

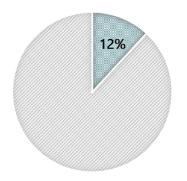
Data contained on the NCIS is provided by each coronial court in Australia and New Zealand. The NCIS Unit ensures the data received from the coronial courts is quality assured and nationally consistent.

Supplementary data is also provided by external organisations and updated annually including:

- ICD-10 coding provided by the Australian Bureau of Statistics and the New Zealand Ministry of Health. All deaths occurring in Australia and New Zealand are coded in accordance with the International Classification of Death Tenth Revision (ICD-10) codes
- Work-related fatality supplementary data including occupation, industry and injury type is provided by Safe Work Australia. There is no equivalent for New Zealand data
- Data about the indigenous status and birthplace of individuals is provided by each state/territory BDM registry. This data originates from the death registration process and/or medical certificate cause of death.

DATA COLLECTION

Each year the total number of cases contained on the NCIS increases, subsequently growing the value of the data to death investigators and researchers.



■ Reportable deaths ■ Deaths

The number of deaths reported to an Australian coroner has remained relatively constant over the last five years, accounting for approximately 12 per cent of all deaths.¹

There were 24,905 new cases added to the NCIS during 2020-21, bringing the total number of cases contained in the NCIS at 30 June 2021 to 441,481.

Table 1: Total number of cases contained on the NCIS by financial year²

Financial year	New cases	Total cases
2000 - 2001	13,085	13,093
2001 - 2002	17,464	30,557
2002 - 2003	21,544	52,101

¹ Australian Bureau of Statistics (ABS). (2020, October 23). *Causes of Death, Australia methodology*. https://www.abs.gov.au/methodologies/causes-death-australia-methodology/2019

² Values throughout the table change each year as a result of cases being added and deleted by the court and NCIS Unit

Financial year	New cases	Total cases
2003 - 2004	18,850	70,951
2004 - 2005	18,884	89,835
2005 - 2006	19,650	109,485
2006 - 2007	17,462	126,947
2007 - 2008	17,613	144,560
2008 - 2009	19,383	163,943
2009 - 2010	18,120	182,063
2010 - 2011	18,077	200,140
2011 - 2012	17,476	217,616
2012 - 2013	30,359	247,975
2013 - 2014	24,663	272,638
2014 - 2015	24,893	297,531
2015 - 2016	24,800	322,331
2016 - 2017	23,575	345,906
2017 - 2018	23,425	369,331
2018 - 2019	23,799	393,130
2019 – 2020	23,446	416,576
2020 - 2021	24,905	441,481

Table 2: Total number of cases closed on the NCIS by jurisdiction and financial year

Jurisdiction	2016-17	2017-18	2018-19	2019-20	2020-21 ³
Australian Capital Territory	309	263	286	356	161
New South Wales	4,453	4,313	5,733	7,257	4,729
Northern Territory	354	227	335	340	270
Queensland	2,182	2,329	2,524	2,039	1,355
South Australia	1,795	2,801	2,700	2,419	2,808
Tasmania	516	578	483	677	623
Victoria	9,548	5,525	3,282	8,042	3,532

³ Delays in replacing staff at coroners courts in the Australian Capital Territory and Queensland had a direct impact on the number of cases that were closed on the NCIS for these jurisdictions during 2020-21.

Jurisdiction	2016-17	2017-18	2018-19	2019-20	2020-213
Western Australia	2,437	2,329	2,296	2,833	2,301
New Zealand	2,902	3,009	3,189	2,928	3,357
Total	24,406	21,374	20,828	26,891	19,136

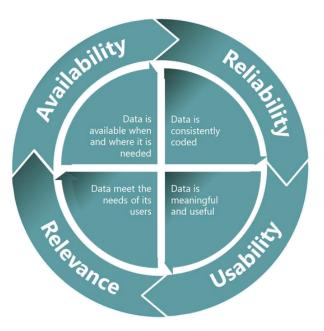
Table 3: Total number of closed cases on the NCIS by jurisdiction and case type during 2020-21

Jurisdiction	Natural case	Non-natural case	Total closed cases
Australian Capital Territory	81	80	161
New South Wales	2,573	2,156	4,729
Northern Territory	116	154	270
Queensland	310	1,045	1,355
South Australia	1,814	994	2,808
Tasmania	314	309	623
Victoria	2,206	1,325	3,532
Western Australia	1,186	1,115	2,301
New Zealand	1,921	1,436	3,357
Total	10,521	8,615	19,136

View current cases closure and document attachment statistics

QUALITY ASSURANCE

The NCIS is committed to providing high quality and fit-for-purpose data. Our quality program encompasses a range of activities to maintain the highest possible standards of data quality and consistency.



