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CELEBRATING THE PAST; AWAKENING THE FUTURE: THE NSW PUBLIC HEALTH FORUM HIGHLIGHTS PUBLIC HEALTH SUCCESSES IN NSW

GUEST EDITORIAL

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Public health in New South Wales has much to celebrate. As we seek to determine the best path forward, we can use past successes to both inform and inspire us. This issue of the *NSW Public Health Bulletin* contains several success stories for this purpose.

Public health has many forms of expression. Public health applies knowledge derived from fields of enquiry that includes epidemiology, sociology, anthropology, medicine, economics, and environmental science. Public health seeks to make healthy lifestyles, healthy policy, and a healthy economy, practical and applied ideals. Beside the natural environment and air and water quality, ozone levels and global warming, the topics of concern to public health also include the built environment—the world of work, housing, education, and employment. Public health engages with the power play of politics, private enterprise, education, race, gender, and social status. It is prodigious in its avaricious appetite; it is frequently critical; it attends to things that should be done that are not being done; it is impudent in wanting to have so many fingers in so many pies; and it is intrusive and it won't stay still!

NSW has a history of 150 years of effective public health practice. This has enjoyed bipartisan political support. A strong public health community with an increasing capacity has been established. Funding for public health infrastructure over the past 15 years has been used to build a public health capability both centrally within the NSW Department of Health and within the area health services. This strength has been mirrored by the growth of public health in other government sectors in NSW, especially in tertiary education, local government, and in many non-government organisations.

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Healthy People 2005—New Directions for Public Health in New South Wales enunciated a vision for better health for people in NSW through continuing and stronger public health.[1] It spelt out the next steps for public health to take. It proposed a forum of leading public health professionals to provide a broad perspective and to contribute their energy and technical knowledge to fulfilling this vision.

The NSW Public Health Forum is comprised of members appointed by the NSW Minister for Health to advise him or her, through the Director-General, about public health. By its terms of reference, the Forum is to prepare advice on strategies in which health professionals and citizens can work together to improve health opportunities in NSW; to stimulate the formulation of public health plans at the state, area health service, and regional level (the latter in partnership with local government); to advise ways to maintain a well trained public health workforce; to oversee a public health research plan; to recommend strategies for the equitable allocation of public health resources throughout NSW; and to recommend ways to improve the monitoring of public health activity and health outcomes in NSW.

The inaugural meeting of the NSW Public Health Forum was opened by the Hon. Craig Knowles on 3 June 2002. He spoke of his personal concern about childhood obesity in NSW, and the Forum immediately responded by supporting the planning for the Childhood Obesity Summit. The Forum then set about to define the remainder of its agenda. Members identified public health topics and processes where the Forum could make an added contribution to an often already successful enterprise.

The second meeting of the NSW Public Health Forum was held on 14 August 2002. The Director-General of Health, Ms Robyn Kruk, attended and expressed her interest in and strong support for the work of the Forum, and for public health more generally. At that meeting, members of the Forum tabled action proposals for consideration. These proposals included the prevention of obesity, tobacco control, falls prevention, the strengthening of public health infrastructure, addressing equity, strengthening public health programs in the early years of life, health care-associated infection control, the synthesis of the evidence base for public health action, intersectoral action for health, addressing interpersonal violence, ecological public health, colorectal cancer screening, alcohol taxation, and the public health aspects of mass events.

From this long list of topics a shorter one is being developed for practical action throughout 2003. An action plan for 2003 is emerging. Professor Tony Adams, an outstanding public health practitioner with a wealth of experience, both in Australia and internationally, will chair the Forum while I am in New York throughout 2003.

Beyond the development of an action list, the Forum commissioned public health professionals from within its ranks and beyond, to document public health success stories from NSW. The first of these success stories was presented in the January–February issue of the Bulletin, which describes the control of vaccine-preventable diseases (this success story will be continued in the April–May issue). This issue presents the remaining of the success stories.

An untold story of success in public health—a gold medal winner one might say—was the handling of public health aspects of the Sydney Olympic Games in 2000. There were no public health disasters during the Games and this was a quiet and wonderful win. This extraordinary story of detailed planning and diligence is told by Louisa Jorm and Maria Visotina.

Simon Chapman, whose outstanding advocacy in tobacco control has been recognised by international agencies such as the World Health Organization, tells of the many steps that have been taken to achieve the amazing reductions in the prevalence of smoking that have occurred in Australia. Much remains to be done, especially among pockets of high prevalence of smoking, often associated with social disadvantage, but we are really doing well by international comparison.

In another vignette, Simon takes us behind the scenes to view encouraging statistics that document a decline in gun-related deaths since the 'post-Port Arthur' reforms of gun ownership laws were enacted in 1996.

Sue Morey and Lynne Madden describe the measures taken at the end of the 1980s to strengthen the organisation and delivery of public health in NSW. Included is the early history of the NSW Public Health Officer Training Program begun in 1990. Many leading public health professionals in NSW owe much to this program.

Worldwide, exposure to lead remains a public health problem, especially for children. Huge quantities of lead are released into the atmosphere from old-style petrol. But there are other sources of lead pollution, and the work done in reducing exposure to lead from the mines in Broken Hill, as told by Hugh Burke, Bill Balding, and David Lyle, makes great reading as they ventured into homes, schools and the community to deal with lead in dust and in flaking lead-based paint.

Another global problem is cancer of the cervix. The possibility of a vaccine to prevent this condition is exciting. In the meantime, as Richard Taylor argues in his account of screening for cervical cancer in this state, early detection through Pap smears offers hope and has saved about 2,000 lives in NSW between 1972 and 2000. As Richard says, this is a real public health success story.

On a global scale, there are few public health problems as grim as HIV and AIDS. Kim Stewart and Ron Penny provide a vivid account of the NSW response to HIV, which is a story of containment and control. Community participation, education, case management, policy, and legislation have all played a role in this success. While HIV infection rates have stabilised, the long-term effect of new treatments remains unclear. The social and biological complexity of HIV and AIDS means that it remains in the 'continuing challenge' basket for public health.

The first summit to consider health and life matters in NSW was the NSW Drug Summit held in May 1999. The cosmopolitan composition of the summiteers was notable. There were 172 resolutions as a result and an action plan followed with, on average, a million dollars for each resolution! More people with drug problems are now receiving due care. Much remains to be done but a coherent, connected set of services has resulted, with measurable benefit.

A second summit, the NSW Childhood Obesity Summit, held in September 2002, was a similar success. Its aim was to build community consensus about future directions in childhood overweight and obesity prevention policy, and to recommend a future course of action. One immediate outcome has been the creation of the NSW Centre for Overweight and Obesity, funded by the NSW Department of Health. The Centre is initially focusing on reducing obesity in children and adolescents, however its long-term aim is the reduction of obesity in the whole NSW population.

The Forum hopes that you will be inspired by these accounts of where public health effort has made a solid contribution to the health of the people of NSW. These success stories augur well for similar continuing contributions to our state of health. The Forum, through its work plan, seeks to be involved with you, the public health professional out in the field. The Forum intends to keep you informed about our thinking, to involve you in forthcoming planning workshops, and to staying close to you and your concerns.

All good wishes for the remainder of 2003!

Regular updates about the Forum will be available through the *NSW Public Health Bulletin* and communiqués from the Forum. Full and summary versions of *Healthy People 2005* can be found at the NSW Department of Health website at **www.health.nsw.gov.au/health-public-affairs/publications/healthyppl/index.html**.

Comments about the work of the Forum are warmly welcomed and can be made by emailing **pvita@doh.health.nsw.gov.au**.

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THE SYDNEY OLYMPICS: A WIN FOR PUBLIC HEALTH

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The Games of the XXVI Olympiad, held in Sydney in September 2000, were the largest mass sporting event ever held in Australia. The local public health system had considerable experience in providing services for mass events, such as the annual City to Surf fun run and the Sydney Gay and Lesbian Mardi Gras. However, the challenge presented by the Olympic Games far outstripped these events in terms of the expected numbers of local and international visitors, the extended duration of the event (two weeks) and its high profile, which was accompanied by an intense level of public, political and media interest.

NSW Health was responsible for providing public health services for the Sydney 2000 Olympic Games, as well as hospital care, health care interpreters and ambulance services. This article reports how the public health services were developed; describes the services and the issues and incidents that they managed; and discusses the public health legacy of the Games.

THE CHALLENGE

The major public health issues managed in the three summer Olympic Games held prior to the Sydney Games were heat-related illness,[1,3] food safety,[2,3] and bombing-related injuries resulting from terrorist attack.[3] In 1997, as part of its planning processes, NSW Health conducted a risk assessment to prioritise public health issues for the Sydney Games. This assessment identified the major risks as: food-borne illness, terrorism (from conventional means), measles, rubella, pertussis, meningococcal and viral meningitis, tuberculosis, sexually transmissible infections, viral haemorrhagic fevers, blood-borne pathogens, water-borne illness, and Legionnaires' Disease. Heat-related illness was considered unlikely to be a major problem in Sydney in September.

Additional risks that were added to this high priority list over the following three years as a result of local and international events included cryptosporidiosis and acts of biological terrorism (bioterrorism).[4]

THE RESPONSE

Planning for the public health aspects of the Games commenced in late 1994. An expert public health committee (formed in 1996) oversaw the development of a public health action plan. The major components of the

plan included public health surveillance, food safety, environmental health, health on cruise ships (vessel inspection program), and counter disaster preparedness.

