

RESEARCH AND PLANNING FOR INJURY PREVENTION

GUEST EDITORIAL

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The January–February 2002 issue of the *NSW Public Health Bulletin* (Volume 13, Issues 1–2) examined the large and growing public health problem of injury resulting from falls. This issue, April 2002, presents articles describing research methods and findings that have shaped, and will continue to shape, planning for injury prevention. A future issue of the Bulletin will explore farm and other work-related injuries.

Injuries are a diverse group of health outcomes that place an enormous burden on health care costs, quality of life, and even the lifespan of the residents of NSW. Injuries can be defined as damage to the body resulting from acute or chronic exposure to energy, or the absence of essential elements of life such as oxygen and warmth. Sources of energy include mechanical, chemical, thermal, and radiation energy. Injuries can be unintentional (or ‘accidental’) or intentional (as in self-harm or violence). The level of severity can range from barely noticeable to fatal.

It is this diversity of cause and outcome that makes the measurement and management of injury difficult and potentially contributes to its relatively low public health profile.

As for diseases, there are, however, characteristics of injuries that allow them to be grouped, which provide a starting point for planning prevention strategies:

- the distribution of injury is **predictable** across a population;
- injury results from **an interplay of factors** that relate to the **host** (person at risk), the **agent** of energy (or vector), and the **environment** in which the host and agent come together;
- injury is the outcome of a **sequence of events**—with opportunities to eliminate or reduce the effect of injury being to be found before, during, and after the potential event.

In this issue of the Bulletin we consider the burden of injury in NSW. We look at the patterns of injury, at the groups that are at risk of injury in our population, at some of the mechanisms of

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injury, and at how all this information is currently being used to guide planning for injury prevention.

Schmertmann and Williamson's article provides an overview of the size and nature of the problem of injuries in NSW. It reports that each year injuries are responsible for approximately 2500 deaths and more than 178,000 hospitalisations. Their analysis of the data highlights the burden of intentional injuries (such as suicide and violence) particularly in males. Table 3 of their article illustrates how the groups that are at higher risk vary when the data are examined by injury mechanism and injury outcome. These findings have implications for the planning of prevention strategies.

The article by Potter-Forbes presents the methodological challenges associated with economic costing of injury at a population level. With NSW estimates of 1.48–1.68 billion dollars in direct health care costs due to injuries—and hospital separations data able to pinpoint the major contributors to this cost—these methodologies can be utilised to inform advocacy for investment in injury prevention.

Good information systems and investment in evaluation are the cornerstones for planning effective injury prevention strategies. In Williamson's article, we see how

the NSW Injury Risk Management Research Centre is contributing to our rapidly growing knowledge-base of injury research in NSW. Sefton's article covers the evaluation methods being employed in NSW Safe Community Pilot Projects, where the focus is on risk management at local levels—finding local solutions for local risks.

Two articles examine specific types of injuries or groups at risk: Williamson and Schmertmann explore drowning and near-drowning among children; Heslop describes the results from a study of injuries to Aboriginal people in the Mid-North Coast Area. Through two other brief reports, we are presented with examples of initiatives in planning for injury prevention: the NSW Water Safety Task Force, and the response of the NSW Motor Accidents Authority to the *NSW Child Death Review Team 1998–99 Report* with regard to the requirements for action to prevent child deaths and injuries in driveways.

Through all the issues in this ongoing Bulletin series on injury in NSW, we are provided with a wealth of information that can inform local, regional, and statewide planning in injury prevention. With injuries affecting all age groups, all socioeconomic groups, and all geographic areas, well-planned interventions are a sound investment for public health. ☒

A BRIEF OVERVIEW OF INJURY IN NEW SOUTH WALES

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Injury is a leading cause of morbidity and mortality in NSW. Each year, an estimated 2500 NSW residents die as the result of an injury, and more than 178,000 are hospitalised. In 1999, injury was the leading cause of death among NSW residents aged 1–44 years, and injury and poisonings were the sixth most common cause of death and the fourth most common cause of hospitalisation. This article provides a brief overview of the patterns and circumstances of injury in NSW, using information presented in the *NSW Injury Profile*, which is produced annually by the NSW Injury Risk Management Research Centre.

METHODS

Case definitions

The case definitions of injury mechanism, injury mortality, and injury morbidity used in the *NSW Injury Profile* are described below:

Injury mechanism

Injuries are usually classified in terms of their cause and intent. An injury mechanism (represented by an E-code selected from the *International Classification of Disease*) is defined as the external object or circumstance that caused the injury, such as a motor vehicle crash. The intent can be accidental, intentional, or undetermined. Intentional injuries are usually grouped together on the basis that they were either self-inflicted or inflicted by another person or persons.

Seven major mechanisms of injury are analysed in the *NSW Injury Profile*: drowning, falls, fire-burns, interpersonal violence, motor vehicle crashes, poisonings, and suicide. All intentionally self-inflicted injuries were grouped into the suicide injury mechanism and all injuries intentionally inflicted by another were grouped into the interpersonal violence mechanism. Analysis of injuries resulting from complications of medical and/or surgical care (commonly referred to as 'adverse events') is also presented.

Injury mortality

Injury mortality is defined as a case where the underlying cause of death was determined to be an external cause of injury (see 'injury mechanism'). In some cases, the injury mechanism identified will be an adverse event and will be linked to a diagnosis code (which is also selected from the *International Classification of Disease*) that is not injury-related. In these cases, the patient was probably being treated at the hospital for a medical condition (for example, a heart attack) and suffered an adverse event that resulted in death.

Injury morbidity

Injury morbidity is defined as a case where either an injury code was assigned as the principle diagnosis, or at least one E-code was assigned for an episode of care in a hospital, not resulting in death. For these cases, an injury will be considered the main reason for hospitalisation. In some cases, the identified injury mechanism will be an adverse event and will be linked to a diagnostic code that is not injury-related (for example, a heart attack).

Sources of data

Mortality

Data were obtained for NSW for 1986–1999 from the Australian Bureau of Statistics (ABS) for all E-coded death records. Data from 1986 to 1998 were coded using the World Health Organization (WHO) ICD-9, and data from 1999 was coded using WHO ICD-10.

Morbidity

All in-patient (hospitalisation) records were obtained from the NSW Department of Health for fiscal years 1991–92 to 1999–00. Data from fiscal years 1991–92 to 1997–98 were coded using ICD-9-CM and data from fiscal years 1998–99 to 1999–00 were coded using ICD-10-AM.

Analyses

Age and gender-specific death and hospitalisation frequencies and rates were calculated for all major injury mechanism cases from 1995 to 1999 using standard five-

year age groups. For each injury mechanism, age-adjusted rates were calculated annually from 1986 to 1999 for deaths, and from 1992 to 1999 for hospitalisations. Age-adjusted death and hospitalisation rates were calculated by applying the direct standardisation method (with five-year age groups) and using the 1991 Australian population census as the standard population.

RESULTS

Injury Mortality in NSW

Table 1 shows the number of deaths and the death rates by injury mechanism for all people in NSW, and for males and females, from 1995 to 1999.

From Table 1 it can be calculated that 34 per cent of the injury related deaths in NSW for this period were due to suicide and 24 per cent were due to motor vehicle injuries. When combined, these two categories account for more than 50 per cent of all deaths due to injury. Deaths due to drowning (four per cent) and adverse events (one per cent) were much less common. Table 1 also shows that death rates for males were higher than for females for all injury mechanisms and that males account for 70 per cent of all injury deaths between 1995 and 1999. For the same period, suicide and drowning occurred among males almost three times more often than among females.

Figure 1 compares the trend in death rates between 1986–1999 for four of the injury mechanisms listed in Table 1: falls, motor vehicle crashes, poisoning, and suicide.

In 1991, suicide replaced motor vehicle crashes as the leading cause of injury related death and exhibited a statistically significant increase between 1986 and 1997; however, the suicide death rate also shows a statistically significant decrease from 1997 to 1999. Of the other injury mechanisms shown in Figure 1, poisoning death rates fluctuated between 1986 and 1997, but showed statistically significant increases from 1997 to 1998 and again from 1998 to 1999. Motor vehicle transport death

TABLE 1

NUMBER OF DEATHS AND DEATH RATES/100,000* BY INJURY MECHANISM, NSW, 1995–1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Suicide	4,151	13.1	3,276	21.1	875	5.4
Motor Vehicle	2,915	9.3	2,032	13.4	883	5.4
Falls	901	2.5	541	3.6	360	1.6
Poisoning	870	2.8	649	4.2	221	1.4
Interpersonal Violence	566	1.8	401	2.6	165	1.0
Drowning	465	1.5	366	2.3	99	0.6
Fire-burns	223	0.7	142	0.9	81	0.5
Adverse Events	121	0.3	59	0.4	62	0.3
All Injury	12,341	38.1	8,671	56.8	3,670	20.2