Read more about our Quality assurance program

The NCIS Unit undertakes manual quality assurance on all eligible cases. To be included in a quality review a case must meet at least one of the following criteria:

- Case type completion is non-natural death [Death due to external cause(s), Body not recovered or Unlikely to be known]
- Case type completion is Death due to natural cause(s) and
 - o at least one mechanism/object screen is coded
 - o Cause of death field contains one of the nominated keywords or
 - o Coroners recommendations/warning field is *Recommendations made/warning made*

Table 4: Total number of cases quality assured by jurisdiction and financial year

Jurisdiction	2016-17	2017-18	2018-19	2019-20	2020-21
Australian Capital Territory	347	366	122	441	233
New South Wales	6,099	4,142	11,226	2,482	5,449
Northern Territory	427	473	201	136	355
Queensland	3,833	2,951	1,708	1,396	2,005

Jurisdiction	2016-17	2017-18	2018-19	2019-20	2020-21
South Australia	2,109	2,134	1,145	1,027	1,904
Tasmania	520	678	306	266	553
Victoria	4,477	11,320	2,531	3,816	4,035
Western Australia	3,386	2,766	1,468	3,375	1,926
New Zealand	4,039	6,717	1,708	717	2,260
Total	25,237	31,547	20,409	13,656	18,720

Table 5: Total number of closed cases awaiting QA review by jurisdiction and financial year

Jurisdiction	2016-17	2017-18	2018-19	2019-20	2020-21
Australian Capital Territory	226	31	81	143	7
New South Wales	2695	901	876	3213	416
Northern Territory	293	35	55	162	22
Queensland	1931	714	529	1112	249
South Australia	1014	435	352	795	185
Tasmania	395	115	88	270	127
Victoria	5712	1511	1291	3518	217
Western Australia	1820	600	489	1002	293
New Zealand	5435	863	225	616	73
Total	19,521	5205	3986	10,831	1,589

In February 2016 the NCIS Unit revised its processes for the type of cases that are manually quality reviewed. This significantly impacted the number of cases that were awaiting quality review in 2016-17.

The NCIS Unit moved from manually quality reviewing every case on the system to reviewing those cases that were most likely to be involved in monitoring, research and death prevention. Manual quality reviews are now undertaken on all external cause deaths, those with recommendations, or where an external factor contributed to the death. This has allowed these cases to be quality reviewed in a timelier manner and maximised the impact of the finite quality review resources within the NCIS Unit.

NCIS DATA ACCESS

NCIS direct access is available to the following groups:



Death investigators are individuals who directly assist with the investigation of deaths reported to a coroner. They include coroners, coronial clerks, forensic pathologists and police assisting a coroner. Death investigators may utilise the NCIS in the investigation process to review circumstances and outcomes in similar cases occurring in any jurisdiction in Australia and New Zealand.



Third party users include researchers, universities, policy makers or government departments with a bona fide involvement in monitoring and preventing injury and death in the community. Ethical approval for research projects is required for access to the NCIS.



Providing agencies are approved to on-provide NCIS data under certain conditions. Providing agencies may be current approved third-party researchers or may be apply as new agencies for the sole purpose of data on-provision. They must have assessment processes in place to ensure that NCIS sourced data remains secure and will only be on-provided to receiving agencies for research or statistical purpose.

Approved death investigators

There were 122 new death investigators approved for NCIS access in 2020-21. There are active death investigator users in every jurisdiction represented in the NCIS, including staff at the coroners courts.

Table 6: Total number of NCIS searches conducted by death investigators by type and financial year

Search type	2016-17	2017-18	2018-19	2019-20	2020-21
For specific known case	17,298	9,927	9,995	11,814	11,396
For similar cases	1,492	1,956	1,908	1,553	2,328
Total searches	18,790	11,883	11,903	13,394	13,724

Approved third party research projects

There were 104 active third party research projects utilising NCIS data as at 30 June 2021. Of these, 22 were new projects that commenced in the 2020-21 financial year. There were 13 projects completed and one renewed in the same period. There were 22 research publications and reports published by researchers accessing the NCIS.

Table 7: Total number of approved new and renewed third party projects for access to NCIS by financial year

Projects	2016-17	2017-18	2018-19	2019-20	2020-21
New	25	16	17	15	22

Projects	2016-17	2017-18	2018-19	2019-20	2020-21
Renewed	12	16	23	8	1
Completed	13	23	22	15	13
Active projects at end of financial year	102	93	91	89	104

The ethics approval period changed from three to five years during 2019-20. As a result, full renewal applications have decreased annually.

Table 8: Total number of NCIS searches conducted by third party users by type and financial year

Search type	2016-17	2017-18	2018-19	2019-20	2020-21
For specific known case	91,665	90,294	80,759	98,501	132,127
For similar cases	9122	8637	9272	10,222	9677
Total	100,787	98,931	90,031	108,723	141,804

A full list of publications is provided in Appendix C – Research publications

Approved data extracts

Data extracts may be requested by approved third party and death investigator users, for NCIS data that cannot be exported or for complex searches that cannot be conducted through the online interface. There were 16 data extracts completed and delivered to NCIS approved users in 2020-21.

Approved data on-provision agencies

Data on-provision refers to when an organisation that holds NCIS-sourced data wants to release, or 'on-provide', that data to external parties. An organisation can apply to the NCIS to become an approved Providing agency, which enables them to provide this data to Receiving agencies (the external parties) for research or statistical purposes that will benefit the wider community. In many cases these applications will be to on-provide the Cause of Death Unit Record File (COD URF), which is held by the Australian Coordinating Registry but contains NCIS sourced data and thus requires NCIS Unit approval.