Public health surveillance

The Olympic Health Surveillance System was the most comprehensive health surveillance system ever established in Australia. Major components included enhanced surveillance of communicable diseases; patient presentations to sentinel emergency departments; medical encounters at Olympic venues; surveillance of cruise ships; environmental and food safety inspections; surveillance for bioterrorism; and global epidemic intelligence.[4,5] The system provided daily updates from these data sources over a 38-day period, commencing three weeks before the Opening Ceremony and finishing three days after the Closing Ceremony.

Food safety

The food safety program commenced in 1999 with Operation Foodwatch, a systematic audit of high-volume, tourism-related food outlets in the Sydney greater metropolitan area. In the lead-up to the Games, Departmental officers worked with the core group of nine master caterers appointed by the Sydney Organising Committee for the Olympic Games (SOCOG), to draw up food safety plans. The Department also had input into the hygienic construction and fitout of food premises, especially temporary structures, through ongoing liaison with the Olympic Coordination Authority (OCA).[6] Throughout the Games, food safety teams at all Olympic venues conducted site inspections and selective sampling and microbiological testing of foods.

Environmental health

In the two years prior to the Games, the Department, in cooperation with the metropolitan public health units, implemented a broad environmental health program in collaboration with most local councils and a range of state agencies, including OCA, SOCOG, the Environment Protection Authority, and the Sydney Water Corporation. Programs were introduced in the areas of air quality, water quality, clinical waste management, sanitation, vector control, and public health contingency planning.

Each of 47 Olympic sites was inspected prior to competition, and an ongoing environmental health presence was provided within venues during the competition period.[7]

Health on cruise ships (Vessel Inspection Program)

Ten cruise ships were moored in Sydney Harbour as 'floating hotels' for around three weeks over the Games period, accommodating 3,500 passengers and 2,900 crew at any one time. The vessel inspection program was modelled on the US Centres for Disease Control and Prevention (CDC) Vessel Sanitation Program. Environmental health officers conducted inspections of each cruise ship on arrival, and regularly thereafter, focusing on food buffet services, water supply, waste disposal, air conditioning systems, and swimming pool and spa maintenance.[8]

Counter disaster preparedness

Prior to the Games, training in awareness for Chemical, Biological, and Radiological (CBR) emergencies took place across NSW. Seven hospital sites developed mass casualty decontamination facilities, with additional procedures implemented at five other hospitals. Protective equipment and pharmaceutical supplies were distributed to the major hospital sites.[9]

NSW HEALTHPLAN, which coordinates all health services under a single command structure in response to major incidents or disasters, was placed on alert for the Games period. This command involved staffing a Health Services Disaster Control Centre, the establishment of rostered Medical Disaster Response Teams and the placement of liaison officers in the Sydney Police Centre.

WHAT HAPPENED DURING THE GAMES?

Around 11,000 athletes from 200 countries, 5,100 officials, 11,000 media personnel, and 100,000 international visitors converged on Sydney for the Games. Approximately 800 staff delivered public health services.

No outbreaks of communicable diseases were detected, outside the seasonal pattern typical for influenza and pertussis in the resident population of Sydney.[4]

There were around five per cent more presentations to Sydney emergency departments than in comparable periods in other years. In general, the causes for emergency presentation during the Games were similar to the immediate pre-Games period. However, the proportion of presentations for bloody diarrhoea and pneumonia decreased slightly, while the proportion of presentations for illicit drug-related causes increased slightly. During the Games, proportionally more injuries were attributed to being struck by or colliding with a person or object, and to bicycle accidents. Fewer injuries occurred in the work place. Injuries occurred more on beaches or in swimming pools, and in premises licensed to sell alcohol.[4]

Several incidents detected through surveillance prompted further investigation and action. These included injuries caused by broken glass at an Olympic entertainment venue, an increase in emergency presentations for injuries relating to foot-propelled scooters, a cluster of emergency presentations apparently related to the use of the drug ecstasy, and an increase in presentations for gastrointestinal symptoms at one emergency department.[4,10,11]

No outbreaks of food-borne illness were detected. More than one million meals were served at the athletes' village. Food safety officers reported details of almost 6,300 food

safety inspections of more than 1,000 outlets. Of these, less than one-quarter were rated as unsatisfactory. Offending outlets were issued with warnings and received follow-up inspections. Operators voluntarily destroyed 7.5 tonnes of food after being advised of food safety risks. This included seven tonnes of spoiled food, from a single food outlet, caused by a refrigeration failure.[4]

No outbreaks of disease from environmental causes were detected. Four of the 47 venues that were subject to environmental inspections received 'unsatisfactory' ratings, and these were reported to SOCOG. Around 170 follow-up environmental inspections and 60 pool and spa inspections were carried out to ensure that problems had been rectified.[4]

No public health incidents were associated with the 10 cruise ships berthed in Sydney Harbour. Nine of the 10 ships were given 'satisfactory' ratings upon inspection. The vessel inspection teams identified several environmental and hygiene problems on the remaining ship (which was not regularly used as a passenger liner), prompting warnings and follow-up inspections.[4]

No mass casualty emergencies or incidents suggestive of bioterrorism occurred. However, counter disaster teams responded to several incidents. These included multiple reports of tainted water in one Sydney suburb before the Games, the discovery of suspicious biological material at Sydney Airport, and a chemical leak at Sydney Airport. On closing night, both duty medical teams were deployed to Sydney Hospital to assist in managing health issues associated with major crowding and congestion in the central business district.[4]

THE LEGACY OF THE GAMES

The success of the public health response for the Games can be attributed to:

- careful planning—detailed planning began five years before the Games, enabling appropriate resources to be identified, systems to be tested, and staff trained;
- the comprehensive and timely public health surveillance system;
- clearly defined lines of reporting and communication to the peak health decision-making body and other relevant agencies.

Many of the public health strategies developed for the Games relied on strong inter-agency collaborations, particularly among the NSW Department of Health, area health services, and other government departments and agencies, especially local councils, OCA and SOCOG. Most of the structures, linkages and strategies that were developed to support public health aspects of the Games will continue. General public health infrastructure in NSW, especially the capacity to effectively manage mass gatherings, will be permanently enhanced.

A description of the public health preparations for the Sydney 2000 Olympic Games was published as an issue of the *NSW Public Health Bulletin* (Volume 11, Number 8). This can be viewed and downloaded from the Bulletin website at **www.health.nsw.gov.au/public-health/phb/phb.html**.

ACKNOWLEDGEMENTS

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REDUCING TOBACCO CONSUMPTION

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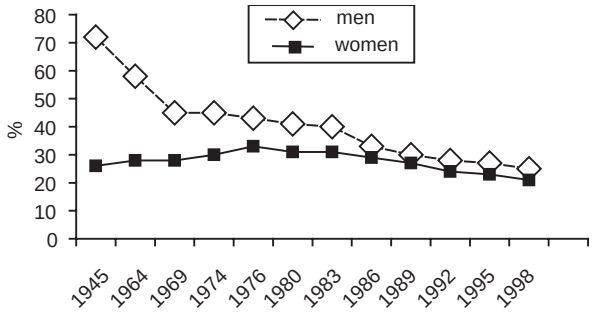
With the exception of Singapore,[1] where few women smoke for cultural reasons, and Sweden, where the high use of oral sucking tobacco (or *snus*) in men has depressed cigarette smoking,[2] Australia now has the lowest national smoking prevalence in the world. In Australia in 2001, 19.5 per cent of people over 14 years of age smoked on a daily basis.[3] This is the first time that smoking prevalence in Australia has fallen below 20 per cent. This article describes the decline in smoking prevalence in Australia, discusses how this has been achieved, and outlines strategies for decreasing smoking prevalence in the future.

TOBACCO SMOKING: THE DECLINE IN PREVALENCE AND CONSUMPTION

In Australia, there has been a largely uninterrupted decline in smoking prevalence since the early 1960s, when an estimated 58 per cent of men and 28 per cent of women smoked (Figure 1).[4]

FIGURE 1

CHANGES IN SMOKING PREVALENCE IN MEN AND WOMEN, AUSTRALIA, 1945–1998



Source: Australian Bureau of Statistics. Excise and customs receipts and estimated resident population figures. Winstanley et al. *Tobacco in Australia, Facts and Issues*. Melbourne, 1995.

As well as a decline in smoking prevalence, most noticeably in men, smoking frequency—that is, the amount of tobacco consumed by smokers—has also declined dramatically since the 1960s (Figure 2).

As there is a relationship between tobacco smoking and disease, it would be expected that these large-scale declines in prevalence and consumption would be followed by a lagged decline in the mortality and morbidity due to tobacco smoking.

Perhaps the most uncomplicated illustration of this has occurred with lung cancer in men. In NSW, between 1973 and 1998, there has been a 13.4 per cent decline in the incidence of lung cancer (69.3/100,000 to 60.0/100,000 person years). Between 1973 and 1984, the incidence rate of lung cancer in men rose by an average of 1.3 per cent per year, and since then has decreased by 1.9 per cent per year.[5] In women, the incidence rate for lung cancer increased by 3.9 per cent per year between 1973 and 1993 but thereafter has remained stable, again reflecting the historical trend in smoking rates for women. Lung cancer remains the leading cause of cancer death in Australia. Death rates from coronary heart disease fell by 59 per cent in men and 55 per cent in women between 1980 and 2000, in large part because of changes in risk factors such as smoking.[6]

How has this been achieved?