* Death rates have been age-adjusted using the 1991 Australian census population

FIGURE 1

YEARLY TREND IN DEATH RATES BY INJURY MECHANISM, NSW, 1986–1999

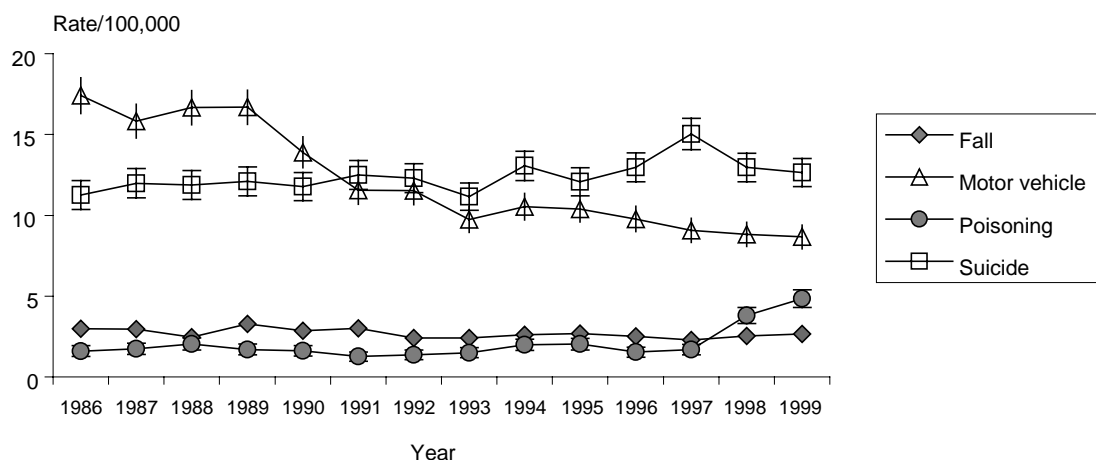


TABLE 2

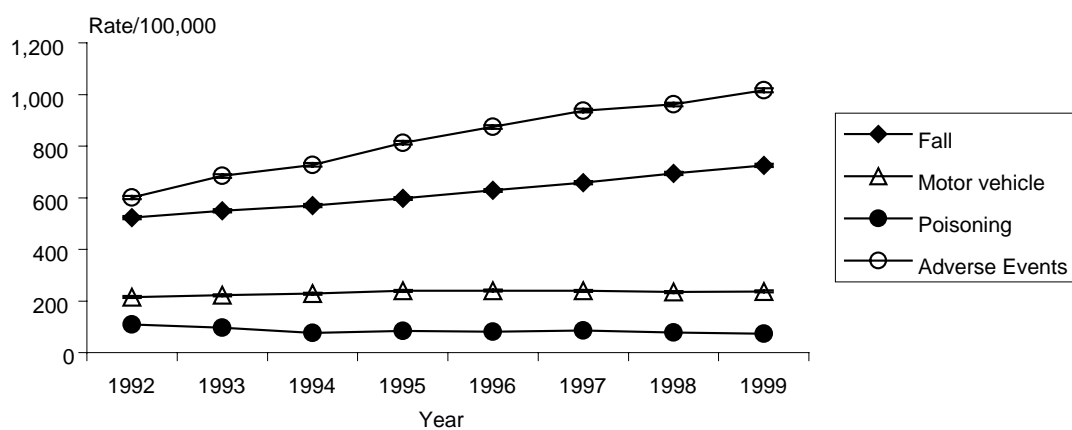
NUMBER OF HOSPITALISATIONS AND HOSPITALISATION RATES/100,000* BY INJURY MECHANISM, NSW, 1995–1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Adverse Events	309,102	922.1	155,853	997.8	153,240	870.9
Fall	224,141	661.7	97,939	644.8	126,202	646.2
Motor vehicle	73,245	238.0	47,439	311.9	25,806	163.3
Suicide	36,617	119.9	15,770	102.9	20,846	137.5
Assault	32,353	107.8	24,849	165.0	7,503	49.5
Poisoning	24,582	80.0	12,299	80.6	12,283	79.5
Fire-burns	12,838	42.0	8,074	52.9	4,764	31.0
Drowning	1,168	3.9	792	5.2	376	2.5
All Injury	963,300	2,978.1	535,910	3,486.7	427,372	2,452.3

*Hospitalisation rate has been age-adjusted using the 1991 Australian census population

FIGURE 2

YEARLY TREND IN HOSPITALISATION RATES BY MECHANISM, NSW, 1992–1999



rates showed a statistically significant decrease between 1986 and 1999 and were decreasing the most rapidly.

Injury Morbidity in NSW

Table 2 shows the number of hospitalisations and the hospitalisation rates by mechanism of injury for all people in NSW, and for males and females separately, from 1995 to 1999.

From Table 2 it can be shown that 32 per cent of the injury related hospitalisations in NSW were due to adverse events and 23 per cent were due to falls. These two categories of injury together account for more than 50 per cent of all injury hospitalisations. Hospitalisations due to fire-burns (1.3 per cent) and near-drowning (0.1 per cent) were much less common. Table 2 also shows that hospitalisation rates for males were higher than for females for all mechanisms of injury except for falls and attempted suicide; and that 56 per cent of all injury hospitalisations between 1995 and 1999 were among males. The near-drowning hospitalisation rates from 1995 to 1999, in particular, were much higher for males than females.

Figure 2 compares the trend in hospitalisation rates between 1992 and 1999 for four of the injury mechanisms listed in Table 2: falls, motor vehicle crashes, poisoning, and adverse events.

Figure 2 shows that the hospitalisation rates for adverse events and falls exceeded the rates for other injury types each year since 1992. Adverse events and falls hospitalisation rates showed statistically significant increases between 1992 and 1999. Motor vehicle crashes

were the next most common reason for injury-related hospitalisation, but the rates were less than half those shown for adverse events and falls and remained stable from 1992 to 1999.

Table 3 summarises the at risk age and gender groups for injury deaths and hospitalisations by injury mechanism, as well as the injury mechanism subcategory that accounted for the largest proportion of cases.

As Table 3 shows, children under the age of five had the highest rates for drowning deaths and near-drowning hospitalisations, fire-burns and poisoning hospitalisations. Overall, adults aged 15–44 years had higher rates for interpersonal violence deaths and hospitalisations, motor vehicle transport deaths and hospitalisations, poisoning deaths and deaths and hospitalisations due to self-harm, although the specific age group at risk varied with each injury mechanism. Adults 50 years and older had the highest rates for fall related deaths and hospitalisations, as well as adverse event deaths and hospitalisations; although, again, the specific age group at risk varied with each injury mechanism.

DISCUSSION

Injury is one of the leading causes of morbidity and mortality in NSW, and, unlike other leading causes of morbidity and mortality, injury has a serious effect on both the young and old.

The death and hospitalisation data analyses provide different pictures of the major causes of injury in NSW. When considering injuries that result in death, suicide is

TABLE 3

SUMMARY TABLE OF AT-RISK GROUPS FOR DEATHS AND HOSPITALISATIONS BY INJURY MECHANISM, NSW, 1995–1999

Injury Mechanism	Deaths			Hospitalisations		
	Age Group	Gender	Injury Mechanism Subcategory	Age Group	Gender	Injury Mechanism Subcategory
Suicide	20–39	Males	Suffocation	20–39	Females	Poisoning
Motor Vehicle	15–24, 75+	Males	Drivers	15–24	Males	Drivers
Falls	70+	Males	One level to another	70+	Females	On same level
Poisoning	25–44	Males	Narcotics and hallucinogens	Under 5	Female	Other and unspecified
Interpersonal Violence	25–29	Males	Sharp or blunt objects	20–24	Males	Struck by or against another person or object
Drowning	Under 5	Males	Natural body of water	Under 5	Males	Natural body of water
Fire-burns	70+	Males	Fires in buildings	Under 5	Males	Burns from substances or objects
Adverse Events	65+	Males, Females	Abnormal reaction or a complication without a mention of a misadventure at time of procedure	50+	Males, Females	Abnormal reaction or a complication without a mention of a misadventure at time of procedure

the leading cause followed by motor vehicle-related injury. If the focus of the analysis is on injuries that result in hospitalisation, then adverse events and fall-related injury are the most frequent cause.

The analyses in the *NSW Injury Profile* also provide different pictures of the at-risk age and gender groups. The at-risk age and gender groups are similar for injury deaths and hospitalisations when looking at all injury mechanisms combined, but change when an injury mechanism is analysed separately, as illustrated by Table 3.

The *NSW Injury Profile* depicts only the 'tip of the iceberg' regarding the effects that injury has on the people of NSW. Beyond the data presented in this article are the scores of injuries seen and treated every day by general practitioners, which are not recorded by existing systems of data collection. In the case of injuries that are captured in current systems of data collection (that is, deaths, hospitalisations, emergency department visits to some hospitals, and ambulance service calls), information describing the events that lead to the injury is often

unavailable. This has resulted in large gaps in the data that are required to inform steps to prevent certain types of injury. Substantial gains in the field of injury prevention rest with rectifying these gaps in the available data.

CONCLUSION

This profile of injury in NSW has provided insight into the patterns of injury. The information will be used by the NSW Injury Risk Management Research Centre to further examine different mechanisms of injury, to develop targeted research plans to address areas of concern, and to identify approaches to injury prevention activities. ❏

A copy of the *NSW Injury Profile* is available at www.irmrc.unsw.edu.au.

NSW INJURY RISK MANAGEMENT RESEARCH CENTRE

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The Injury Prevention and Policy Unit of the NSW Department of Health has developed a partnership with the NSW Roads and Traffic Authority, the Motor Accidents Authority, and the University of New South Wales, to establish the NSW Injury Risk Management Research Centre (IRMRC) at the University of New South Wales. This article briefly describes the aim, initiatives, activities, and research projects of the IRMRC.

AIM OF THE IRMRC

The aim of the IRMRC is to undertake and facilitate research on the prevention of all types of injury, and to develop effective solutions for problems associated with injury. The Centre provides industry and other agencies with a single point of access to expertise in a wide range of disciplines in the field of injury risk management.

INITIATIVES OF THE IRMRC

The IRMRC has three major initiatives:

- to identify and negotiate access rights to all relevant injury databases in order to conduct data mining and data analysis activities that will assist in the

identification and subsequent monitoring of injury issues;

- to develop a database on injury in NSW. This is fundamental to determining the direction of the IRMRC's research activities and would also provide valuable advice to stakeholders and the public;
- to conduct research and to work in partnership with other researchers to encourage investigation of areas most likely to reduce the frequency and/or severity of injury.

ACTIVITIES OF THE IRMRC

The core activities of the IRMRC are to:

- establish a comprehensive information system;
- collate injury data across agencies;
- analyse data and provide advice for prevention;
- provide a clearing house for expertise;
- review and analyse literature in the field;
- research causes and control of injury;
- assist organisations to improve injury data collections.

RESEARCH AREAS OF THE IRMRC

Some examples of the research areas associated with the identification, analysis and management of injury risks being coordinated by the IRMRC are:

- establishing the context of the risk of injury, which includes the particular objectives of the partner organisations that sponsor the Centre and of other potential funding bodies;
- identifying and analysing sources of the risk of injury;
- analysing the causes of injury, the outcomes of injury, and the incidence of injury;
- developing risk assessment methodologies in the area of injury prevention;
- researching the risk of injury, which support recommendations for intervention strategies;
- evaluating levels of risk and appropriate intervention strategies, taking into account levels of risk, costs and benefits, and political constraints;
- evaluating injury control programs;
- monitoring risks and risk control strategies.

The IRMRC undertakes:

- long-term research relating to the management of the risks of injury, whether it is applied (with practical application) or fundamental (original research that investigates hypotheses);
- the acquisition of high quality information relating to the management of the risk of injury, from existing data sources, using the expertise of epidemiologists, statisticians, computer scientists, behavioural scientists, and engineers;
- the trial and evaluation of strategies to prevent injuries;
- short-term research for industry or government leading to policy and program advice;
- short-term research including data searches.

Population-based databases that the IRMRC currently has access to include:

- NSW Department of Health Inpatient Statistical Collection;

- Australian Bureau of Statistics Mortality data;
- NSW Roads and Traffic Authority Traffic Accident Database system;
- Motor Accidents Authority compensation database;
- NSW Health Survey;
- WorkCover NSW workers' compensation data.

Current projects include:

- *NSW Injury Profile*, with an analysis of patterns of injury for the most recent five year period (1995–1999) by age, gender, and injury mechanism;
- projects using the NSW Department of Health's Inpatient Statistical Collection, such as an analysis of work-related injury; further analysis of poisoning-related injury, and an estimate of the cost of injury to government.
- an analysis of road crash data, 1992–2000, and a community attitude survey regarding road safety in NSW, for the NSW Road Safety Taskforce.