Table 9: Total number of data on-provision applications by financial year

Projects	2016-17	2017-18	2018-19	2019-20	2020-21
New	1	1	1	0	0
Renewed	1	3	0	3	3

DATA REPORTING

The NCIS Unit produced a total of 63 data reports at the request of coroners, death investigators and external parties (38 to coroners and death investigators, and 25 to external parties). The reports are used as evidence to inform public discussion and decision making.

Table 10: Total number of reports prepared by NCIS for death investigators and external parties by financial year

Service	Organisation	2016-17	2017-18	2018-19	2019-20	2020-21
Coronial report	Coroners courts and supporting agencies	70	57	32	38	38
Data report	External parties	43	43	19	27	25
	Media organisations	8	4	2	2	-
Total		121	108	53	67	63

NCIS coronial report service

There were 38 coronial reports delivered in 2020-21, the same number as the previous year.

Over fifteen per cent (n=6) of these reports examined drug and alcohol-related deaths, and 13.2 per cent examined child deaths, vehicle incident deaths and deaths involving non-pharmaceutical substances (n=5 reports for each topic). There were four reports regarding intentional self-harm deaths.

The largest proportion of coronial report requests were made by New South Wales (47.4%, n=18), followed by South Australia (15.8%, n=6) and Victoria (13.2%, n=5).

An additional two requests were completed but did not result in the preparation of a report. Four coronial report requests were made but did not proceed.

A key feature within NCIS functionality is the capability for full text, keyword searching of descriptions about the fatal incident and medical and legal findings. This allows detailed searching for particular locations, drug types or environmental conditions that are not possible via other mortality data collections. Coroners can then use this information for comparison and trend analysis purposes.

View the list of NCIS coronial reports in Appendix A - NCIS Coronial reports

NCIS data report service

Data reports can be used as supporting evidence for external parties with an interest in death and injury prevention and can provide vital information regarding community safety. All information provided is non-identifying.

There were 25 data reports delivered in 2020-21. There were 12 reports which provided data on intentional self-harm deaths. Four reports provided data on child deaths and three provided data on vehicle incident deaths.

Nearly half of these data reports (n=11) were requested by government, regulatory or statutory agencies. Eight data reports were requested by non-profit or community groups.

A further 22 data report requests were made but did not proceed.

View the list of NCIS data to external parties in Appendix B - NCIS Data reports

Commonwealth reporting requirements

The NCIS Unit delivered three mortality reports to the Australian Government Department of Health, a requirement of the partnership agreement held between the Commonwealth of Australia and the NCIS Unit. These reports included:

- NCIS Injury mortality data report 2018
- NCIS Drug mortality data report 2018
- NCIS Intentional self-harm mortality data report 2018

The NCIS Unit also delivered the first in a series of reports to the Australian Government Department of Infrastructure, Transport, Regional Development and Communications in accordance with the updated funding agreement between the Department and the NCIS Unit. The NCIS Fatal facts: Transport-related deaths report provides case summaries and recommendations published in NCIS Fatal facts in 2020–21 that involved transport and traffic related incidents.

DATA PUBLISHING

The NCIS Unit contributes to the assessment of mortality trends in coronial data by:

- promoting the unique value of the NCIS
- supporting evidence-based decisions in death and injury prevention
- enhancing public awareness of mortality risks and trends.

These aims are operationalised through our publications, tools and showcasing externally produced research using NCIS data.

Coronial recommendations: Fatal facts

A coroner may make recommendations as part of their inquiry into a death. Recommendations are made to help prevent similar deaths from occurring in the future.

Subject to coronial approval, the NCIS Unit publishes summaries of Australian cases in which a coroner has made a recommendation. These summaries are made available in two formats:

- Coronial recommendations: Fatal facts a PDF publication containing summaries of cases with coronial recommendations made within a three month period.
- Fatal facts search an interactive search tool allowing users to search by pre-defined case categories to identify cases relevant to the selected category.

The NCIS Unit published eight editions of Fatal facts in 2020-21.

View Fatal facts

Facts sheets

NCIS fact sheets are unique NCIS products, free and publicly available via the NCIS website. They include statistical information on deaths reported to a coroner and cover specific topics of public interest. They aim to raise awareness of mortality risks and to inform death and injury prevention strategies. All NCIS publications require coronial approval before release.

The NCIS Unit published a number of new fact sheets in 2020-21:



The Sport and recreation deaths in Australia is a new fact sheet released in August 2020.

View the Sport and recreation deaths in Australia fact sheet



The *Intentional self-harm deaths of young persons in Australia* fact sheet was released on 7 October in alignment with World Mental Health Day 2020.

View the Intentional self-harm deaths of young persons in Australia fact sheet

	NCIS FACT SHEET				
Injury deaths by residential remoteness area in Australia					
127,854 injury deaths 2001-2017	7520 deaths per year on average	60.9% residents of major cities			

The Injury deaths by residential remoteness area in Australia fact sheet is a new fact sheet released in November 2020 in addition to those scheduled for publication in 2020–21.

View the Injury deaths by residential remoteness area in Australia fact sheet



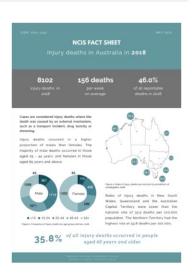
The Opioid-related deaths in Australia fact sheet was released in March 2021 as an update to a previously released fact sheet.