Australia has what are perhaps the world's most advanced comprehensive tobacco control policies and programs. Because of these policies and programs, Australia has:

- the world's most expensive cigarettes, second only to Hong Kong;[7]
- among the world's most prominent health warnings on cigarette packets;[8]
- a total ban on all advertising and promotion of cigarettes;
- national campaigns for tobacco control that are emulated internationally;[9]
- Quitline services that provide advice and support to smokers trying to quit smoking;
- extensive advocacy, via news media, for tobacco control;[10]
- legislation that prohibits tobacco smoking in large buildings, public transport, and in restaurants;[11]
- the widespread adoption of smoke-free homes (according to the latest estimate, 71.5 per cent of homes are smoke free);[12]
- litigation by smokers and passive smokers against tobacco companies, which has attracted widespread media attention.[13]

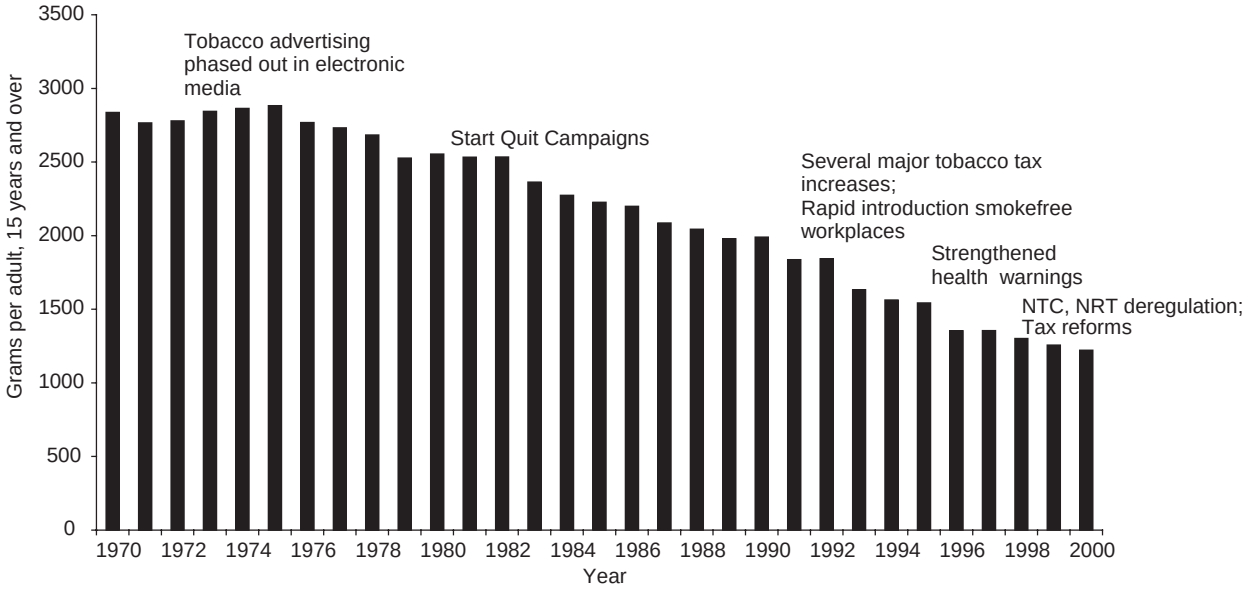
WHERE TO FROM HERE?

In order to achieve a further reduction in prevalence and consumption of tobacco smoking, Australia needs to continue the comprehensive tobacco control programs already in place, as well as:

- providing more funding for sustainable, high profile public information campaigns for tobacco control;
- closing the loopholes in existing legislation relating to environmental tobacco smoke to ensure that all workplaces (including licensed premises) are smoke free;
- tougher health warnings on cigarette packets;

FIGURE 2

CHANGES IN ADULT PER CAPITA TOBACCO CONSUMPTION, AUSTRALIA, 1970–2000



NTC = National Tobacco Campaign NRT = Nicotine Replacement Therapy

Source: Australian Bureau of Statistics. Excise and customs receipts and estimated resident population figures. Winstanley et al. *Tobacco in Australia, Facts and Issues*. Melbourne, 1995.

- regulating tobacco products to ban additives and flavourings that make smoking more palatable to smokers and to children;
- developing and implementing a regulatory framework to control all aspects of tobacco production, packaging, marketing, and taxation.

The *NSW Tobacco Action Plan 2001–2004* sets out the NSW Government's commitment to the prevention and reduction of tobacco-related harm in New South Wales.

For further information about the *NSW Tobacco Action Plan 2001–2004*, contact the Tobacco and Health Branch on telephone (02) 9391 9111. The Plan can be downloaded from the NSW Department of Health website at **www.health.nsw.gov.au**.

Printed copies can be obtained by contacting the Better Health Centre on (02) 9879 0443.

For further information and support with quitting smoking, call the *Quitline* on 131 848 for the cost of a local call from anywhere in NSW. *Quitline* is a free 24 hour service.

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THE DECLINE IN GUN DEATHS

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On 10 June 1996, following the Port Arthur massacre on 26 April of that year, an historic agreement between Australia's state and territory governments introduced a raft of radical reforms to Australia's gun laws. This article describes the decline in gun deaths following those reforms, which had been advocated by public health, domestic violence and law reform groups during the decade previous.[1]

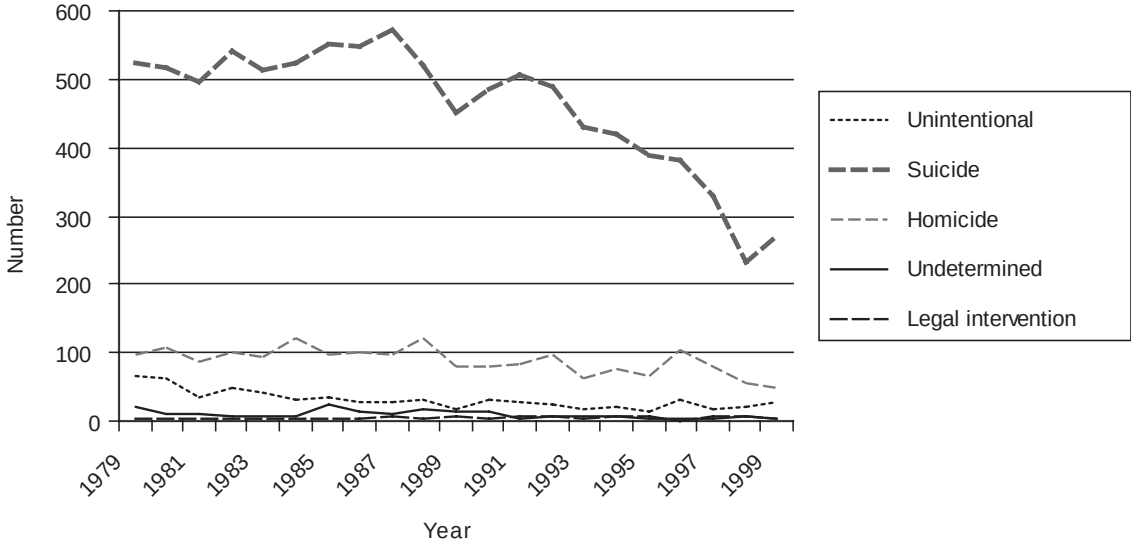
The main provisions of the gun reforms were:

- a ban on the importation, ownership, sale, resale, transfer, possession, manufacture or use of semi-automatic and pump-action shotguns and rifles;
- a compensatory 'buyback' scheme, funded by an increase in the Medicare levy, whereby gun owners would be paid the market value of prohibited guns they handed in. Over 644,000 guns were removed from the community in the buyback;
- the registration of all firearms, as part of an integrated shooter licensing scheme;
- shooter licensing, based on a requirement to prove a 'genuine' reason for owning a firearm;
- requirements that all guns be stored securely;
- nationally uniform gun laws among Australia's states and territories.

One of the main provisions of the 1996 reforms was the banning of semi-automatic and pump action shot guns, which are guns frequently used in mass killings and sieges because of their capacity to fire many rounds of

FIGURE1

NUMBERS OF FIREARM RELATED DEATHS BY INTENT, AUSTRALIA, 1979 TO 1999



Source: Research Centre for Injury Studies, Flinders University, Adelaide. A data table for this Figure is available on online at www.nisu.flinders.edu.au/data/phonebook/queries/guns.php.

TABLE 1

MASS KILLINGS USING FIREARMS, AUSTRALIA, 1987–2000

Date	Location	T	F	G	V	P	S	K	W	Gender	A	C	M	L
28/04/96	Port Arthur, TAS	M	N	M	35	0	35	35	19	Male	28	N	N	N
25/01/96	Hillcrest, QLD	MS	Y	R	6	1	7	7	0	Male	32	N	N	Y
31/03/93	Cangai, NSW	MS	N	R	5	1	6	6	0	Male*	41	N	Y	N
27/10/92	Terrigal, NSW	M	Y	S	6	0	6	6	1	Male	45	N	N	Y
17/08/91	Strathfield, NSW	MS	N	M	6	1	7	8	7	Male	33	N	N	Y
30/08/90	Surry Hills, NSW	M	Y	S	5	0	5	5	0	Male	35	Y	Y	Y
25/09/88	Oenpelli, NT	M	Y	S	6	0	6	6	0	Male	25	N	N	N
08/12/87	Queen St, VIC	MS	N	M	8	1	9	9	5	Male	22	N	Y	Y
10/10/87	Canley Vale, NSW	MS	N	R	5	1	6	6	1	Male	23	N	N	Y
09/08/87	Hoddle St, VIC	M	N	M	7	0	7	7	19	Male	19	N	N	Y
19/06/87	Top End, NT/WA	M	N	M	5	1	6	6	0	Male	26	Y	N	N
Totals					**94**	**6**	**100**	**101**	**52**					

T Homicide type: M = Murder; MS = Murder/Suicide

F Homicide occurred during family violence: Yes/No/Unknown

G Gun used (primary weapon): R = Rifle; S = Shotgun; M = Military-style semi-automatic weapon

V Victims shot dead

P Perpetrators shot dead

S Total shot dead

K Total killed by any means (one additional victim was stabbed with a knife)

W Victims wounded

A Age of perpetrator

C Perpetrator had a previous conviction for violent crime: Yes/No/Unknown

M Perpetrator had a previous history of mental illness: Yes/No/Unknown **

L Perpetrator was a licensed gun owner: Yes/No/Unknown

* These homicides were committed by two male perpetrators.