Other projects include: studies of coronial reports of fatalities of children aged under six years in motor vehicle accidents and by drowning; an analysis of road crashes involving heavy motor vehicles; a trial of a minimum dataset on water safety; and a study of the effects of night and day driving on fatigue and performance.

Future projects planned by the IRMRC include: the development of an on-line injury data warehouse; the linkage of population datasets (for example, hospital and road crash, hospital and workers' compensation); and an in-depth analysis of injury causation and injury interventions. ❏

Further information about the IRMRC and its current projects is available at www.irmrc.unsw.edu.au.

THE COST OF INJURY IN NEW SOUTH WALES: A RISK MANAGEMENT FRAMEWORK

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The New South Wales Injury Risk Management Research Centre (IRMRC) at the University of New South Wales has been commissioned to estimate the NSW 'whole-of-life' cost of injury for use in future resource planning and investment decisions. This 'incidence based' approach estimates the expected real costs and economic losses for injuries sustained in a given year, calculated to the end point of recovery or death from the injury. The approach provides evidence of the long-term opportunity cost of 'doing nothing' to prevent the injury, and it may be distinguished from the 'prevalence based' approach that values the cost of new and old injuries in any year.

Problematically, the nature and severity of an injury, along with its treatment and sequelae, are usually complex and uncertain. Hence, the data requirements for a thorough 'bottom-up' approach to conducting a costing of injury are onerous and inevitably require the introduction of structured assumptions to produce a result in a cost-effective fashion. This article describes the basic methodological issues associated with identifying and quantifying certain direct costs of the treatment of injury. A glossary of terms used in the article is provided in the box below.

THE TOTAL ECONOMIC COST OF INJURY AND THE AVOIDANCE OF COST SHIFTING

Economic costing at the societal level is undertaken to demonstrate the wide-ranging cost effect of an injury on the victim, the family, and the broader society—not just on the health care system. If only the direct health and treatment expenditures are accounted for, then opaque cost shifting can occur. Therefore, in estimating the full economic cost of injury, one is valuing not only the opportunity costs associated with resources consumed in the treatment and maintenance of injury victims, but also the stream of societal and personal losses associated with reduced productivity, valued by estimating lost future earnings, and compromised quality of life—that is, the resultant pain and suffering and reduction in role performance due to disability and handicap. These losses jointly represent the value of a statistical life (VOSL), and in the literature it is these losses that represent by far the greatest proportion of societal costs.^{1,2}

In the estimates of the cost of injury to Victoria for 1993–94, direct costs accounted for only 29.4 per cent of total cost while the indirect cost of mortality and morbidity on productivity alone, as calculated using the human capital approach, represented 71.6 per cent of the total societal cost.³ Near identical findings were reported by Rice et al., in a study published in the United States in 1989, who

GLOSSARY OF TERMS

Bottom-up methodology

Estimated actual expenditure from unit cost and volume data.

Top-down methodology

Known funding outlays allocated to the relevant cost units by some method other than an actual count.

Sensitivity analysis

Testing the parameters in a model with different values, for instance observing the effect of changes in the discount rate.

Human capital approach

Valuing economic losses in terms of lost productivity—average wage rates used as proxy for the lost productivity.

Decision points

The site of choice leading to different pathways that have different cost implications and potential outcomes.

Attribution fraction

Algorithm to allocate aggregate funds to cost centres, however defined.

Diagnosis related groups (DRGs)

A classification system for grouping acute inpatient episodes of care into groups that are clinically coherent, relatively homogenous in respect of resource utilisation, and mutually exclusive. The 661 groups provide a measure of the product or output of the hospital and thus provide a basis for funding and budgeting.

Opaque cost shifting

The transfer of costs is not apparent if the focus is limited to that of a particular accounting entity. For instance, NSW Health's expenditures alone do not account for the costs, both direct and indirect, that are borne by the community when there are changes in policy—for example, the effect on society of de-institutionalisation and hospital-in-the-home are not necessarily cost beneficial in a societal sense.

estimated that the proportions for all injuries was 29 per cent in direct costs and 71 per cent in indirect mortality and morbidity cost (Watson and Ozanne-Smith, 1997).³

FRAMEWORK FOR ANALYSIS—A RISK MANAGEMENT APPROACH

The 'bottom-up' methodology can be employed to guide economic evaluations and can also provide a proxy for the severity of the consequences of categories of types of injury. When this proxy for injury severity is combined with the likelihood of the event occurring—the incidence rate—a more comprehensive assessment of risk is generated and the effective management of population health risks is made more certain. In the 'bottom-up' methodology, the 'decision points' that affect costs can be identified, and a 'sensitivity analysis' can be conducted in economic evaluation and services planning processes. However, the precision of the estimates so derived is problematic, given the limitations of existing data collection systems, the inconsistency in methods of categorisation, and the paucity of relevant clinical pathways and outcomes research.

COST-OF-INJURY STUDIES IN AUSTRALIA

Despite the theoretical argument for a full economic cost of injury, there are few published studies in this area in Australia. The most complete work has been done at the Australian Institute of Health and Welfare (AIHW) and Monash University Accident Research Centre (MUARC). In the 1999 AIHW study, only the direct costs of injury, and musculoskeletal disorders (including disorders that result from non-injury causes), were estimated using a prevalence-based 'top-down' methodology in which a series of 'attribution fractions' were developed to allocate national health expenditure to constituent costs.⁴ For the same period, MUARC used an essentially 'bottom-up' methodology to estimate the cost of injury to Victoria.³ In that study, productivity losses in terms of lost future work were also estimated. There was no attempt to value the lost quality of life component. In NSW, Moller applied the MUARC proportions to NSW data.⁵

METHODOLOGICAL CONSTRAINTS IN DIRECT COSTING: EPIDEMIOLOGY AND DATA LINKAGE

The most important source of data used in the IRMRC study was the Inpatient Statistical Collection (ISC) of the NSW Department of Health. This administrative data set provides the details for each episode of care and the initiating cause for each injury related separation—the E-code of Chapter XX of the ICD-10-AM. In NSW, subsequent and related admissions are not linked to the original admission by a unique identifier, so they cannot be traced over time. The more detailed databases of insurers, such as those available through WorkCover NSW and the Motor Accident Authority, can be used to infer the scale of the experience of injury in New South Wales.

However, there are limitations to the use of these databases. First, the demographic profiles (as well as the nature and severity of injuries) recorded are not representative of the whole NSW population, and statistical estimation is required to derive reasonably valid epidemiological rates. Second, insurance organisations do not necessarily cost episodes of care using the real incidence rate or by the average costs for diagnosis related groups (DRG) but rather through an actuarially-derived estimate for bulk payment. Third, the systems used to categorise the nature and severity of injury in these databases are not necessarily based on the ICD-10-AM system of the ISC. Indeed, the Motor Accident Authority uses a modified Abbreviated Injury Score to determine the level of severity, which in turn determine average costs.

WHAT THE INPATIENT STATISTICAL COLLECTION DOES TELL US

Nevertheless, an estimate of the direct costs to NSW Health has been made from the data available in the NSW ISC. The number of E-coded hospital separations for NSW in 1999, for the initial admission only, was 213,520 cases at a DRG average cost of \$911 million (Table 1). This estimate was derived by aggregating each E-coded admission and summing the DRG costs—the average cost for the associated medical diagnosis of each case in the sub-categories. In the absence of clinical costing this is as detailed a 'bottom-up' estimate as is possible.

There are many questions raised by the large sum of public monies spent in the treatment of injury. The 70,000 cases classified as *complications of care* must, however, be viewed with caution. In disaggregation, less than one per cent of the cost of hospitalisation is attributable to medical and surgical misadventure (ICD-10-AM categories Y60–Y69). The bulk of the cases, as well as 85 per cent of the cost, is attributable to complications that did not arise at the time of the intervention. However, without content analysis of actual medical records, the nature of these complications is unknown. Further, the figure is likely to be inflated, as only 60 per cent of the injury coded (Chapter XX ICD-10-AM) admissions have an associated nature of injury code (Chapter XIX ICD-10-AM). This implies that the injury event did not have an adverse outcome—but it is uncertain whether there was no effect or there was an aggravation of an existing medical condition. What is almost certain, however, is that these complications occurred in hospital.

If these 70,000 cases are excluded then the direct hospital costs for the initiating admission are significantly reduced to \$416 million or approximately nine per cent of hospital expenditure. The NSW Health budget in 1997–98, the latest year for which published figures are available, was around \$4.6 billion dollars.⁶ By far the largest cost

TABLE 1

HOSPITALISATION COST OF INJURY, NSW, 1998 –1999

Mechanism	Separations		Expenditure		Alive separations		Cost of alive separations		Average cost per alive discharge		Separated dead		Cost of dead separations		Average cost per dead discharge	
	Cases	\$	Cases	\$	Cases	\$	Cases	\$	\$	\$	Cases	\$	Cases	\$	\$	\$
Transport Accidents: V01–V99*	17,307	60,531,644	17,113	58,638,787	17,113	58,638,787	17,113	58,638,787	3,427	194	1,892,857	194	1,892,857	9,757		
Falls: W00–W19	50,635	183,652,720	49,475	175,200,161	49,475	175,200,161	49,475	175,200,161	3,541	1,160	8,452,449	1,160	8,452,449	7,287		
Accidental Drowning: W65–W74*	223	609,359	204	493,301	204	493,301	204	493,301	2,418	19	116,058	19	116,058	6,108		
Smoke, fire, flames: X00–X09	965	4,904,204	953	4,844,145	953	4,844,145	953	4,844,145	3,960	12	60,059	12	60,059	1,799		
Accidental poisoning: X40–X49	8,164	17,267,821	8,049	16,326,770	8,049	16,326,770	8,049	16,326,770	2,028	115	941,051	115	941,051	8,183		
Hit–Struck–Crushed:																
W20–W23, W50–W52	8,112	17,070,602	7,907	16,817,641	7,907	16,817,641	7,907	16,817,641	2,127	25	252,961	25	252,961	10,118		
Intentional Self-Harm: X60–X84	8,107	14,776,809	8,023	14,050,756	8,023	14,050,756	8,023	14,050,756	1,751	84	726,053	84	726,053	8,643		
Assault: X85–Y09	6,607	13,711,540	6,584	13,433,151	6,584	13,433,151	6,584	13,433,151	2,040	23	278,308	23	278,308	12,104		
Complications of Care: Y40–Y84	70,287	495,413,269	68,151	459,288,315	68,151	459,288,315	68,151	459,288,315	6,739	2,136	36,124,954	2,136	36,124,954	16,912		
Sequelae: Y85–Y89	5,926	21,070,888	5,887	20,626,427	5,887	20,626,427	5,887	20,626,427	3,504	39	444,461	39	444,461	11,396		
All other external causes**	36,917	82,176,732	36,669	80,124,169	36,669	80,124,169	36,669	80,124,169	2,185	248	2,947,563	248	2,947,563	11,885		
Total	213,250	911,185,588	209,015	859,843,623	209,015	859,843,623	209,015	859,843,623	33,720	4,055	52,236,774	4,055	52,236,774	104,193		

*Excluding drowning due to transport accidents V90 and V92 or cataclysm X34–X39

**W24–W49, W53–W64, W75–W99, X10–X39, X50–X59, Y10–Y36, Y90–Y98 (no Y37–Y39)

Note:

W20–W23

W50–W52

Note: Cost of public hospital separations by mechanism as derived from the NSW Inpatient Statistical Collection.

category is falls at around 51,000 separations and \$184 million in expenditure.