View the Opioid-related deaths in Australia fact sheet

The NCIS Mortality data series is a group of fact sheets that examines closed case external cause deaths due to injury, drug contribution and intentional self-harm reported to a coroner. The series provides yearly data on each type of death to enable comparisons over time.

The Australian Mortality data series featuring 2018 data was published in May 2021.

The Mortality data series has now been expanded to include deaths reported to a New Zealand coroner. Fifteen fact sheets were published in June 2021 covering New Zealand deaths reported to a coroner across 2014-2018.



View the Mortality data series

NCIS data for external research publications

The NCIS database is available for direct access by researchers with ethically approved research projects. There were 104 active projects utilising NCIS data as at 30 June 2021. Many of these research projects result in professional and peer reviewed publications which are often cited by media outlets which subsequently inform public discussion.

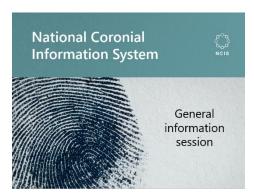
There were 22 research publications and reports that utilised NCIS data published during 2020-21. The research covered a range of topics including intentional self-harm, drowning and water-related deaths and drug-related deaths.

View the full list of publications in Appendix C – Research publications

TRAINING AND SUPPORT

The NCIS Unit provides training and support to court staff, approved NCIS users, interested parties and students.

General information



The NCIS General information session provides an overview of the NCIS - how it came about, what it is and how it works. Participants gain an understanding of how NCIS data may be accessed and the services offered by the NCIS Unit. The session is now delivered online (using Microsoft Teams) and runs for approximately 40 minutes.

The session was delivered on 12 occasions throughout

2020-21 to various coroners, court staff, core funders, approved third party researchers, data report recipients and others interested in NCIS data.

Support for courts and coders

The NCIS Unit continued to provide support to coronial court staff responsible for entering the data that is transferred to the NCIS:

- The NCIS Data dictionary and Coding manual are references for those entering data used for the NCIS.
- Guidelines for coders include coding advice and tips specifically for NCIS coders.
- Quality assurance (QA) reports provided to each jurisdiction give an overview of the outcomes of the NCIS Unit quality assurance reviews of closed cases and where applicable, provide details on areas of focus we are currently working on with jurisdictional coding staff.
- Quarterly QA summary reports are produced for coronial managers to identify overall QA trends including the progress on agreed areas of focus.
- Coder training sessions are provided remotely to introduce new coders within the
 jurisdictions to the processes and logic of how to enter data for upload to the NCIS.
 Training sessions were provided to staff members from the Australian Capital Territory,
 Queensland and Tasmanian Coroners Courts during 2020-21.

The NCIS online coder training modules are in the process of being revised and are not currently available on the NCIS website.

Support for third party researchers and death investigators

The NCIS Unit has continued to increase the availability of database search training for approved third party researchers and death investigators to ensure users maximise the value

of their NCIS access. Tailored training sessions are delivered online via Microsoft Teams, in addition to a series of search guides available online.

Internship program

The NCIS Internship program is designed to introduce students to a professional workplace where the skills and knowledge gained through study can applied. Placements are considered learning opportunities for the next generation of criminology, research and health information management professionals. The NCIS Unit does not expect students to have expert knowledge of the NCIS or its workings.

All students are provided with:



Working on site at the NCIS offices (pre-pandemic) or remotely



A tailored work program



Full workplace induction, training and support

The NCIS Unit aims to provide students with a positive and productive placement. In return, students are expected to participate in office life and complete assigned tasks.

The NCIS Unit offers two internship streams:

Quality	Research
The Quality stream provides students with an opportunity to participate in quality assurance activities such as:	The Research stream provides students with an opportunity to participate in the production of NCIS publications such as:
Completing targeted quality review of cases against NCIS coding protocols and practices	Preparing an NCIS fact sheetPreparing Fatal facts case summaries
Students from information management and health information management backgrounds are welcome to apply.	Students from all disciplines are welcome to apply, though those with a criminology or sociology background would be most suitable.

Quality placement 2020-21

The NCIS Unit has a long standing history of hosting La Trobe University students as part of formal studies required for the Master of Health Information Management.

One student was hosted for a 24-day placement from mid to late 2020. Key outcomes included:

- Identification of duplicate cases on the NCIS: Undertook a review of a NCIS data extract
 to identify instances of multiple cases for the same deceased and recommended actions
 for ensuring that only appropriate cases are included in the system.
- **Review of targeted case coding:** Reviewed cases within a targeted data extract to validate coding and if appropriate, make amendments to case coding.

Research placement 2020-21

The NCIS Unit hosted a Bachelor level student from Monash University for a 12-day placement in January and February 2021. Key outcomes included:

• **Fatal fact case summaries**: Contribution to developing case summaries for inclusion in the NCIS' Coronial recommendations; Fatal facts.

The NCIS Unit also hosted two Masters level students from the University of Melbourne for 200-hour placements from August to October 2020 and March to June 2021, respectively. Key outcomes included:

- Fact sheet: Preparing a fact sheet for publication on the NCIS website. The fact sheet for the first of the two placements, *Injury deaths by residential remoteness area in Australia*, was published in November 2020. The fact sheet for the second placement, *Intentional self-harm deaths of health professionals in Australia*, is scheduled for release in alignment with World Mental Health Day in October 2021.
- **Fatal fact case summaries**: Contribution to developing case summaries for inclusion in the NCIS' Coronial recommendations: Fatal facts.