** A history of mental illness is defined as a detectable DSM-IV psychiatric illness either diagnosed, reported to authorities or even seriously suspected by others prior to the shootin—that is, minimum sufficient cause to justify legal denial of firearm possession.

Source: Alpers P. Harvard Injury Control Research Centre, Harvard School of Public Health. Boston, Massachusetts, at palpers@hsph.harvard.edu.

ammunition quickly. Since the Port Arthur gun massacre, there have been no mass shooting incidents in Australia (that is, a shooting incident in which four or more people were shot). Table 1 shows the morbidity and mortality due to mass shootings in Australia over the period June 1987 to April 1996.

Figure 1 shows changes in firearm deaths in Australia between 1979 and 1999, the latest year for which data are available. There are three main causes of firearm caused deaths in Australia: unintentional deaths (accidents), suicides, and homicides. In Australia, each of these firearm-caused deaths has declined markedly since 1977, but the rate of decline has been most dramatic since 1996 (Figure 1).

Firearm suicides have fallen by an average of 12.81 per year between 1979–1999, but by 20.33 per year in the three years since 1996. In the same period firearm homicides have fallen by 2.23 per year, but by 9.67 per year in the years since the reforms.[2]

Critics of gun control argue that if access to guns is made more difficult, then people intent on killing others violently will simply substitute other means such as knives or bludgeons. Similarly, they argue that someone intent on committing suicide will chose another means to do so. However, the data relating to homicide and suicide tell another story.

Homicide data comparing the period before the introduction of gun law reform in 1996 with two periods after show that Australia's homicide rate has declined from 1.94/100,000 in 1989–1996,[3] to 1.77 per 100,000 in 1999–2000,[4] to 1.65/100,000 in 2000–01.[5]

While there has been a dramatic decline in suicide using guns, a decline that commenced in 1987 and accelerated after 1996, Australia's suicide rate has risen from 16.5/100,000 in 1979 to 21.2/100,000 in 1999.[6] However, there is no evidence available that might address the question as to whether those who took their lives by means other than firearms since 1996 had easier access to guns prior to that period and so might have otherwise used a gun.

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BUILDING THE INFRASTRUCTURE FOR PUBLIC HEALTH

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'Success' in public health is facilitated by the ability to attract and retain a well-trained and enthusiastic workforce and a suitable, stable infrastructure. This article briefly describes steps taken at the end of the 1980s both to determine the need for and to create a public health infrastructure and workforce for NSW. These initiatives have contributed to the continuing development of a robust and dynamic public health community that has demonstrated its capacity to respond to a wide variety of challenges.

EARLY DEVELOPMENTS OF PUBLIC HEALTH IN NSW

By the end of the nineteenth century, all the colonies of Australia had passed public health acts following the example of Britain where the first *Public Health Act* was passed in 1848. In NSW, under the *Public Health Act* of 1896, the profile of public health fluctuated over the years.

During the 1980s, despite the emergence of the New Public Health,[1] and national initiatives to promote public health training and research, the attention given to the public health infrastructure in NSW and to the training of a public health workforce had not paralleled that directed towards the public hospital system. Public health had a low profile, and positions previously devoted to public health activities had been redirected towards the management of the public hospital system.

CREATION OF AREA HEALTH SERVICES

In 1986, area-based health services were created in metropolitan NSW by the *Area Health Services Act*.[2] In a fundamental change, the board of directors of each area health service (AHS) was made responsible not only for the management of the acute health care facilities in their areas but also for the protection, promotion and maintenance of the health of its resident population. Previously they had no formal responsibility for the health of their resident population.

Despite these broader responsibilities, most AHSs continued to place the greatest emphasis on the management and delivery of high quality clinical services through their facilities. A Department of Public Health and Community Medicine at Westmead Hospital had by the late 1980s developed a capacity in public health research and evaluation. However this facility was unique and generally there were few health professionals with the necessary skills to plan for the health of populations.

Several developments were initiated by the NSW Department of Health around this time to change this situation. In 1988 the newly appointed Chief Health Officer made the revitalisation of the public health infrastructure in NSW one of her priorities. The initial steps were the appointment of Medical Officers of Health in each area health service and rural region, and the creation of an Epidemiology Branch within the Department.

The value of effective public health action in response to acute health problems was soon demonstrated in the efficient management of outbreaks of communicable disease. Early in 1989, the Secretary of the Department invited a proposal to expand the use of epidemiology to underpin public health across the state.

Two proposals were developed. Under the first proposal, the new Epidemiology Branch would be expanded and an organisational structure inspired by that of the United States Centers for Disease Control and Prevention (CDC) adopted. This structure included units for Infectious Disease, Chronic Disease and Injury Control,

Reproductive Health, Environmental Health and Health Informatics. There were three elements to the second proposal:

- a network of public health units would be established in the administrative health areas to decentralise public health functions;
- a public health officer training program would be established to provide training in the practical skills required for public health action;
- a mechanism for communicating public health information would be created, the *NSW Public Health Bulletin*, in the form of the *Morbidity and Mortality Weekly Report* published by the CDC.

In November 1989, a structural reorganisation within the NSW Department of Health led to the formation of the Public Health Division, and in December 1989 the Minister for Health approved annual funding to support the second proposal.

PUBLIC HEALTH UNITS

Fourteen public health units (PHUs) were established in the metropolitan AHSs and the rural regions, each to be led by a director who also served as the medical officer of health. The initial terms of reference were broad. Responsibilities included:

- coordinating all public health activity;
- research and evaluation;
- developing a public health strategy including surveillance;
- the analysis of local health related databases including hospital morbidity collections.

Other areas of responsibility were the control of communicable diseases, environmental health, the investigation of pregnancy outcomes, injury, chronic diseases, and risk factor prevalence. The PHUs concentrated initially on implementing a new communicable disease reporting and response system, which was supported by a laboratory surveillance system. This was introduced following a successful pilot in the Eastern Sydney AHS and complemented notifications of diseases received from medical practitioners.

NSW PUBLIC HEALTH BULLETIN

The first issue of the *NSW Public Health Bulletin* was published in May 1990, to facilitate the dissemination of timely public health information across the network of PHUs, and to other interested individuals and organisations.[3] It has been in continuous production since.

NSW PUBLIC HEALTH OFFICER TRAINING PROGRAM

The NSW Public Health Officer Training Program was initiated in 1990. It was designed to develop the practical skills of people who had already completed postgraduate studies in public health. The Program was initially established to train medical graduates who would progress towards Fellowship of the newly-created Australasian Faculty of Public Health Medicine. In its first year, six public health medicine registrars were appointed and funding was also provided for a trainee to participate in the United States CDC Epidemic Intelligence Service. By its second year, the Program was expanded to include non-medical trainees.

CONCLUSION

The PHUs, the NSW Public Health Officer Training Program, and the *NSW Public Health Bulletin* are today integral parts of the health system. With the creation of rural area health services in 1996,[4] PHUs became part of each area health service in NSW. In 1998, when the Corrections Health Service was formed, the number of PHUs reached 17. This network of PHUs permits coordination of many essential public health functions across the state. The NSW Public Health Officer Training Program has provided a skilled workforce able to fill a wide variety of public health functions including those encompassed by the PHUs. It has also served as a model for training programs in other states, such as Western Australia, and for other disciplines in public health, such as the NSW Biostatistical Officer Training Program. The Bulletin is now indexed on Medline and *Index Medicus*.

The need for a strong public health capacity remains as great today as it was in 1988. However if continued gains are to be made in public health, public health training and infrastructure must remain relevant and capable of adapting to changing environments.

Further information can be found at:
NSW Public Health Officer Training Program
www.health.nsw.gov.au/public-health/pht ;
NSW Public Health Bulletin
www.health.nsw.gov.au/public-health/phb/phb.html ;
or contact the Public Health Training and Development Branch on (02) 93919942.

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REDUCING LEAD EXPOSURE IN CHILDREN IN BROKEN HILL

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Broken Hill is a mining town located in the semi-arid region of western NSW. It is the site of one of the world's richest deposits of silver, lead and zinc.[1] Mining activities began here in 1883 and continue to the present time. In the early days, lead poisoning was a cause for concern but was primarily viewed as an occupational hazard.[2] The evidence emerging in the 1980s describing the health effects of lead, particularly in pre-school aged children, and the downward revision by the National Health and Medical Research Council (NHMRC) of the blood lead level of concern,[3] motivated a re-evaluation of lead exposure as a public health issue in the town.