It is difficult to compare these figures with those from other studies. In the AIHW study, the direct costs of injury and musculoskeletal disorder (including disorders that result from non-injury causes) in Australia for the period 1993–94, using a ‘top-down’ methodology, were estimated at \$5.603 billion nationally. Although it is unclear as to the proportion of this sum attributable to NSW, as a third of the total Australian population is in NSW it is possible that as much as \$1.68 billion is expended here. In the Moller (2000) study, the total cost of direct morbidity in NSW in 1995–96 was estimated at \$1.48 billion.⁵ This evidence suggests that the cost estimates presented in Table 1 are plausible.

CONCLUSION

Due to limitations associated with data sets, we are only able to complete the epidemiological profiles to be used in assessments of cost from injuries by piecing together estimates from sources other than NSW population health data. This can be avoided through longitudinal studies of particular injury events for defined populations. The ‘bottom-up’ methodology developed for cost information

will, therefore, be far more reliable than is currently the case; and, most importantly, from a risk management perspective it will be much more conducive to the implementation of risk management strategies.

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SAFE COMMUNITIES

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Safe Communities is a World Health Organization community-based model that offers communities a collaborative approach to managing injury prevention and safety promotion. Its key feature is the creation of a local infrastructure for addressing injury and safety priorities. This infrastructure is created through partnerships between stakeholders who share a vested interest in improving the standard of their community’s safety. Local solutions are developed to address the local concerns about injuries, accidents, and safety. This approach to injury prevention encourages greater cooperation and collaboration between different levels of the business sector and government agencies and strives for a high level of community input.

The model has been successful because:

- a community defines its problems and identifies potential solutions to these problems;
- injury prevention and safety promotion efforts are coordinated at a regional level;

- it ensures that community interest groups are involved and support injury prevention or safety promotion projects;
- most importantly, it has been shown to lower the injury and accident rates in some communities.

SAFE COMMUNITIES TRIALS IN NSW

Trials of the *Safe Communities* model are being conducted in three locations in NSW. These pilot projects are a joint venture between the NSW Department of Health and the Roads and Traffic Authority (RTA). Pilot projects are being conducted in the following local government areas:

- Kempsey and Hastings (the Macleay-Hastings project);
- Gundagai;
- Kiama.

In Macleay-Hastings, the community is working on issues surrounding child injury, sporting injury, fall injury, alcohol consumption and injury, pedestrian safety, and car fleet safety. Injury prevention areas that are being considered in Gundagai are road safety, fall injury prevention, sports safety, and workplace safety. In Kiama, the community is working on issues surrounding home safety, fall injury prevention, alcohol consumption,

skateboard safety, road safety, farm safety, and childhood injury prevention.

The NSW *Safe Communities* Pilot Program is two-thirds completed. The methodology for the evaluation of this pilot is described in the following article by Sefton in this issue of the Bulletin. ☒

More information on the NSW SafeComm pilot program is available at www.health.nsw.gov.au/public-health/health-promotion/improve/injury/injindex.htm.

NSW SAFE COMMUNITIES PILOT PROJECTS—EVALUATION METHODOLOGY

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This article describes the methodology currently being used to evaluate the NSW *Safe Communities* Pilot Projects (SafeComm). The evaluation, by the University of Sydney, has been funded for three years as part of the pilot program by the NSW Department of Health and the NSW Roads and Traffic Authority to investigate the *Safe Communities* model.

OBJECTIVES

The evaluation project has both local and statewide objectives.

Local level

Objectives at the local level are to:

- develop and monitor measures of attitude and operational change, including: key informant–agency participation and participation change over the period of the project; changes in the incidence and form of local media knowledge and reporting; incorporation of the SafeComm project and/or its components into the business of local government; and level of integration of cross agency collaborations into the local planning processes;
- identify and benchmark indicators of hazard reduction;
- identify and report on suitable measures of injury outcome.

State level

Objectives at the state level are to:

- develop and implement a biannual SWOT analysis (of strengths, weakness, opportunities, and threats), which will be used to collate data from across all field methods, and to identify critical findings and trends over time.

METHODS OF DATA COLLECTION AND ANALYSIS

The evaluation employs six main methods of data collection and analysis:

- inter-organisational network analysis;
- in-depth interviews with key informants;
- impact logs;
- capacity-building indicator checklists;
- media content analysis;
- injury data reporting.

Each methods is briefly described below.

Inter-organisational network analysis

Network analysis is a quantitative mapping technique. A survey is conducted among different organisations to examine how, and to what extent, different agencies collaborate. The survey also measures the strength of those connections. It is these connections that are mapped in the network analysis.

The survey is conducted by telephone with a representative of each of the participating organisations. An initial survey was conducted during the first year of the projects (2000) and this will be repeated in the third year (2002). The data are being analysed using the UCINET data software package,¹ and graphs constructed using KrackPlot.²

In-depth interviews of key informants

A series of in-depth face-to-face interviews is being used to collect detailed qualitative information on the projects from the perspectives of the participants. Interviews are being conducted with participants in each project at regular intervals covering the following core issues:

- expectations of the project and the reasons behind these;
- understanding of the aims and objectives of the project;

- coalition characteristics;
- conflict resolution;
- roles of members and project officers;
- the costs and benefits of participation;
- project achievements and external influences that might affect these;
- problems encountered in the project.

In addition to these core topics, interviews are tailored to the specific interests and objectives of each project. The interviews are a significant source of self-reported behaviour change among target groups.

The interviews are semi-structured, consisting of a series of standard questions covering the range of topics listed above, followed by an opportunity for more free ranging questions and discussion. The content of interviews at different stages of the projects varies depending on a number of factors, including the results of capacity-building indicators. Issues of interest that arise through other methods are also canvassed with project participants through the interview process; and, likewise, issues raised in interviews guide the timing and use of other aspects of the evaluation, in particular the use of the indicator checklists.

Impact logs

An impact log is a written account of the major activities that occur in a project. The log can be used to record any changes in the community that are brought about by the project, such as new road safety measures or other hazard reducing actions or structures. Each impact in the log is coded according to the type of activity and when it occurred. Using this information the evaluators produce regular reports on the frequency and nature of project activities.

Capacity-building indicator checklists

As specified in the tender document, the indicators of health promotion capacity, developed by Hawe et al.,³ will be used at various stages of the evaluation. The exact timing and use of these checklists will vary between communities and will be determined on the basis of activities and project development in each community. The checklists assist in assessing a range of conditions, including the strength of a coalition, if a program is likely to be sustained, and capacity for organisational learning. Some checklists may be used several times throughout the life of the projects while others will be used only once or twice

Media content analysis

A content analysis will be conducted on local newspaper items related to both the project and to safety issues in

each community. The content analysis will involve coding each media article according to the following factors:

- size and type of article (for example, news story, letter to the editor, feature article);
- type of safety message reported;
- safety issue;
- organisations—groups involved;
- how the safety issue is ‘framed’ (for example, person-blaming rather than situation-blaming).

Data will be collected over four two-month periods and analysed to identify any changes in the quantity or type of safety related articles that have appeared in the local media.

Injury data reporting

Data collected by each project will be analysed over the life of the project in order to identify any changes in injury rates. It is important that each project establishes its own data collection methods and forges alliances with organisations that collect relevant information, in order for those data collections to be sustained into the future. A variety of injury data are already available to individual SafeComm projects, and the evaluation proposes to build on this existing capacity.

CONCLUSION

Three progress reports from the evaluation project have been provided to the funding bodies and to each of the three pilot projects. A final report will be completed at the conclusion of the evaluation at the end of 2002.

Progress reports are not publicly available; however, further information about individual projects and the evaluation can be obtained from the NSW *Safe Communities* coordinator, Northern Sydney Health Promotion, Western Sector Health Promotion Unit, 37 Fourth Avenue, Eastwood NSW 2122; telephone (02) 9858 7737.

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PATTERNS OF DROWNING AND NEAR DROWNING IN NSW

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An analysis of drowning in Australia showed that, overall, rates of drowning are low compared to other injuries.¹ In NSW between 1995 and 1999, drowning was the sixth most common injury-related cause of death, and near-drowning was the eighth most common cause of injury-related hospitalisation.² However, as these are population-based estimates, the rates underestimate the risk involved in exposure to water-related hazards. As many people are not regularly exposed to bodies of water, the risk for those who are is significantly higher than that suggested by the population rate. This article describes the relationship between exposure to water and the risk of drowning.

METHODS

Data on drownings in NSW was obtained for 1992–1999 from the Australian Bureau of Statistics (ABS) for all drowning-related E-coded death records (E830, E832, and E910).

Data on near drowning in NSW was obtained for 1992–1999 from the NSW Department of Health Inpatient Statistics Collection for all near drowning-related E-coded hospitalisations (E830, E832, and E910).

RESULTS

Between 1995 and 1999, 465 NSW residents died from drowning; a rate of 1.5 per 100,000 residents (Figure 1).

The majority of NSW residents who drowned were male (79 per cent).

Of these 465 drowning deaths in NSW, approximately 15 per cent were children less than five years of age. Figure 2 shows the rate of drowning in NSW by age group, 1992–1999.

The locations of the drownings in NSW included areas of natural water (41 per cent), swimming pools (29 per cent), boat-related locations (15 per cent), bathtubs (eight per cent) and other and unspecified locations (seven per cent). Males accounted for 85 per cent of all drownings in natural bodies of water, almost all boat-related deaths and around three-quarters of all swimming pool deaths. Females drowned in bathtubs more than twice as often as males.

Between 1995 and 1999, 1,168 NSW residents were hospitalised for a near drowning event; a rate of 3.9 per 100,000 residents (Figure 3). Just over two-thirds of the near drowning hospitalisations were males (68 per cent).

Of 1168 hospitalisations due to near drowning, approximately 35 per cent were children less than five years of age. Figure 4 shows the rate of hospitalisation due to near drowning in NSW by age group, 1992–1999.

Natural water settings (38 per cent), swimming pools (20 per cent), boat-related locations (10 per cent) and bathtubs (nine per cent) were the most common locations for near drownings that required hospitalisation. For 23 per cent of near drowning cases, the location was classified as 'other' and was not specified.