Student testimonials are available on the NCIS website

FINANCIAL REPORT

Statement of receipts and expenditure year ended 30 June 2021

	2021 \$	2020 \$
Opening balance (cash in bank)	687,763	706,389
Add receipts		
Income		
Government grants – Australia (1)	1,095,834	1,085,834
Government grants – New Zealand (2)	91,609	91,609
User pays (3)	259,170	194,322
Total	1,446,612	1,371,765
Less expenses		
Contractors, consultants and professional service expenses (4)	-	-
Depreciation (5)	18,388	22,888
Employee related expenses	957,730	937,095
Information technology expenses (6)	347,624	350,455
Postage and communication expenses	1,147	835
Printing, stationery and other office expenses (7)	-13,005	5,577
Staff training and development expenses (8)	357	1,671
Travel, entertainment and personal expenses	32	-
Utilities and services	70,023	123,597
Total	1,382,297	1,442,248
Balance for the year	64,315	(70,483)
Capital expenditure	-	-
Accrued expenses and accounts payable (Net)	-	(28,796)
Accumulated depreciation (net of asset movements)	18,388	22,888
Grants pain in advance	-	-
Accrued revenue	-	-
Accounts receivable	11,917	23,718
Movement in employee provisions (9)	(17,080)	34,243
Closing balance (cash in bank)	762,855	687,763

Explanatory notes for statement of receipts and expenditure

- 1. Refer to the next section *Government funding contributions* for more details.
- 2. Refer to the next section *Government funding contributions* for more details.
- 3. User pays income includes annual fees from third party researchers and fees from data reports.
- 4. There was no expenditure related to contractors, consultants or other professional services incurred in 2020-21.
- 5. Depreciation costs were lower in 2019-20 due to a NCIS server being fully depreciated by the end of 2019.
- 6. Information technology expenditure include payments to the NCIS' IT service provider and expenditure required for servers and various software licences.
- 7. Printing, stationery and other office expenses comprises of bad and doubtful debts of (\$13,131), and printing, stationery and other office supplies (\$127).
- 8. Staff training and development expenses decreased due to a focus on utilising in-house training programs provided by the Victorian Department of Justice and Community Safety.
- 9. Provisions for employee benefits or entitlements consist of amounts for annual leave and long service leave accrued by employees. Provisions are recognised when the NCIS Unit has a present obligation, the future sacrifice of economic benefits is probable, and the amount of the provision can be measured reliably. The amount recognised as a provision is the best estimate of the consideration required to settle the present obligation at reporting period, taking into account the risks and uncertainties surrounding the obligation. There was no significant leave taken throughout the year.

Government funding contributions

The following funding contributions were made by governments this financial year:

Jurisdiction	Agency	Amount contributed \$AU (GST exclusive)
Commonwealth of	Australian Department of Health	406,000
Australia	Australian Institute of Criminology	24,819
	Australian Competition and Consumer Commission	18,614
	Department of Infrastructure, Transport, Regional Development and Communications	30,000
	SafeWork Australia	95,455
	Sub-total	574,888
Australian states and territories	Australian Capital Territory	8348
	New South Wales	165,008
	Northern Territory	5382

Jurisdiction	Agency	Amount contributed \$AU (GST exclusive)
	Queensland	106,991
	South Australia	38,649
	Tasmania	12,540
	Victoria	133,000
	Western Australia	51,028
	Sub-total	520,946
New Zealand	New Zealand	91,609
Total		1,184,443

APPENDIX A - NCIS CORONIAL REPORTS

The NCIS Unit prepared and issued 38 coronial reports during 2020-21:

Australian Capital Territory

Reference	Title	Client	Issued
CR21-03	Child deaths closed by an ACT coroner 2010– 2020	Coroner's Court of the Australian Capital Territory	Jan–Mar 2021
CR21-21	Coronial recommendations regarding heavy vehicle incident deaths involving fatigue or sleep apnoea 2010–2021	Coroner's Court of the Australian Capital Territory	Apr–Jun 2021

New South Wales

Reference	Title	Client	Issued
CR20-35	Coronial investigations examining firearms licensing in New South Wales 2010–2020	New South Wales Crown Solicitor's Office	Jul-Sep 2020
CR20-25	Deaths due to unascertained natural cause(s) in New South Wales 2010–2020	Coroners Court of New South Wales	Jul-Sep 2020
CR20-33	Intentional self-harm deaths reported in New South Wales 2018–2020	Coroners Court of New South Wales	Jul-Sep 2020
CR20-37	Australian coronial recommendations regarding chroming-related deaths 2000–2020	Coroners Court of New South Wales	Oct-Dec 2020
CR20-38	Snake bite fatalities in Australia 2015–2020	Coroners Court of New South Wales	Oct-Dec 2020
CR20-43	Intentional self-harm deaths reported in New South Wales 2018–2020	Coroners Court of New South Wales	Oct–Dec 2020
CR20-44	Natural cause deaths reported to a New South Wales coroner, 2019 and 2020	Coroners Court of New South Wales	Oct-Dec 2020
CR20-45	Deaths due to illicit drug- related hyponatremia and	Coroners Court of New South Wales	Oct-Dec 2020