Early in 1992, the NSW Government made funds available to investigate the lead problem in Broken Hill. This investigation demonstrated the multiple sources of the lead, and its widespread distribution in and around the city. However, cleaning the whole town and preventing the further release of lead into the environment was not feasible as a primary strategy.[4] The situation required an approach that targeted specific sources of lead that could be linked to children with a high blood lead level. The aim was both to reduce the amount of lead at the probable source and to modify its rate of release or spatial distribution.

This approach was supported by a range of educational, behavioural and environmental interventions for all children but was specifically reinforced for those children aged less than five years with high blood lead levels. These interventions were designed to prevent the likelihood of lead already available in the environment being taken up. The need for medical intervention using chelation therapy was rare. In the early years of the Program, only a few children with extremely high blood lead levels received this treatment.

In 1994 the management strategy was formally launched. The Lead Management Program aims to reduce blood lead levels in Broken Hill children to that observed in non-contaminated areas elsewhere in Australia. The strategy incorporates five main activities:

- monitoring and case finding;
- case management;
- public education and health promotion;
- remediation of public land;
- evaluation, research and development.

MONITORING AND CASE FINDING

Monitoring and case finding activities underpin the entire strategy. Between 1991 and 1993, children were recruited to annual surveys conducted usually during the spring months. Since 1994 a voluntary screening service has been offered to families with young children aged between seven months and five years. The service is available on a weekly basis for blood testing, to answer questions, and to provide information and advice about lead-safe practices and behaviours. The number of children aged between one and four years screened annually ranged between 538 and 948; response rates varied between 39 per cent and 73 per cent, with a trend towards an increased response over time (Table 1).

TABLE 1

BLOOD LEAD SURVEYS IN BROKEN HILL CHILDREN AGED 1–4 YEARS

Year	Number of children surveyed	Estimated number of children in Broken Hill	Estimated response rate %
1991	781	1423	55
1992	731	1370	53
1993	538	1316	41
1994	948	1263	75
1995	780	1209	65
1996	569	1156	49
1997	733	1137	65
1998	814	1118	73
1999	734	1099	67
2000	633	1080	59
2001	624	1061	59

Note: Population estimates are calculated onthe basis of the trend suggested by the 1991, 1996 and 2001 ABS census (ABS 1991, ABS 1996, ABS 2001).

CASE MANAGEMENT

Young children with blood levels ≥ l5 µg/dL were referred for case management. This involved visits by 'lead' nurses and technical officers to assess the home environment. Environmental sampling determined possible sources of contamination in and around the home, and family members were assessed to gauge compliance with 'lead safe' behaviours, for example house cleaning practices and hand washing. Evidence of pica habits (an abnormal craving to ingest substances such as clay, dirt or hair) was also sought. The home visits were an opportunity to provide advice and support for parents to enable them to take action to reduce the exposure of their children to, and intake of, lead.

For children who had substantially-elevated blood lead levels, the sources of lead in the home environment were systematically removed. Home remediation included removing ceiling dust, removing or covering contaminated soil around the home, stabilising flaking lead-based paints, cleaning or replacing carpets, cleaning soft furnishings and addressing structural problems in the home that did not adequately prevent dust ingress (that is, in walls, ceilings and floors).

PUBLIC EDUCATION AND HEALTH PROMOTION

The Broken Hill community was kept informed and involved in the Lead Management Program through regular media coverage and other promotional activities. Programs to modify behaviour included curriculum-based lead education in primary schools, and accredited training for groups such as the local council, the water authority, nurseries, hardware stores and trades. The purpose of these activities was to raise community awareness about lead, to promote and encourage use of the lead management services, and to provide information and advice to parents and children about 'lead safe' behaviours.

REMEDIATION OF PUBLIC LAND

A community-wide environmental assessment of public land was undertaken, to map lead concentrations and soil stability. Sites were then categorised according to the perceived risk of dispersion of lead to adjacent residential areas. Cost estimates for the remediation of high-risk sites were prepared and remediation works were prioritised. The urgency to act was tempered by an assessment that the benefits derived from this type of land remediation were likely to be less immediate than those that targeted families and their immediate home environment. Further, the projected benefits from the remediation of public land would depend in the first instance on the effective handling of pre-existing contamination in and around homes and the adoption of lead safe behaviours within the community.

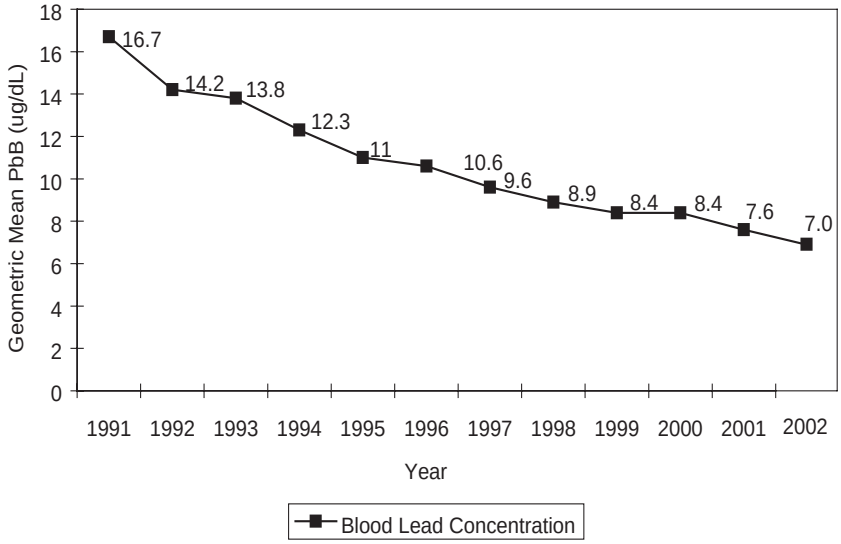
EVALUATION, RESEARCH, AND DEVELOPMENT

A population-based register of preschool children presenting for blood lead screening has existed since 1991 and contains information on birth cohorts from 1987. Data from the register forms part of the evaluation strategy for the Lead Management Program. Research is used to report on the outcomes from the Program, to develop an understanding of the sources and pathways of lead exposure in Broken Hill, to evaluate specific components of the Program, and to respond to emerging issues. For example, home remediation was evaluated to determine its effectiveness in reducing blood lead levels.

Overall blood lead levels in young children have halved since the Program began in 1991. The age-sex standardised mean blood lead level has decreased from 16.7 µg/dL to 7.0 µg/dL between 1991 and 2002 (Figure 1). These reductions have been consistently observed irrespective of the age of the child or the location of the home in the town.

FIGURE 1

AGE SEX STANDARDISED GEOMETRIC MEAN BLOOD LEAD CONCENTRATION OF CHILDREN SCREENED AGED BETWEEN 1 AND 4 YEARS, BROKEN HILL, NSW, 1991–2002



Source: Broken Hill Environmental Lead Centre

TABLE 2

AGE SEX STANDARDISED PERCENTAGE OF BROKEN HILL CHILDREN IN EACH BLOOD LEAD CATEGORY, AGED 1–4 YEARS, 1991–2001

Blood lead concentration	Year 1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
>29 µg/dL	11.5	8.2	8.2	4.2	3.6	2.2	1.9	1.3	1.1	1.4	1.2
20–29 µg/dL	28.7	17.8	20.5	13.4	12.6	10.6	8.6	5.1	6.5	5.8	4.2
15–19 µg/dL	21.6	21.4	16.7	16.8	14.7	17.5	11.8	12.0	9.1	9.0	9.8
10–14 µg/dL	24.6	32.3	28.4	33.0	27.5	26.2	28.8	28.8	25.8	25.4	20.6
<10 µg/dL	13.6	20.4	26.2	32.6	41.7	43.5	48.9	52.9	57.5	58.3	64.2

Source: Broken Hill Environmental Lead Centre

By 2001, the majority (64 per cent) of preschool-aged children were below the NHMRC goal for all Australians (10 µg/dL) up from only 13.6% in 1991. There was also a reduced proportion of children with significantly elevated blood levels (> 15 µg/dL), down from 61.2 per cent in 1991 to 15.2 per cent in 2001 (Table 2).

Following the success of the initial focus on children with established lead problems, the Program is now moving to establish early intervention strategies. There is now a reduced need for, and emphasis on, home remediation and consequently the Program is able to increase its investment in community-wide work. For example, in 1996 the monitoring program was extended to include the measurement of lead levels in pregnant women and neonates (via cord blood), to identify families where early intervention was indicated before or around the time of birth of the child. It was argued that modifying environmental hazards in and around the home and adopting more appropriate lead-safe behaviours from birth may reduce a baby's overall lead exposure and obviate the need for later home remediation.

An overview of the Broken Hill Environmental Lead Program was published in a previous issue of the *NSW Public Health Bulletin* (Volume 12, Number 6).[5] This article is adapted from the previous article, with the inclusion of results of blood lead level test for children less than five years of age and expectant mothers from 1991 to 2001.

For further information on environmental lead, and lead and health, go to the Leadsafe site on the NSW Environment Protection Authority web page: **www.epa.nsw.gov.aulleadsafe/index**.

The links section provides a useful resource on agencies and organisations involved in lead issues.

For additional information on the Broken Hill Lead Management Program, contact:

- Lead Program Team Leader, Broken Hill Child and Family Centre (08) 8082 6111; or
- Far West Population Health Unit (08) 8080 1499.