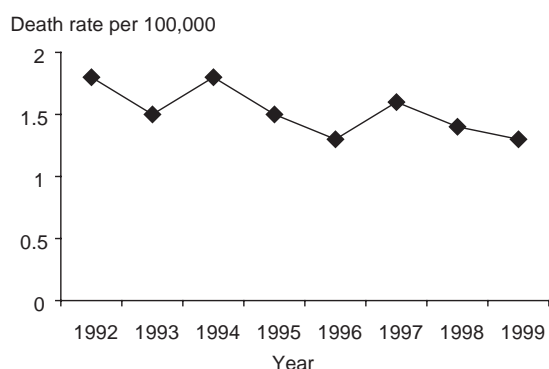
EXPOSURE TO WATER AND DROWNING RISK

Children under five years of age were found to be at significantly higher risk of drowning and near-drowning than any other age group, especially in swimming pools and bathtubs. Drowning in this age group occurred mainly during the daytime and in all seasons of the year.¹ In contrast, males over the age of five years are most likely to drown in open water, while boating or swimming, mainly during the summer and on public holidays. This reflects when they have the most chance to have access to water activities.¹

The article by Schmertmann and Williams,¹ and the *NSW Injury Profile* produced by the NSW Injury Risk Management Research Centre,² suggest avenues for intervention to reduce drowning and near-drowning. Action is needed most in reducing the risk of drowning and near-drowning among babies and small children, and among young males. Older people are also at greater risk of drowning and near-drowning than the general

FIGURE 1

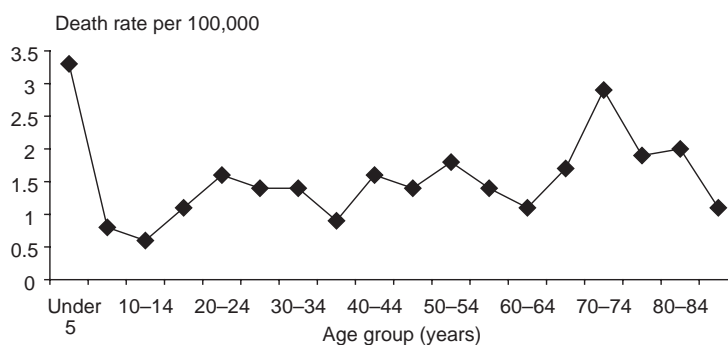
RATE OF DROWNING IN NSW BY YEAR, 1992–1999



Source: ABS mortality data and population estimates, Australian Bureau of Statistics,

FIGURE 2

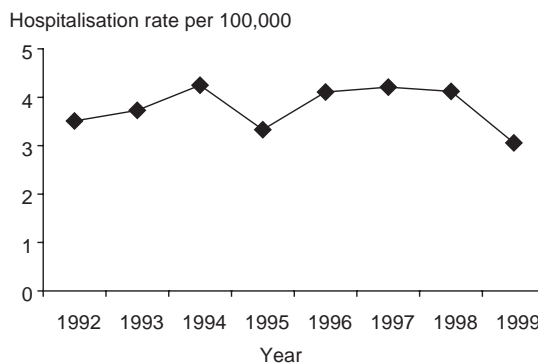
RATE OF DROWNING IN NSW BY AGE GROUP, 1992–1999



Source: ABS mortality data and population estimates, Australian Bureau of Statistics.

FIGURE 3

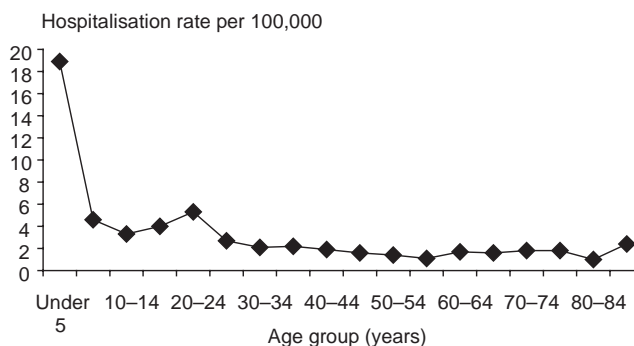
RATE OF NEAR DROWNING HOSPITALISATION IN NSW BY YEAR, 1992–1999



Source: NSW Health Inpatient Statistics and ABS population estimates (HOIST). Epidemiology and Surveillance Branch, NSW Department of Health.

FIGURE 4

RATE OF NEAR DROWNING HOSPITALISATION IN NSW BY AGE GROUP, 1992–1999



Source: NSW Health Inpatient Statistics and ABS population estimates, (HOIST). Epidemiology and Surveillance Branch, NSW Department of Health.

population. These results suggest that intervention activities, which target these groups, should focus on boating and swimming.

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NSW WATER SAFETY TASKFORCE

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Currently, there are an average of 87 drownings in NSW each year.¹ Drowning represents the sixth most common cause of accidental death in NSW.² As described by Williamson and Schmertmann in the previous article, certain age groups demonstrate higher incidences of drowning, and males in general are more likely to die as a result of drowning than females. As incidents of drowning and near-drowning are considered to be largely preventable, they are a major safety concern for the community. This article describes the NSW Safety Taskforce and the intersectoral activities ensuing to reduce the incidence of drowning and near-drowning in NSW.

The NSW Minister for Sport and Recreation established the NSW Water Safety Taskforce, in recognition of the importance of water safety and the need for a coordinated approach. The Taskforce is comprised of 14 member organisations (Table 1).

TABLE 1

NSW WATER SAFETY TASKFORCE: MEMBER ORGANISATIONS

Australian Professional Ocean Lifeguard Association
Austswim NSW
Farmsafe NSW
Kellogg Australia
Royal Life Saving Society, NSW Branch
Surf Life Saving NSW
Waterways Authority
NSW Community Relations Commission
NSW Department of Education and Training
NSW Department of Local Government
NSW Department of Health
NSW Department of Sport and Recreation.
NSW Local Government and Shires Association
NSW Premier's Department

The Taskforce developed the *NSW Water Safety Framework 2001–2003*, to assist in developing and presenting strategic advice to the government on matters related to water safety. The overall goals of the framework are to:

- achieve a coordinated and collaborative framework for water safety in NSW;
- ensure an effective and strategic management of water safety in NSW.

Three priority areas have been identified in the framework—education, standards, and evidence—which are accompanied by seven objectives and 19 strategic directions. A lead agency has been identified for each strategic direction: the NSW Department of Sport and Recreation for education, the Waterways Authority for standards, and the NSW Department of Health for evidence.

Priority—Education

The education component of the Taskforce has included:

- launch of *SafeWaters* in 2001;
- televised public awareness campaign for *SafeWaters*;
- development of the *SafeWaters* Web site;
- development of *SafeWaters* information brochures;
- a poster competition, run primarily in schools with large numbers of children from non-English speaking backgrounds, which aimed to illustrate key water safety messages.

Priority—Standards

The standards component of the Taskforce has included a review of all policy, legislation, regulations, and standards related to water safety, particularly in the areas of:

- minimum training standards and registration of lifeguards;
- collection of information on near-drownings at beaches and public swimming pools;
- compliance and enforcement of residential swimming pool fencing;
- safety issues around rockfishing.

Priority—Research

Research is currently being conducted in a number of areas for the Taskforce, including:

- a feasibility trial of collecting data using a minimum dataset for water safety at a number of NSW beaches and public swimming pools;
- collection of information on the number of people who take part in specific water-related activities (such as rockfishing) and/or visit particular aquatic

venues (such as beaches or who have access to private swimming pools) to establish estimates of exposure to risk;

- an investigation of the circumstances surrounding the drowning of children aged 0–6 years in NSW;
- assessment of the feasibility of using community health centres as a contact point for drowning prevention information;
- a feasibility trial of using a *Safe Community* partnership model to distribute drowning prevention information and increase the number of people in a given area who either learn or renew their skills in resuscitation techniques;
- assessment of how differently-sized local government councils approach the issue of compliance with regulations regarding backyard swimming pools, including an analysis of the management issues confronting the councils;
- a survey to assess the perceptions of water safety and use of aquatic areas in rural and remote locations in NSW;
- a survey of local government councils regarding the type of information that is held regarding swimming pools owned by their residents;

- an investigation of fatalities of people rockfishing over the last 10 years in NSW.

The vision and ultimate outcome sought through the implementation of the *NSW Water Safety Framework 2001–2003* will be a reduction in the trend in the annual rate of drownings, near-drownings, and water-related incidents in NSW.

For more information about the NSW Water Safety Taskforce visit the Web site at www.safewaters.nsw.gov.au.

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MID NORTH COAST ABORIGINAL INJURY SURVEILLANCE PROJECT

Jenny Heslop

Mid North Coast Area Health Service

Little is known about the prevalence, nature, and cause of injury experienced by Aboriginal people, or the effect that injury has on the individual, the family, and the community. Until recently the most comprehensive analysis of injury in Aboriginal communities was the *Study of Injury in Five Cape York Communities* completed in April 1997.¹

With resources provided by the NSW Department of Health, the *Mid North Coast Aboriginal Injury Surveillance Project* has replicated elements of the methodology used in the Cape York Study. The project sought to describe patterns of injury, identify risk factors, and formulate responses that improve the health of Aboriginal people residing within the Mid North Coast Area Health Service.² This article briefly describes the report of the project.

The Mid North Coast Aboriginal Injury Surveillance Project commissioned a study that analysed emergency department data and hospital separation data over a 12-

month period from 1 July 1999 to 30 June 2000. The study also employed qualitative methods including event-narratives, semi-structured interviews, and focus groups. These quantitative and qualitative methods were combined to identify and describe the injury experiences of the local Aboriginal community. In addition, the study attempted to determine the accuracy of identification of Aboriginal status recorded in routine data collections.

The study uncovered layers of contributing factors that perpetuate the frequency, severity, and risks associated with injury experienced by the local Aboriginal community. The main factors contributing to injury rates included poor environmental management, inadequate access to services and facilities, and a lack of societal opportunity in relation to employment and social activity.

An immediate outcome from the report has been the acknowledgment by local Aboriginal communities of the significant role that they can play in reducing the risks associated with injury. This potential role includes identification of acceptable opportunities for future coordination, and the cooperation of various health providers and other agencies to enable a positive change

in relation to the frequency and severity of injury within their communities.

To develop and maintain effective injury prevention partnerships, it is essential for the Aboriginal communities and all other stakeholders to be equally involved throughout the process. Local Aboriginal communities will have ultimate control over the scope and future of any initiatives or partnerships, which must be built on openness, trust, commitment, and sustainability.