Reference	Title	Client	Issued
	MDMA toxicity in New South Wales		
CR21-01	Pentobarbitone-related deaths in New South Wales 2000–2021	Coroners Court of New South Wales	Jan–Mar 2021
CR21-02	Intentional self-harm deaths reported in New South Wales 2015–2019	Coroners Court of New South Wales	Jan–Mar 2021
CR21-06	Water skiing-related deaths in New South Wales 2010–2020	Coroners Court of New South Wales	Jan–Mar 2021
CR21-07	Cyclist deaths in New South Wales and ACT 2005–2021	Coroners Court of New South Wales	Jan–Mar 2021
CR21-08	Deaths involving self- discharge from hospital against medical advice in New South Wales 2016– 2021	Coroners Court of New South Wales	Jan–Mar 2021
CR21-09	Drowning deaths at Lake Parramatta Reserve, New South Wales 2000–2021	Coroners Court of New South Wales	Jan–Mar 2021
CR21-10	Natural and external cause deaths in New South Wales in 2019 and 2020	Coroners Court of New South Wales	Jan–Mar 2021
CR21-11	Drug overdose deaths in New South Wales in 2019 and 2020	Coroners Court of New South Wales	Jan–Mar 2021
CR21-12	Asphyxiation deaths suspected to involve molasses in Australia 2000–2020	Coroners Court of New South Wales	Apr–Jun 2021
CR21-20	Deaths involving electrical bicycles in Australia	Coroners Court of New South Wales	Apr–Jun 2021

Northern Territory

Reference	Title	Client	Issued
CR20-39	Infant deaths involving co- sleeping in Australia 2010– 2020	Northern Territory Coroners Court	Oct–Dec 2020

Queensland

Reference	Title	Client	Issued
CR20-26	Deaths associated with rheumatic fever in Australia 2010–2020	Coroners Court of Queensland	Jul-Sep 2020
CR20-31	Deaths associated with lithium button battery ingestion in Australia 2010–2020	Coroners Court of Queensland	Jul–Sep 2020

South Australia

Reference	Title	Client	Issued
CR20-27	Intentional self-harm deaths of international students in Australia and New Zealand	Coroner's Court of South Australia	Jul-Sep 2020
CR20-30	Deaths associated with surface diving equipment in Australia 2010–2020	Coroner's Court of South Australia	Jul–Sep 2020
CR20-32	Verapamil toxicity deaths in Australia 2013–2020	Coroner's Court of South Australia	Jul-Sep 2020
CR20-36	Infant deaths involving co-sleeping in Australia 2010–2020	Coroner's Court of South Australia	Jul-Sep 2020
CR21-04	Sodium nitrite and sodium nitrate-related deaths in Australia 2010–2020	Coroner's Court of South Australia	Jan–Mar 2021
CR21-16	Choking deaths involving children in Australia 2011–2021	Coroner's Court of South Australia	Apr–Jun 2021

Tasmania

Reference	Title	Client	Issued
CR21-18	Mining-related deaths in Queenstown, Tasmania 2000–2021	Magistrates Court of Tasmania	Apr–Jun 2021
CR21-19	Drowning deaths involving drugs or alcohol at Hobart waterfront, Tasmania 2000–2021	Magistrates Court of Tasmania	Apr–Jun 2021

Victoria

Reference	Title	Client	Issued
CR20-24	Rock fishing deaths in Australia 2009–2020	Coroners Court of Victoria	Jul-Sep 2020
CR20-34	Domestic vehicle maintenance deaths in Victoria 2014–2019	Coroners Court of Victoria	Jul-Sep 2020
CR20-41	Carbon monoxide poisoning deaths involving portable gas heaters in Victoria 2010–2020	Coroners Court of Victoria	Oct-Dec 2020
CR21-05	Vehicle incident deaths involving learner drivers in Victoria 2000–2021	Coroners Court of Victoria	Jan–Mar 2021
CR21-13	Deaths due to aerosol can chroming in Australia and New Zealand 2000–2021	Coroners Court of Victoria	Jan–Mar 2021

Western Australia

Reference	Title	Client	Issued
CR20-29	Deaths of persons aged under 18 reported to a WA coroner 2019–20 financial year	Coroner's Court of Western Australia	Jul-Sep 2020
CR20-40	Sodium nitrate deaths in Australia 2010–2020	Coroner's Court of Western Australia	Oct–Dec 2020

New Zealand

There were no reports issued to New Zealand in this financial year.