CONCLUSION

Substantial progress has been made in dealing with the exposure to lead of Broken Hill children. Nonetheless work is still needed to reduce the proportion of these children with significantly elevated blood lead levels (> 15µg/dL) from the 2001 figure of 15.2 per cent to the NHMRC target of five per cent.

ACKNOWLEDGEMENTS

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HALVING DEATHS FROM CERVICAL CANCER

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The decline in cervical cancer incidence and mortality in NSW women is a real public heath success story, and an example of a population level intervention producing measurable improvement in population health.

Cervical cancer is a significant gynaecological cancer in women, and is preventable by regular screening using the Papanicolaou technique. Screening identifies pre-cancerous lesions that convey a risk of invasive cancer. These lesions can be removed which reduces the population incidence of cervical cancer (primary prevention). Screening can also detect early asymptomatic invasive cancer and thus produce lower case fatality and improved survival through earlier diagnosis (secondary prevention). Decline in cervical cancer mortality in populations over time is a consequence of declines in both incidence and case fatality.

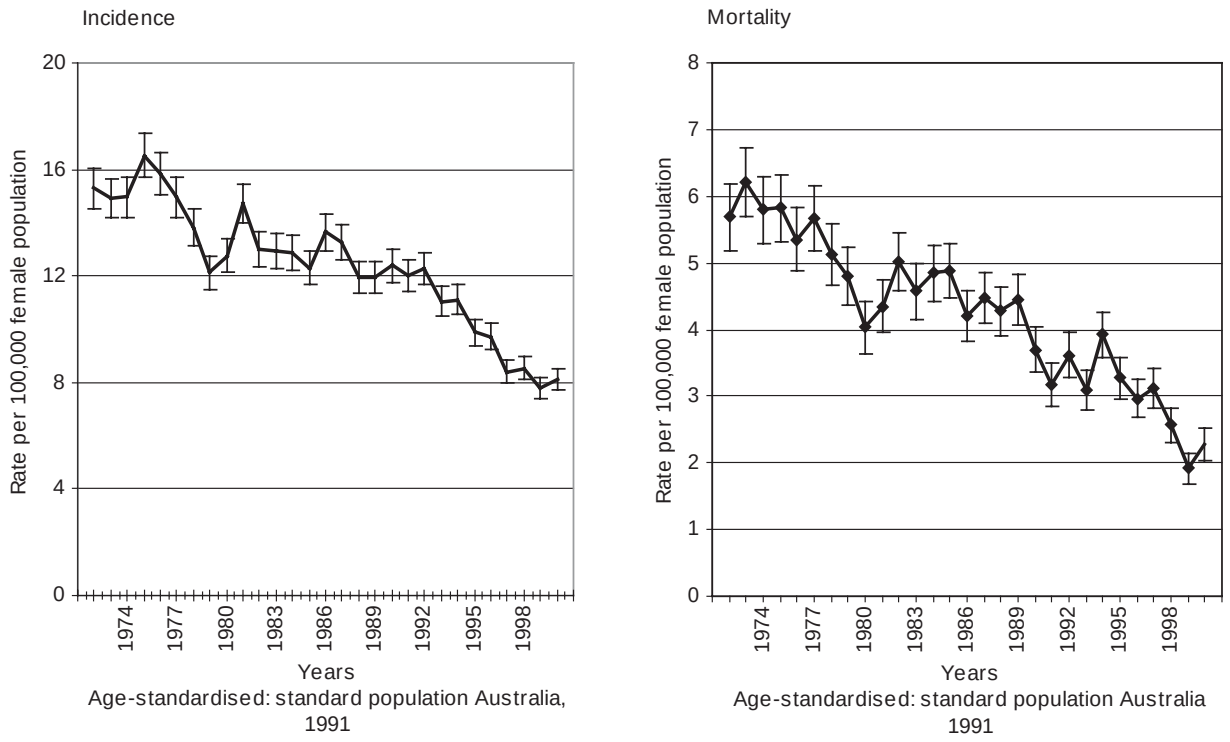
Analysis of published case-control and cohort studies have documented the effectiveness of regular cervical screening in preventing cancer of the cervix. Evidence for the effectiveness of screening in populations relies on time trends in cervical cancer incidence and/or mortality in relation to the introduction and intensity of cervical screening; and on the comparison of trends in cervical cancer incidence or mortality between populations with different dates of introduction or intensities of cervical screening. This evidence is available from Scandinavian countries, and is also evident in women in NSW.

Cervical cancer incidence and mortality[1] has been reduced in NSW women in the last 30 years, particularly since the early-mid 1990s (Figures 1 and 2). This follows the introduction of cervical cancer screening including the NSW Cervical Screening Program (CSP) and the development of the Pap Test Register (PTR).

There are relatively high levels of screening in NSW women. Based on PTR data, the biennial (two year)

FIGURE 1

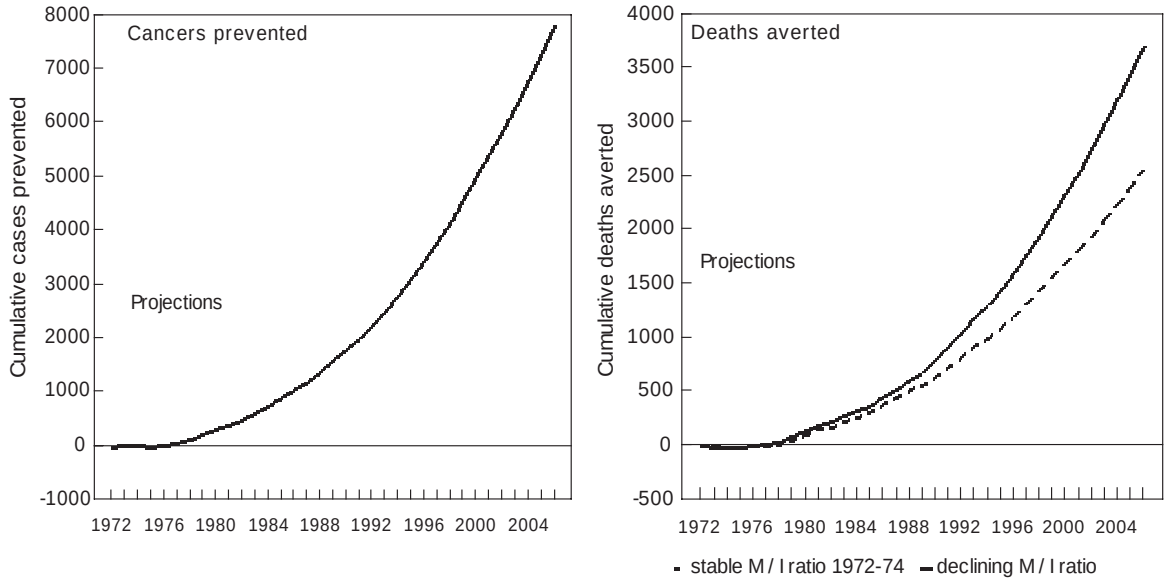
INCIDENCE AND MORTALITY RATES (WITH 95 PER CENT CONFIDENCE INTERVALS), CERVICAL CANCER, NSW, 1972–2000



Source: From data supplied by NSW Cervical Cancer Registry and NSW Cancer Council.

FIGURE 2

CUMULATED CERVICAL CANCERS PREVENTED AND DEATHS AVERTED FROM SCREENING SINCE 1972, NSW [3]



Note: The figures for cumulated cervical cancers prevented and deaths averted assume constant period trends from 1972 in the absence of screening.

Source: Reference 3

screening rate is 62 per cent, the triennial (three year) screening rate is 75 per cent and the quinquennial (five year) screening rate is 93 per cent. Because most cervical screening is directed towards detecting pre-cancerous abnormalities, almost any screening interval is of some effectiveness. Research indicates that annual and two-yearly screening are 93 per cent effective in prevention of cervical cancer, three-year screening 91 per cent effective, five-year screening 84 per cent effective and 10-year screening 64 per cent effective[2].

The effect of cervical screening in populations can be assessed by comparing actual declines in rates to scenarios where period trends remain stable. Calculations for NSW indicate that over the period 1972-2000 there were around 5,000 cases prevented and 2,000 deaths averted from cervical cancer (Figures 1 and 2).[3] Deaths averted in the presence of unchanging survival measured by case fatality [stable Mortality/Incidence (M/I) ratios] indicate the deaths are averted from primary prevention alone, that is, by Pap test detection and treatment of precursors of cervical cancer. Deaths averted in the presence of improving survival measured by declining case fatality [declining Mortality/Incidence (M/I) ratios] indicate deaths averted by all aspects of detection and treatment, including primary prevention, secondary prevention (earlier diagnosis of cancer) and improvements in treatment efficacy.

Information on Pap screening and cervical cancer can be obtained from:
NSW Cervical Screening Program
www.csp.nsw.gov.au;
NSW Pap Test Register
www.cancercouncil.com.au/cncrinfo/research/papTestReg/papTestf.htm;
The NSW Cancer Council
www.cancercouncil.com.au/building/index2.htm.

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CONTAINING HIV IN NSW: A WORLD CLASS SUCCESS

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Human immunodeficiency virus (HIV), the virus that causes acquired immunodeficiency syndrome (AIDS), first appeared in NSW in the early 1980s. Since then, HIV has had a significant affect on public health, causing over 3,400 deaths from AIDS and 12,500 infections. Within Australia, most cases of HIV infection have been reported in NSW.[1] This article describes the effect that the HIV epidemic has had in NSW and some of the policies that have been developed, in collaboration with affected communities, that have helped stem the further spread if HIV infection.