Since the publication of the *Mid North Coast Aboriginal Injury Surveillance Project Report*, the project has successfully developed an inter-sectoral working party for the purpose of putting the recommendations of the report into action. The current priority for the working party is the development and implementation of an Aboriginal Injury Prevention Better Practice Model.

Copies of the *Mid North Coast Aboriginal Injury Surveillance Project Report: Pride, Respect and Responsibility* can be downloaded from the NSW Department of Health's Web site at www.health.nsw.gov.au/public-health/health-promotion/improve/injuryprev/pdf/abinjurncoast.htm.

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CHILD DEATHS AND INJURIES IN DRIVEWAYS

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The Commission for Children and Young People's *NSW Child Death Review Team 1998–99 Report* found that, between 1996 and 1999, 17 children died after being reversed-over in home driveways in NSW.¹ The number of children injured in this way was much higher.¹ For example, between 1996 and 1998, 32 severely-injured children were admitted to the New Children's Hospital at Westmead alone, after being reversed-over in home driveways.¹

A review by the Motor Accidents Authority of NSW (MAA) suggests that child deaths and injuries in driveways are best tackled through a range of preventive measures.² The review, which responds to the *NSW Child Death Review Team 1998–99 Report*, calls for a mixture of prevention strategies, including: public education, new vehicle design, and building planning reforms.

The majority of casualties are children under two years of age; the injury was most likely to occur in the driveway of the family home or of other homes in the neighbourhood; and the vehicles involved were large, such as four-wheel drives or commercial vehicles.²

The recommendations of the MAA review include:

- encouraging government, community, and private sector organisations to incorporate driveway safety material into their existing programs;
- encouraging the use of lenses and mirrors that facilitate a view of the area immediately behind motor vehicles, especially large vehicles;

- researching the effectiveness and availability of electronic sensing devices for installation on the rear of motor vehicles;
- consulting with the Australian Building Codes Board to look at standards for the construction of driveways;
- furthering research into incidence figures and other related issues.

The MAA review was developed using the services of a broadly-based committee that included Kidsafe NSW, the NSW Roads and Traffic Authority, the NSW Department of Health, the New Children's Hospital, the NRMA, the Institute of Early Childhood, and the NSW Commission for Children and Young People.

A copy of *Child Deaths and Injuries in Driveways: Response to the Recommendations of the NSW Child Death Review Team 1998–99 Report* can be downloaded from the Motor Accidents Authority of NSW Web site at www.maa.nsw.gov.au/pdf/ChildFatalities.pdf.

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WORLD HEALTH ORGANIZATION RELEASES INJURY SURVEILLANCE GUIDELINES

The World Health Organization's Injury and Violence Prevention Department recently developed a manual, *Injury Surveillance Guidelines*. The manual is the product of an international collaboration between many agencies, which has drawn on the expertise of staff in the US Centers for Disease Control and Prevention (CDC). The collaboration has benefited from the input of experts from organisations in more than 50 countries, across all continents, who have commented on draft versions of the manual. The work has taken two years to complete.

The aim of the manual is to help people to design, establish, and maintain good injury surveillance systems. It is aimed at researchers and practitioners; and it provides practical advice on how to develop information systems for the systematic collection of data on injuries. Although the manual is applicable to all settings, it has a particular focus on settings where resources are scarce. For such settings, the manual provides practical guidance in how to set up a system to collect, code, and process data, even if there is no electronic equipment and few staff; and/or if staff have other demands on their time or have a greater expertise in research.

As well as a brief overview of its aims and objectives—and an introduction to the terms, analytical tools, and methods used by injury surveillance specialists—the manual takes the reader step-by-step through the process of designing an injury surveillance system. Individual modules for the surveillance of different types of injury at varying levels of detail—from core data through to the optional add-ons—are presented.

For each module, sample forms for recording information on individual cases, and for assembling that information into a dataset, are given. Sample forms for further examples are provided in the appendices, which are referred to as appropriate.

Printed copies of the *Injury Surveillance Guidelines* can be ordered from the Injuries and Violence Prevention Department, Non-communicable Diseases and Mental Health Cluster, World Health Organization, by mail at 20 Avenue Appia, 1211 Geneva 27, Switzerland; by facsimile at 0041 22 791 4332; or by email at pvi@who.int. A PDF version can be downloaded from www.who.int/violence_injury_prevention/surveillance.htm.

The substance of this notice first appeared in Injury Issues Monitor 24; May 2002: 2.

RELEASE OF THE *NEW SOUTH WALES MOTHERS AND BABIES 2000* REPORT

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The *New South Wales Mothers and Babies 2000* Report is the fourth annual report to include information from the NSW Midwives Data Collection (MDC), the NSW Birth Defects Register, and the Neonatal Intensive Care Units' Data Collection. The report also includes summary information on maternal deaths in NSW, and information on the Australian Council on Healthcare Standards clinical indicators for obstetrics for NSW and Australia.

The current Report includes two chapters of special interest:

- the first is a summary of the reviews of causes of perinatal deaths in 2000 that were carried out by the NSW Maternal and Perinatal Committee. Review of perinatal deaths in NSW on a case-by-case basis has been established for deaths occurring from 1 January 2000. Hospital-based reviews of perinatal deaths are an important part of clinical quality assurance. A survey of perinatal death review practices in NSW hospitals was also carried out. It was found that 83.3 per cent of perinatal deaths in NSW in 2000 occurred in hospitals with a designated perinatal death review committee, and 92.7 per cent of perinatal deaths occurred in hospitals with some form of perinatal death review process in place. The majority of hospitals that did not have some form of perinatal death review process were small rural hospitals that had relatively small numbers of births and perinatal deaths. For these hospitals, an association with a referral hospital or area-based health review process would be necessary to support a meaningful perinatal death review process;
- the second special interest chapter describes the results of a study that examined caesarean section rates in NSW hospitals after adjustment for clinical risk factors. The study found the strongest association was with malpresentation (for example, breech presentation) and previous caesarean section. Risk adjusted caesarean section rates for most tertiary referral centres, and many private hospitals, were substantially lower than crude rates. This indicates that much of the variation in caesarean section rates between hospitals was explained by clinical factors such as maternal age, fetal malpresentation, multiple birth (for example, twins), diabetes, hypertension, and previous caesarean section.

Copies of the Report are available from the Epidemiology and Surveillance Branch by telephone (02) 9391 9676, or from the Department's Web site at: www.health.nsw.gov.au/public-health/mdc/mdcrep00.html.

MOVING FORWARD WITH HEALTH SURVEYS: A REPORT OF THE 2001 CATI FORUM

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In any discussion of health surveys, the central role of the interviewer in data collection is sometimes overlooked. But at the 2001 Computer Assisted Telephone Interviewing (CATI) Forum, interviewers from the NSW Health Survey Program took centre stage, with two powerful performances revealing the mysteries, methods, and madness of conducting CATI health survey interviews.

The 2001 Computer Assisted Telephone Interviewing (CATI) Forum, held in Sydney in November 2001 at the Powerhouse Museum, was convened by the National CATI Technical Reference Group (a sub-committee of the National Public Health Information Working Group) and sponsored by the Commonwealth Department of Health and Ageing and the NSW Department of Health. Delegates came from across Australia to hear speakers from the World Health Organization, Health Canada, state and territory health departments, the Commonwealth Department of Health and Ageing, the Australian Bureau of Statistics, the Australian Institute of Health and Welfare, and other research groups.

The first day was dedicated to an examination of the measurement of inequalities in health through health surveys, and how health survey data can influence policy. The second day explored methodological issues such as sampling, validation, pre-testing, question development, data collection, automated reporting, and the applications of survey data.

The messages from the Forum include the need for harmonisation of CATI questions among states and territories, the need for trend data, and aligning survey information in order to influence policy.

A subsequent meeting of representatives from each of the states undertaking CATI health surveys was held in Adelaide on 10 December 2001, to seek consensus on a minimum set of questions for SNAPS topic areas (Smoking, Nutrition, Alcohol, Physical Activity, and Mental Health). This was achieved, along with progress on minimum sets of questions for demographics, asthma, and diabetes. These questions have already been incorporated into the NSW Health Survey Program, which commenced year-round interviewing (as distinct from a series of discrete surveys) in February 2002. ☒

COMMUNICABLE DISEASES, NSW: APRIL 2002

TRENDS

Notifications of communicable diseases received by NSW Health through to February 2002 are shown in Table 5 and Figure 2. Notably, there have been relatively few reports of **Ross River virus infection** this season, although **Barmah Forest virus infection** remained active in the mid North coast. Both these infections are due to arboviruses that are transmitted through the bite of infected mosquitos, and which can cause a self-limiting illness characterised by rash, fever, and joint pains. Reports of **cryptosporidiosis** remain relatively high, especially in rural areas (although well below the epidemic levels seen in 1998 linked to swimming in contaminated swimming pools). No common source of disease linked to an outbreak has been identified this summer. Relatively few reports of **meningococcal disease** were received over the summer months; and, for the fourth month running, no cases of **measles** were reported in NSW.

SALMONELLOSIS OUTBREAK

Salmonellosis is an acute illness caused by infection with *Salmonella* bacteria. It is characterised by a sudden onset

of headache, abdominal pain, diarrhoea, nausea, and vomiting.

There are several species of *Salmonella* bacteria, the most common of which is *Salmonella typhimurium*. *Salmonella typhimurium* can be further subgrouped by phage typing. In the past *Salmonella typhimurium* phage type 9 (STMP9) infections were relatively common in NSW; although in 2001 cases were reported less frequently.

Chickens, cattle, and other animals are natural reservoirs of *Salmonella* bacteria. Salmonellosis is transmitted via the faecal-oral route, usually through eating contaminated food, but sometimes from person-to-person, or from animal-to-person. It is postulated that many infections are acquired when contaminated foods (like chicken) are not cooked sufficiently to kill the bacteria, or when they are handled in a way that allows cross-contamination with other foods that are not cooked further. Changes in the type of *Salmonella* bacteria found in chickens may lead to changes in the type of salmonella bacteria subsequently infecting people via the food chain.

In February, an increase in STMP9 was identified. To date, 82 cases have been reported with onset in 2002,

compared with 126 for the whole of 2001. There were 55 cases reported with onset in February 2002, compared with only 16 in February 2001 (Figure 1).

Compared with all cases of salmonellosis identified in 2001, a higher proportion of the 82 STMPT9 cases identified in 2002 were females, and a lower proportion were less than five years old. In both years, STMPT9 cases occurred more frequently in the Sydney area (Table 1).

Two clusters have been identified among the STMPT9 cases reported in February 2002. The first cluster involved seven cases who were students of a Northern Sydney boarding school. The Northern Sydney Public Health Unit (NSPHU) investigated this outbreak and identified a total of 105 students who reported gastrointestinal disease between 11 and 22 February. These cases were also likely to be caused by STMPT9. NSPHU conducted a case-control study involving both ill and well students, but the sources of infection remain unclear.