APPENDIX B - NCIS DATA REPORTS

External parties

The NCIS Unit prepared and issued 25 coronial approved data reports during 2020-21 to external parties (excluding media outlets):

Reference	Title	Client	Issued
DR20-18	Deaths of children involving amphetamine contribution in Australia 2001–2017	Forensic Science South Australia	Jul-Sep 2020
DR20-18A	Addendum - Deaths of children involving amphetamine contribution in Australia 2001–2017	Forensic Science South Australia	Jul-Sep 2020
DR20-22	Intentional self-harm deaths of persons with terminal illness in 2018	Go Gentle Australia	Oct–Dec 2020
DR20-23	Heatwave-related deaths in Victoria 2008–2017	Spatial Vision	Jul-Sep 2020
DR20-26	Intentional self-harm deaths involving heavy vehicles in Australia 2010–2017	AustRoads National Road Safety Partnership Program (NRSPP)	Oct-Dec 2020
DR20-28	Australian coronial findings regarding fitness to drive 2009–2017	National Transport Commission (NTC)	Oct-Dec 2020
DR20-29	Intentional self-harm deaths of Nepean Blue Mountains residents 2009–2018	Nepean Blue Mountains Primary Health Network	Jul-Sep 2020
DR20-31	Intentional self-harm deaths at Australian railway locations 2000–2017	TrackSAFE Foundation	Oct–Dec 2020
DR20-31A	Intentional self-harm deaths at Australian railway locations 2000–2017	TrackSAFE Foundation	Jan-Mar 2021
DR20-32	Intentional self-harm deaths of specified	Macedon Ranges Shire Council	Oct-Dec 2020

Reference	Title	Client	Issued
	Victorian Local Government Area residents 2001–2017		
DR20-35	Stabbing injury deaths in Alice Springs 2006–2019	Alice Springs Hospital	Oct–Dec 2020
DR20-36	Intentional self-harm deaths in Australia 2013–2017	Jesuit Social Services	Oct–Dec 2020
DR20-37	Intentional self-harm deaths reported to a Northern Territory coroner 2000–2019	National Indigenous Australians Agency	Oct-Dec 2020
DR20-38	Intentional self-harm deaths of farmers and farm workers 2001– 2017	Writer	Oct–Dec 2020
DR20-39	Residential fire-related deaths in New South Wales 2005–2018	Western Sydney University	Jan-Mar 2021
DR20-40	Intentional self-harm deaths of Northern Country region residents 2015–2019	Country South Australia Primary Health Network	Oct–Dec 2020
DR20-43	Non-intentional self- harm deaths at Australian railway locations 2000–2017	TrackSAFE Foundation	Jan-Mar 2021
DR20-44	Deaths at New Zealand railway locations 2007–2017	TrackSAFE Foundation	Jan–Mar 2021
DR21-01	Sodium nitrite and sodium nitrate-related deaths in Australia 2009–2018	Therapeutic Goods Administration	Jan-Mar 2021
DR21-02	Coronial inquests and recommendations into child deaths in Australia 2010–2018	Australian Human Rights Commission	Apr–Jun 2021
DR21-07	Intentional self-harm deaths of farmers and farm workers in Australia 2009–2018	National Rural Health Alliance	Apr–Jun 2021

Reference	Title	Client	Issued
DR21-09	Toy-related deaths of young children in Australia 2011–2018	Australian Competition and Consumer Commission	Apr–Jun 2021
DR21-10	Motorised mobility scooter-related deaths in Australia 2011–2018	Monash University	Apr–Jun 2021
DR21-12 - Part A	Intentional self-harm deaths involving gas asphyxia in Australia 2000–2018	Australian Competition and Consumer Commission	Apr–Jun 2021
DR21-14	Deaths of persons experiencing homelessness and with no fixed abode in Australia 2014–2020	Council to Homeless Persons	Apr–Jun 2021

Media outlets

There were no reports prepared for media outlets during 2020-21.

APPENDIX C - RESEARCH PUBLICATIONS

The NCIS provides data to experts who investigate mortality and develop death and injury prevention strategies. Annual reports using NCIS data include:

- Causes of death Australian Bureau of Statistics
- Deaths in custody Australian Institute of Criminology
- Work-related fatalities Safe Work Australia
- Homicide in Australia Australian Institute of Criminology
- National coastal safety Surf Life Saving Australia
- NSW child deaths NSW Ombudsman

View the full list of publications and reports using NCIS data

Access to NCIS data is available for ethically approved research projects. The following research publications and reports using NCIS data were released during this financial year:

Drowning and water

Lawes, JC, Ellis, A, Daw, S & Strasiotto, L 2020, 'Risky business: a 15-year analysis of fatal coastal drowning of young male adults in Australia', *Injury Prevention*, viewed 15 July 2021, https://injuryprevention.bmj.com/content/early/2020/11/18/injuryprev-2020-043969>

Lippmann, J 2021, 'Fatalities involving divers using surface-supplied breathing apparatus in Australia, 1965 to 2019', *Diving and Hyperbaric Medicine*, vol. 51, no. 1, pp. 53-62

Lippmann, J, Lawrence, C & Davis, M 2021, 'Snorkelling and breath-hold diving fatalities in New Zealand, 2007 to 2016', *Diving and Hyperbaric Medicine*, vol. 50, no. 1, pp. 25-33

Drugs and alcohol

Campbell, G, Darke, S, Zahra, E, Duflou, J, Shand, F & Lappin, J 2020, 'Trends and characteristics in barbiturate deaths Australia 2000–2019: a national retrospective study', *Clinical Toxicology*, vol. 15, no. 3, pp. 224-230