THE HIV EPIDEMIC IN NSW

The first Australian case of AIDS was diagnosed at St Vincent's Hospital, Sydney, in 1982. In NSW, the incidence of new cases of HIV infection peaked in the mid-1980s with 1,636 diagnoses reported in 1987, and has steadily fallen to 347 cases in 2001. The incidence of AIDS cases peaked in 1994, when 552 new cases were notified. Only 69 new cases of AIDS were reported in 2001, reflecting both the declining incidence of HIV infection since the mid-1980s and the success of combination anti-retroviral therapy.[1] The number of people who have died from AIDS has fallen from a peak of 423 in 1994 to just 36 in 2001. Cumulatively in NSW by June 2002, 12,590 people were reported to have been diagnosed with HIV infection and an estimated 1,592 people were living with an AIDS-related illness. Most people with HIV infection live in inner-Sydney.

Since the beginning of the epidemic, sexual contact between men was the most frequently reported risk exposure category for HIV notifications in NSW. The proportion of HIV infections attributed to injecting drug use has remained low (3.4 per cent), while the proportion attributed to heterosexual exposure has increased—largely as a result of infection in heterosexuals who report sexual contact with other people from countries where HIV infection is endemic. While the majority of HIV and AIDS notifications are in men, the proportion of sero-positive women is gradually increasing as the total number of notifications decrease.

Figure 1 illustrates significant events in the history of the response to HIV and AIDS in NSW along with cumulative notification data of HIV infections and cases of AIDS.

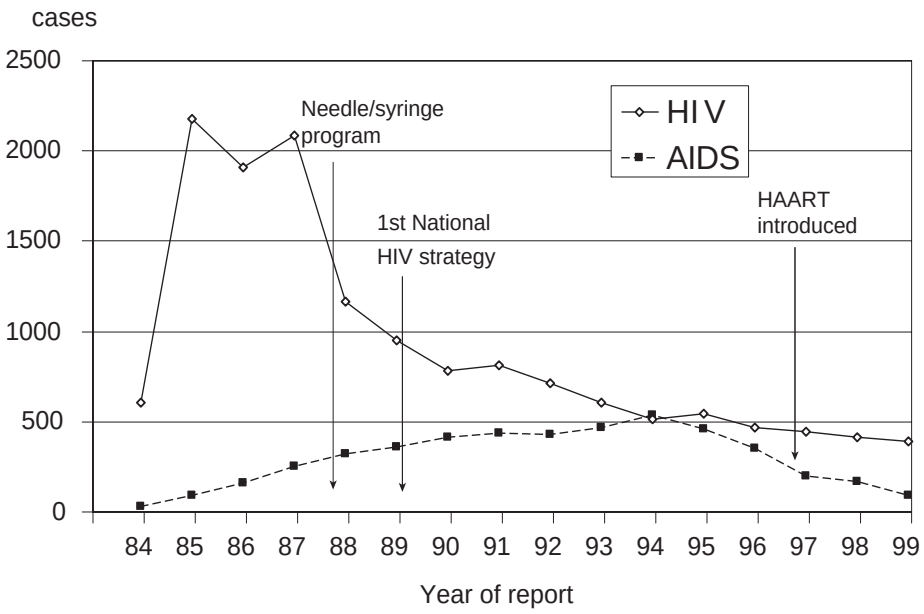
NEW SOUTH WALES: THE RESPONSE

Collaboration

Since 1982 the gay, medical, and scientific communities of NSW have worked with government to develop an

FIGURE 1

HIV AND AIDS CASE REPORTS, NSW 1984–1999 AND SIGNIFICANT EVENTS



Source: NSW HIV database

innovative partnership that has been central to successful national policy development. In May 1983, the AIDS Action Committee was formed by Sydney's gay community; in 1994, this Committee became the AIDS Council of NSW, and received government funding. In June 1983, the NSW Government formed a consultative committee on AIDS, which included representatives from the gay community. During the remainder of 1983, several NSW community sector counselling, support, and welfare groups were formed for people with AIDS, and the National Health and Medical Research Council established its first working party on AIDS.[2,3]

Prevention

In 1983, in response to reports of transfusion-related HIV in the United States,[2] the AIDS Action Committee and the Sydney Red Cross Blood Bank asked homosexual men not to donate blood. In April 1985, Australia became the first country in the world to screen donors for HIV by questionnaire and antibody testing.[3] Funding was directed towards education, support, and counselling services.[2] Education and medical advisory bodies were established. In February 1985,[2] the NSW AIDS community sector launched Australia's first safe sex campaign for gay men, *Rubba Me*, funded entirely from community sources.

Research

In 1983, the NSW Government funded St Vincent's Hospital to establish the first Australian prospective research project on AIDS and a study group commenced for clinicians who were either caring for people affected by AIDS or were interested in the disease. During 1985 Australian clinicians made a series of significant contributions to the international scientific literature on HIV.[3] In February, researchers from St Vincent's Hospital published the first description of HIV seroconversion illness. In April, researchers from Prince of Wales Children's Hospital were the first to report HIV transmission via breast milk, and in September researchers from Westmead Hospital reported the first evidence of transmission of HIV via artificial insemination. NSW contributes to international scientific and social research into vaccines and risk behaviour and participates in clinical trials.

Legislative reforms

Legislative reforms in NSW, in response to HIV, have led to:

- the decriminalisation of homosexuality in June 1984;
- HIV and AIDS becoming notifiable conditions in August 1984;
- the requirement for informing sexual partners of infectious status;
- the protection of confidentiality in the event of a positive HIV test result;
- the management of infected people whose behaviour may place others at risk of infection;
- the prohibition of vilification, and expansion of the *NSW Anti-Discrimination Act* to protect against discrimination on the grounds of HIV infection or sexuality;
- the decriminalisation of prostitution;
- the establishment of the Needle and Syringe Program in November 1987.

Case management

In August 1984, treatment services dedicated to AIDS commenced in NSW with an Outpatient Clinic established at St Vincent's Hospital. In 1985 the range of HIV services expanded when the Albion Street Centre was established as a major HIV testing and counselling service and St Vincent's Hospital opened the first ward for HIV and AIDS.

The antiretroviral AZT was first made widely available in NSW in June 1987 following a cost-sharing agreement between the Commonwealth and the states and territories.[2] In the early 1990s, NSW developed a system of accreditation and continuing medical education for general practitioners to enable them to prescribe highly specialised drugs, ensuring both widespread access to HIV treatments and a high quality of care. Other states and territories have subsequently adopted this system.

NSW produced the first detailed HIV and AIDS care and treatment plan in Australia, and a specialist sexual health service was established in each area health service. This recognised the important role of such services in the prevention of HIV.

Prisons

NSW has led the national response to HIV in prisons. Confidential HIV testing was introduced in NSW prisons in 1989; prisoners have access to a range of health services, including specialist HIV treatment and peer education programs; methadone and other drug substitution treatments are available in the correctional setting; and condoms and bleach have been available since the mid-1990s.

Future challenges

There is a diversity of views in the general community regarding key aspects of the response to HIV. This creates a complex environment for political leaders and policy makers. In the early years of the HIV epidemic, there was a willingness within the community to accept measures, that were at times controversial, to prevent the spread of HIV; examples include sexually-explicit education materials and the provision of sterile injecting equipment to those who inject illicit drugs. Bipartisan political support, and a willingness on the part of governments to provide strong leadership, has been critical in achieving community acceptance of these measures.

One of the key challenges that remains is the need to further reduce transmission rates. Meeting this challenge depends on the capacity to continue to reach those who

engage in activities that expose them to risk. Because HIV infection rates have stabilised, there is evidence of reduced HIV morbidity and mortality as a result of advances in treatments, and a climate of greater optimism has arisen. Yet there is significant uncertainty about the long-term effects of new treatments. As the epidemic is changing, so too is the way HIV is perceived and understood by affected communities, the broader community and by government. These changes have the potential to undermine the community's capacity to sustain an effective response to HIV and AIDS.

Currently, rates of gonorrhea and of other sexually transmissible infections that may enhance HIV transmission are rising, both here in Australia and overseas. There is a need to explore new measures for encouraging safe sex behaviours in order to enhance the control of HIV and other sexually transmissible infections.

While much has been achieved in NSW, much remains to be done in pursuing reforms and ensuring appropriate responses to the changing epidemic. This includes a willingness to trial new interventions, develop clear communication strategies and address the tensions between strategies for harm reduction and those for use reduction for drug use.

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MAY 1999 NSW DRUG SUMMIT

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In late 1998 there was a widespread perception that the problem of illicit drugs was not being adequately addressed through existing resources and policies. The Premier of New South Wales made the commitment that, if re-elected in the March 1999 election, there would be a summit on the drug problem. This article describes that drug summit, the purpose of which was to make a fresh start and achieve bipartisan agreement on major strategies to address illicit drugs.

The NSW Drug Summit was held in May 1999. All NSW state government politicians were invited, as were approximately 100 members of the public who were selected to represent the widest possible range of expertise and experience. The agenda of the summit covered many aspects of the illicit drug problem including: education, prevention, treatment, young people, regional and rural NSW, and the role of the police and the criminal justice system. Ministers and experts facilitated group discussions that reported back to plenary sessions. In these plenary sessions, resolutions were put to a vote, which resulted in a consensus on 20 general principles and 172 resolutions that covered a wide range of issues.