The second cluster of cases was among people who had eaten at a restaurant in Western Sydney. In late February, Western Sydney Public Health Unit (WSPHU) received a report that a group of people who had eaten at the restaurant had become ill with gastroenteritis. WSPHU staff subsequently interviewed 19 people who were at the restaurant on 20 and 21 February. Of these, eight reported illness within 48 hours of eating there (in two of these individuals, STMPT9 infection was confirmed on stool testing). In a retrospective cohort study, WSPHU found an association between illness and eating deep fried ice cream. Investigation revealed that the ice cream had been battered using a tray that had earlier been used to prepare raw chicken. This practice has since ceased.

Staff from the NSW Department of Health interviewed 37 other STMPT9 cases; seven of these reported eating at the same restaurant. All seven reported eating the restaurant's deep fried ice cream between 7 and 22 February.

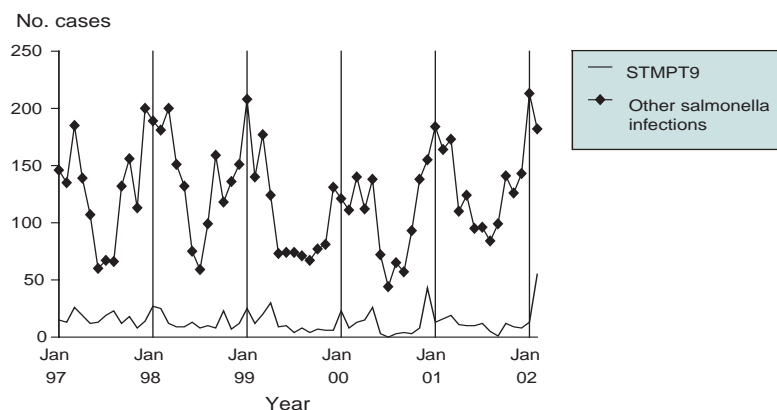
TABLE 1

CHARACTERISTICS OF PEOPLE REPORTED WITH *SALMONELLA TYPHIMURIUM* PHAGE TYPE 9 (STMPT9), AND OTHER TYPES OF SALMONELLOSIS, EXPRESSED AS NUMBERS AND PERCENTAGES, NSW, JANUARY 1997 TO FEBRUARY 2002

Case characteristics	Jan–Dec 2001		Jan–Feb 2002	
	STMPT9 N %	Other N %	STMPT9 N %	Other N %
Male	67 (53)	780 (51)	32 (39)	230 (51)
<5	43 (34)	470 (31)	18 (22)	124 (27)
5–24	47 (37)	400 (26)	32 (39)	144 (32)
25–64	31 (25)	563 (37)	25 (30)	149 (33)
65+	5 (4)	106 (7)	7 (9)	34 (8)
Rural	31 (25)	674 (44)	14 (17)	220 (49)
Total	126 (100)	1539 (100)	82 (100)	451 (100)

FIGURE 1

REPORTS OF *SALMONELLA TYPHIMURIUM* PHAGE TYPE 9 (STMPT9), AND OTHER TYPES OF SALMONELLOSIS, BY MONTH OF ONSET, NSW, JANUARY 1997 TO FEBRUARY 2002



QUARTERLY REPORT: AUSTRALIAN CHILDHOOD IMMUNISATION REGISTER

Table 2 reports immunisation coverage by area health service for children aged 12 months to less than 15 months.

These data refer to four different cohorts of children whose age has been calculated 90 days before data extraction. The information contained in each of the reports has been extracted from the Australian Childhood Immunisation Register (ACIR) and may not reflect true levels of coverage due to under-reporting. The percentages of children in each area health service who are fully vaccinated for this age is presented according to the current immunisation schedule.

TABLE 2

PERCENTAGE OF IMMUNISATION COVERAGE BY AREA HEALTH SERVICE FOR CHILDREN AGED 12 MONTHS TO LESS THAN 15 MONTHS

Area health service	30 June 2001	30 Sept 2001	31 Dec 2001	31 March 2002
Central Coast	94	93	94	92
Central Sydney	91	89	87	88
Hunter	94	96	93	94
Illawarra	92	93	91	93
Northern Sydney	90	89	89	90
South Eastern Sydney	89	89	89	90
South Western Sydney	92	90	89	90
Wentworth	92	92	91	92
Western Sydney	89	90	89	90
Far West	87	92	94	92
Greater Murray	93	93	93	93
Macquarie	93	92	95	92
Mid North Coast	91	91	88	90
Mid Western	90	92	92	92
New England	92	92	94	94
Northern Rivers	86	86	84	80
Southern	91	91	89	93
NSW	91	91	91	91

QUARTERLY REPORT: HIV NOTIFICATIONS TO END OF DECEMBER 2001

To the end of December 2001, the cumulative number of HIV diagnoses in NSW residents was 12,450. The number of new diagnoses of HIV in NSW has plateaued over the past few years, and was 360 in 2001 (Tables 3 and 4).

Between 1981 and 2001, 92 per cent of NSW residents diagnosed with HIV infection were males and 89 per cent were 20–49 years of age. Reported exposures included male-to-male sexual contact (with or without a history of injecting drug use) in over 60 per cent of cases, injecting drug use for three per cent of cases, and heterosexual contact (as the only risk factor) for seven per cent of cases. For over a quarter (27 per cent) of all notifications, no risk factor was reported. However, over the period 1991–2000, the proportion of notifications with undetermined or unknown risk factor information declined to 16 per cent.

In 2001, 88 per cent of cases were males and 86 per cent were 20–49 years of age. Male-to-male sexual contact (with or without a history of injecting drug use) was reported for 59 per cent of cases, injecting drug use for five per cent of cases, and heterosexual contact (as the only risk factor) for 15 per cent of cases. The proportion of cases with undetermined or unreported risk factors was 17 per cent. Some of these notifications may be duplicated. The Communicable Diseases Branch is currently undertaking active follow-up of these notifications.

AIDS diagnoses and AIDS deaths

The cumulative AIDS diagnoses and AIDS deaths to December 2001 were 4888 and 3330 respectively. The number of diagnoses and deaths declined significantly in 2001 falling from 115 and 69 respectively in 2000, to 62 and 33 respectively in 2001.

While data from recent years may be under-reported, they indicate that there have been reductions in the number of people being diagnosed with and dying from AIDS in NSW.

While there has been a decline in the rate of new cases of HIV infection overall, there is a growing number of people living with HIV infection in NSW. Consequently, it is essential that HIV prevention efforts continue to be a priority. ☒

TABLE 3

NOTIFICATIONS OF HIV, AIDS, AND AIDS DEATHS, REPORTED BY YEAR, NSW, 1981–2001

Year	HIV	AIDS	AIDS Deaths
1981	1	1	1
1982	1	1	0
1983	1	3	1
1984	202	30	6
1985	990	91	46
1986	1110	160	108
1987	1635	250	143
1988	1144	312	138
1989	988	346	235
1990	813	417	313
1991	810	435	334
1992	708	415	304
1993	597	464	363
1994	506	520	405
1995	539	454	339
1996	459	348	255
1997	426	194	108
1998	409	165	68
1999	390	105	61
2000	359	115	69
2001	360	62	33
Jan'01–Mar'01	86	12	6
Apr'01–Jun'01	88	16	4
Jul'01–Sep'01	103	20	13
Oct'01–Dec'01	83	14	10
Total	12450	4888	3330

TABLE 4

CHARACTERISTICS OF NSW RESIDENTS REPORTED WITH HIV INFECTION, AIDS, OR WHO HAVE DIED FROM AIDS, 1981 TO DECEMBER 2001

Characteristic	All cases 1981–2001			1991–2000			Jan–Dec 2001			AIDS deaths				
	HIV N	%	AIDS N	%	AIDS deaths N	%	HIV N	%	AIDS N	%	HIV N	%	AIDS N	%
Gender														
Male	11500	92.4	4671	95.6	3207	96.3	4782	91.9	3052	94.9	2219	96.2	317	88.1
Female	662	5.3	206	4.2	116	3.5	343	6.6	154	4.8	81	3.5	36	10.0
Other	288	2.3	11	0.2	7	0.2	79	1.5	9	0.3	6	0.3	9	2.5
Age														
0–2	38	0.3	8	0.2	4	0.1	22	0.4	8	0.2	3	0.1	0	0.0
3–12	36	0.3	12	0.3	9	0.3	9	0.2	6	0.2	5	0.2	0	0.0
13–19	200	1.6	15	0.3	11	0.3	61	1.2	5	0.2	6	0.3	1	0.3
20–29	3920	31.5	815	16.7	579	17.4	1481	28.5	477	14.8	391	17.0	89	24.7
30–39	4758	38.2	2031	41.6	1358	40.8	2035	39.1	1353	42.1	940	40.8	148	41.1
40–49	2351	18.9	1379	28.2	949	28.5	1016	19.5	935	29.1	672	29.1	73	20.3
50–59	754	6.1	472	9.7	305	9.2	377	7.2	332	10.3	214	9.3	20	5.6
60+	265	2.1	156	3.2	115	3.5	126	2.4	99	3.1	75	3.3	10	2.8
Not reported	128	1.0	0	0.0	0	0.0	77	1.5	0	0.0	0	0.0	19	5.3
Exposure														
Male homosexual–bisexual	7260	58.3	3957	81.0	2763	83.0	3344	64.3	2522	78.4	1881	81.6	213	59.0
Male homosexual–bisexual and IDU	277	2.2	182	3.7	128	3.9	163	3.1	129	4.0	97	4.2	16	4.4
Injecting drug use (IDU)	414	3.3	45	0.9	20	0.6	194	3.7	39	1.2	19	0.8	17	4.7
Heterosexual	874	7.0	380	7.8	189	5.7	628	12.1	320	10.0	162	7.0	54	15.0
Haemophilia–Coagulation disorders	113	0.9	51	1.0	45	1.4	8	0.2	24	0.7	28	1.2	0	0.0
Blood-tissue recipient/ NSI*	117	0.9	106	2.2	91	2.7	28	0.5	44	1.4	43	1.9	0	0.0
Vertical	35	0.3	15	0.3	8	0.2	29	0.6	13	0.4	6	0.3	0	0.0
Not stated–Unknown	3360	27.0	152	3.1	86	2.6	810	15.6	124	3.9	70	3.0	60	16.9
Residence														
Sydney*	7006	56.3	4078	83.4	2782	83.5	3970	76.3	2699	84.0	1941	84.2	314	87.2
Rural	795	6.4	656	13.4	418	12.6	515	9.9	488	15.2	337	14.6	38	10.6
Unknown	4649	37.3	154	3.2	130	3.9	719	13.8	28	0.9	28	1.2	8	2.2
Total	12450	100.0	4888	100.0	3330	100.0	5204	100.0	3215	100.0	2306	100.0	360	100.0