Chiew, AL, Raubenheimer JE, Berling, I, Buckley, NA, Becker, T, Chan, B & Brett, J 2021, 'Just "nanging" around – harmful nitrous oxide use. A retrospective case series and review of internet searches, social media posts and the coroner's database', *RACP Internal Medicine Journal*, viewed 15 July 2021, https://doi.org/10.1111/imj.15391>

Farm and workplace

Lower, T & Peachey, K-L 2020, RSHA03 Identifying and prioritising WHS overlaps across the Agriculture and Fisheries Sectors, AgHealth Australia, Sydney

Safe Work Australia 2020, Work-related injury fatalities – Key WHS statistics Australia 2020, Key work health and safety statistics Australia 2020 series, Safe Work Australia, Canberra, viewed 15 July 2021, https://www.safeworkaustralia.gov.au/book/work-related-injury-fatalities-key-whs-statistics-australia-2020

Health and medical

Duncan, J & Byard, R 2020, 'Determining the prevalence of sudden and unexplained death in childhood (SUDC): a national Australian perspective', *International Journal of Legal Medicine*, vol. 135, pp. 793-800

Fa, F, So, J, Han, HC, La Gerche, A, Teh, A, Sanders, P, Farouque, O & Lim, H 2021, 'Sudden cardiac death related to physical exercise and sports in the young: a nationwide cohort study of Australia', *European Journal of Preventive Cardiology*, vol. 28, no. 1, viewed 15 July 2021, https://academic.oup.com/eurjpc/article/28/Supplement_1/zwab061.377/6273797

Sport

Fortington, L, Gamage, P, Cartwright, A, Bugeja, L 2021, 'Exertional heat fatalities in Australian sport and recreation', *Journal of Science and Medicine in Sport*, viewed 15 July 2021, https://doi.org/10.1016/j.jsams.2021.04.007>

Fortington, LV, McIntosh, AS & Finch, CF 2021, 'Injury deaths in Australian sport and recreation: Identifying and assessing priorities for prevention', *PloS ONE*, vol. 16, no. 4, viewed 15 July 2021, https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0250199>

Suicide

Leske, S, Kolves, K, Crompton, D & Arensman, E 2020, 'Real-time suicide mortality data from police reports in Queensland, Australia, during the COVID-19 pandemic: an interrupted timeseries analysis', *The Lancet*, vol. 8. no. 1, pp. 58-63

Hill, N, Spittal, M, Pirkis, J, Torok, M & Robinson, J 2020, 'Risk factors associated with suicide clusters in Australian youth: Identifying who is at risk and the mechanisms associated with cluster membership', *EClinicalMedicine*, vol. 29, pp. 1-10

Hill, NT, Witt, K, Rajaram, G, McGorry, PD & Robinson, J 2020, 'Suicide by young Australians, 2006-2015: a cross-sectional analysis of national coronial data', *Medical Journal of Australia*, vol. 213, no. 3, pp. 133-139

Pirkis, J 2020, 'Media reporting of Robin Williams' suicide', Masters Research thesis, The University of Melbourne, Melbourne

Burnett, A, Chen, N, McGillivray, L, Larsen, M & Torok, M 2021, 'Surveillance of suicide deaths involving gases in Australia using the National Coronial Information System, 2006 to 2017', *Australian and New Zealand Journal of Public Health*, vol. 45, no. 3, pp. 242-247

Gibson, M, Stuart, J, Leske, S, Ward, R & Tanton, R 2021, 'Suicide rates for young Aboriginal and Torres Strait Islander people: the influence of community level cultural connectedness', *The Medical Journal of Australia*, vol. 214, no. 11, pp. 514-518

Lawes, JC, Peden, AE, Bugeja, L, Strasiotto, L, Daw,S, Franklin, RC 2021, 'Suicide along the Australian coast: Exploring the epidemiology and risk factors', PLoS ONE, vol. 16, no. 5, viewed 15 July 2021, https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0251938>

Basocak, R, Nargundkar, A & Warren LJ 2021, 'The duality of risk from threats: Are homicidal threats a novel determinant for suicide risk?', Behavioural Sciences & the Law, vol. 39, no. 3, pp. 358-368

Transport

Schumann, S, Perkins, M, Dietze, P, Nambiar, D, Mitra, B, Gerostamoulos, D, Drummer, OH, Cameron, P, Smith, K & Beck, B 2021, 'The prevalence of alcohol and other drugs in fatal road crashes in Victoria, Australia', *Accident Analysis & Prevention*, vol. 153, viewed 15 July 2021, https://www.sciencedirect.com/science/article/abs/pii/S0001457520317255>

Trauma

Davie, G, Lilley, R, de Graaf, B, Ameratunga, S, Dicker, B, Civil, I, Reid, P, Branas, C & Kool, B 2021, 'Access to specialist hospital care and injury survivability: identifying opportunities through an observational study of prehospital trauma fatalities', Injury, viewed 15 July 2021, https://www.injuryjournal.com/article/S0020-1383(21)00251-5/fulltext#relatedArticles

Victorian State Trauma Outcomes Registry and Monitoring Group 2020, *Victorian State Trauma System and Registry Annual Report: 1 July 2018 to 30 June 2019*, Victorian State Trauma Outcomes Registry and Monitoring Group, Melbourne, viewed 15 July 2021, https://www.monash.edu/medicine/sphpm/vstorm/research-output>