HIV data to 31 December, 2001 source: NSW HIV database, CDB, NSW Department of Health, Recent AIDS data to 31 December, 2001 source: National Centre for HIV Epidemiology and Clinical Research

* Needle Stick Injury

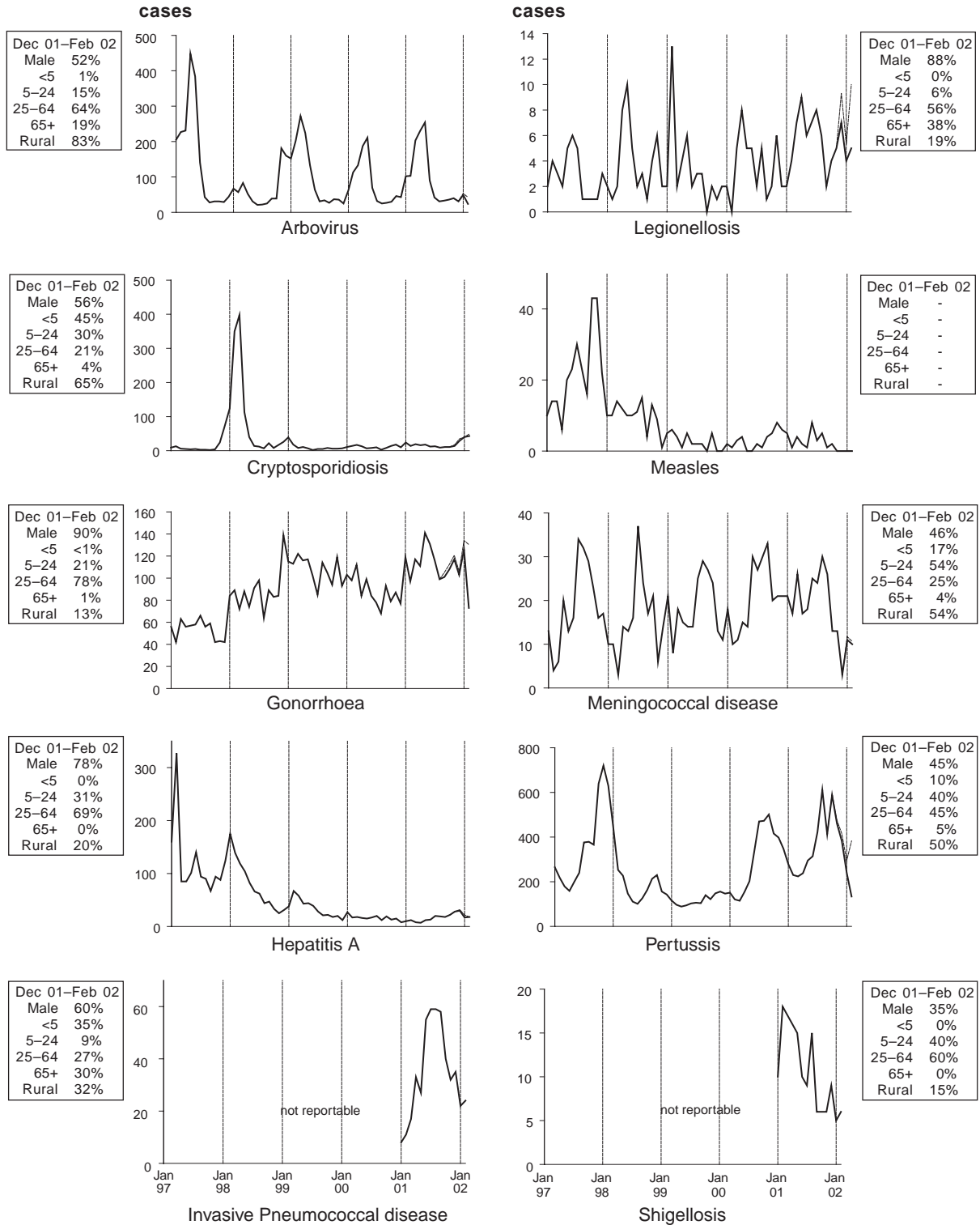
** Sydney area health services include Central Sydney, Northern Sydney, Western Sydney, Wentworth, South Western Sydney, and South Eastern Sydney.

FIGURE 2

REPORTS OF SELECTED COMMUNICABLE DISEASES, NSW, JANUARY 1997 TO FEBRUARY 2002, BY MONTH OF ONSET

These are preliminary data: case counts for recent months may increase because of reporting delays. Laboratory-confirmed cases, except for measles, meningococcal disease and pertussis — actual — — predicted after adjusting for likely reporting delays.

NSW population	
Male	50%
<5	7%
5-24	28%
25-64	52%
65+	13%
Rural*	42%



* For definition, see *NSW Public Health Bulletin*, April 2000

TABLE 5 **REPORTS OF NOTIFIABLE CONDITIONS RECEIVED IN FEBRUARY 2002 BY AREA HEALTH SERVICES**

Condition	Area Health Service														Total						
	CSA	NSA	WSA	WEN	SWS	CCA	HUN	ILL	SES	NRA	MNC	NEA	MAC	MWA		FWA	GMA	SA	CHS	For Feb ¹	To date ²
Blood-borne and sexually transmitted																					
Chancroid*	51	50	38	14	15	6	38	18	119	10	7	12	5	5	2	12	7	4	418	798	
Chlamydia (genital)*	2	7	6	2	8	-	1	3	59	3	1	1	1	-	-	-	-	1	98	235	
Gonorrhoea*	1	1	-	-	-	-	1	1	1	1	1	-	-	-	-	-	-	1	6	15	
Hepatitis B - acute viral*	35	41	34	11	58	5	8	1	37	-	4	1	-	1	-	3	1	5	247	624	
Hepatitis B - other*	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	2	-	-	5	17	
Hepatitis C - acute viral*	62	30	64	39	38	34	46	41	84	31	21	11	6	9	2	11	18	37	593	1,243	
Hepatitis C - other*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	
Hepatitis D - unspecified*	16	3	7	1	7	2	2	1	14	2	-	1	-	2	1	-	-	1	61	126	
Vector-borne																					
Barmah Forest virus*	-	-	-	-	-	-	-	-	-	1	6	-	-	-	-	-	2	-	9	27	
Ross River virus*	-	-	-	-	-	2	-	2	-	1	3	3	1	-	1	3	-	-	18	35	
Arboviral infection (Other)*	-	2	1	1	-	-	-	1	1	-	-	-	-	-	-	-	-	5	13	13	
Malaria*	-	4	3	-	2	-	1	1	2	-	1	1	1	-	-	-	-	16	-	29	
Zoonoses																					
Anthrax*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Brucellosis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Leptospirosis*	-	-	-	-	1	1	1	1	-	-	1	-	-	-	-	-	-	-	4	10	
Lyssavirus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Psittacosis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	3	
Q fever*	-	-	-	-	-	-	1	1	-	2	3	2	5	3	1	-	-	-	18	35	
Respiratory and other																					
Blood lead level ¹	1	4	5	1	-	-	5	3	-	-	2	-	6	-	-	2	-	-	29	58	
Influenza*	-	-	1	1	-	-	-	3	2	-	-	-	-	-	-	1	-	-	5	11	
Invasive pneumococcal infection	1	3	4	-	-	1	3	3	4	-	-	-	1	-	1	-	-	21	49	49	
<i>Legionella longbeachae</i> infection *	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	4	
<i>Legionella pneumophila</i> infection *	-	1	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	3	5	5	
Legionnaires' disease (other)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Leprosy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Meningococcal infection (invasive)	-	-	-	1	1	1	1	3	2	-	1	1	-	-	1	1	1	10	20	20	
Tuberculosis	9	5	6	-	1	3	1	-	9	-	1	-	-	-	-	-	-	36	68	68	
Vaccine-preventable																					
Adverse event after immunisation	-	-	-	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	3	13	
<i>H. influenzae b</i> infection (invasive)*	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	2	3	3	
Measles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Mumps*	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	3	6	6	
Pertussis	16	34	22	7	13	7	33	13	38	11	7	14	5	8	-	3	4	235	636	636	
Rubella*	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	8	8	
Tetanus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	
Faecal-oral																					
Botulism	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cholera*	-	-	-	-	-	-	-	3	6	14	1	7	-	-	-	-	-	-	-	-	
Cryptosporidiosis*	2	5	8	1	-	-	-	-	-	-	-	-	-	-	1	-	2	50	82	82	
Food borne illness (not otherwise specified)	-	-	-	-	-	-	-	100	18	-	-	-	1	-	-	-	-	119	175	175	
Gastroenteritis (in an institution)	-	9	10	2	6	2	12	4	20	1	3	6	2	-	-	5	1	83	147	147	
Giardiasis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	
Haemolytic uraemic syndrome	6	-	2	-	1	1	2	1	2	-	-	-	-	1	-	-	-	17	42	42	
Hepatitis A*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hepatitis E*	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	3	
Listeriosis*	14	26	29	8	23	3	25	14	37	33	2	4	2	5	1	7	4	238	469	469	
Salmonellosis (not otherwise specified)*	-	-	1	-	2	-	-	-	2	-	-	-	-	-	-	-	-	5	14	14	
Shigellosis*	2	-	2	-	2	-	-	-	3	-	-	-	-	-	-	-	-	9	13	13	
Typhoid and paratyphoid*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Verotoxin producing <i>E. coli</i> *	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	

* lab-confirmed cases only + includes cases with unknown postcode * HIV and AIDS data are reported separately in the Public Health Bulletin quarterly

CSA = Central Sydney Area	WEN = Wentworth Area	HUN = Hunter Area	NRA = Northern Rivers Area	MAC = Macquarie Area	GMA = Greater Murray Area
NSA = Northern Sydney Area	SWS = South Western Sydney Area	ILL = Illawarra Area	MNC = North Coast Area	MWA = Mid Western Area	SA = Southern Area
WSA = Western Sydney Area	CCA = Central Coast Area	SES = South Eastern Sydney Area	NEA = New England Area	FWA = Far West Area	CHS = Corrections Health Service

NSW PUBLIC HEALTH BULLETIN

The *NSW Public Health Bulletin* is a publication of the NSW Department of Health.

The editor is Dr Lynne Madden, Manager, Public Health Training and Development Unit.

Dr Michael Giffin is the managing editor.

The *Bulletin* aims to provide its readers with population health data and information to support effective public health action.

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Articles, news and comments should be 1000 words or less in length, and include a summary of key points to be made in the first paragraph.

References should be set out in the Vancouver style, described in the *New England Journal of Medicine*, 1997; 336: 309–315. Send submitted manuscripts on paper and in electronic form, either on disc (Word for Windows is preferred), or by email.

The manuscript must be accompanied by a letter signed by all authors. Full instructions for authors are available on request from the managing editor.

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