These resolutions formed the framework of the NSW *Government Plan of Action* on drugs,[1] and was supported with a financial commitment of $176 million over four years.

THE STATEWIDE DRUG TREATMENT SERVICES PLAN

For NSW Health, the first step was the development of a statewide Drug Treatment Services Plan to guide subsequent initiatives. This was a major opportunity to rethink the delivery of services. The central themes of the plan are access, quality and integrated care.

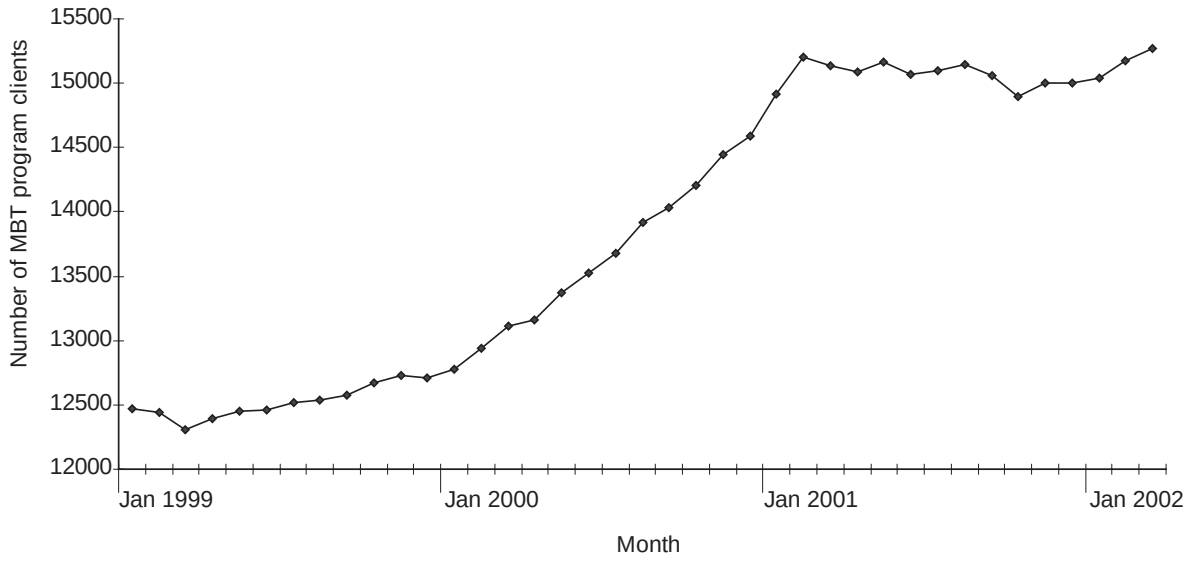
Access

A geographical imbalance of treatment services existed, with most resources concentrated in the metropolitan areas. Drug treatment services were overstretched, especially the methadone program. Following the Drug Summit, many projects specifically targeted rural and regional communities. These include:

- The appointment of drug and alcohol counsellors and drug and alcohol nurses in each of the rural area health services;
- Multi-purpose drug and alcohol facilities established in the Mid North Coast and New England Area Health Services;
- A newly-constructed inpatient detoxification service at Lismore, to complement new detoxification services situated at Wyong and Penrith;
- The General Practitioner (GP) Program, designed to increase the ability of GPs both to recognise problems arising from drug misuse by their patients and to respond appropriately. The program has been extended from 11 to 17 area health services.

FIGURE 1

THE AVAILABILITY OF METHADONE AND BUPRENORPHINE TREATMENT (MBT), NSW, JANUARY 1999 TO MARCH 2002



Sources: Patient numbers—Pharmaceutical Services Branch Database.

Quality

There are many initiatives to improve the quality of drug treatment services, both public and private. The full suite of initiatives include: the introduction of treatment agreements and treatment plans; the accreditation of services; improved training for methadone prescribers; the monitoring of quality, including the prescription of takeaway doses of methadone; and a more proactive stance by the Pharmacotherapy Credentialling Subcommittee. These quality initiatives represent the first step towards a paradigm shift in the culture of treatment and rehabilitation for drug-dependent patients.

Integrated care

The NSW *Government Plan of Action* on drugs has created many challenges, as structures and procedures are put in place to ensure coordination between agencies, and to provide continuity of care, as patients move between agencies to obtain the full range of services that they require.

Partnerships with non-Government agencies are a highlight of the Plan. Funding has been provided to the Network of Alcohol and Drug Agencies, and to individual agencies, to enhance their information technology. Agencies are being encouraged to relate more closely to the area health services in which they are located, in order to improve the coordination and continuity of care of their patients.

Diversion of drug-users form the criminal justice system into treatment is an important area where NSW Health works, with the assistance of Commonwealth funding, with other agencies and the non-government sector. Programs such as the Magistrate's Early Referral Into Treatment now provide drug users with the option of treatment rather than a jail term, in order to break the cycle of criminal recidivism that can be related to drug abuse.

NEEDS OF SPECIAL GROUPS

Programs are being implemented to provide support for drug-dependent carers with children. One of these programs is Parents Under Pressure, which is an intensive program delivered at home to build skills and confidence in parenting and other domestic competencies.

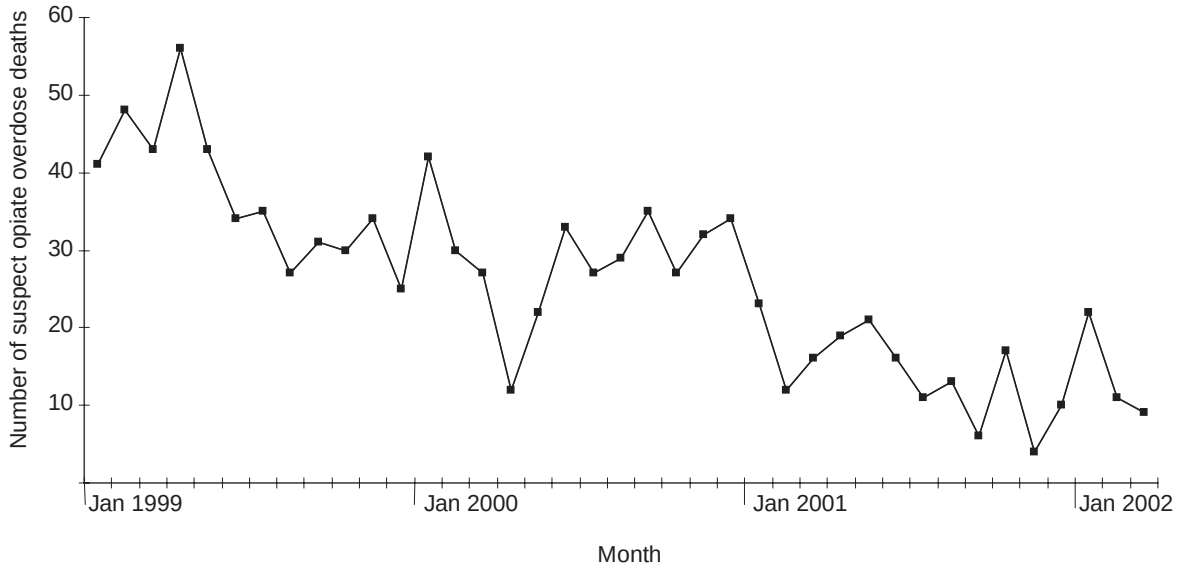
OUTCOMES

Since 1999, there has been a reduction in heroin-related overdose events (defined as deaths and non-fatal incidents) from 400 in 1999 to 249 in 2000.[2] This represents a 38 per cent decline in NSW, which compares favourably with the 24 per cent decline nationally. It should be noted that this decline preceded the recent heroin shortage. Figures 1 and 2 illustrate the inverse relationship between the availability of methadone and buprenorphine treatment and the number of suspected opiate overdose deaths from early 1999 to March 2002.[3]

Access to pharmacotherapy treatment (methadone and buprenorphine) has improved significantly and there are now few parts of the state where there is a significant

FIGURE 2

THE NUMBER OF SUSPECTED OPIATE OVERDOSE DEATHS IN NSW FROM EARLY 1999 TO MARCH 2002



Sources: Overdose figures—Division of Analytical Laboratories.

delay for patients wishing to enter treatment. The successful introduction of buprenorphine as an alternative pharmacotherapy for the treatment of heroin addiction has attracted many new patients to treatment and provides more flexibility in the delivery of care.

The pressure on rehabilitation beds in the non-government sector has been reduced with funding allocated for 62 additional beds. In addition, some agencies have undertaken to modify their service configuration to provide more beds than they receive funding for.

CONCLUSIONS AND CHALLENGES

The major outcome of the NSW Drug Summit, and the 150 projects administered by the Drug Programs Bureau, has been a significant increase in the number of drug-dependent patients who are being managed in the health system, and a significant increase in services provided by agencies in partnership with NSW Health.

Inevitably, there are persisting challenges in making major changes in a very large and complex system. The rapid expansion of services has created shortages of adequately trained and experienced staff. The complexity of the treatment system, and the nature of opioid dependence, creates problems both for monitoring the effectiveness of interventions and maintaining gains. Treatment systems need to be flexible in order to be able to respond to changes in patterns of drug use. However, flexibility can be difficult to achieve, with so many independent agencies involved in the planning and delivery of the services.

In addition, alcohol misuse remains a major community concern, and this issue was not a focus of the NSW Drug Summit.

The NSW Department of Health had responsibility for a large proportion of the additional funding and new projects which followed the Drug Summit and the *Government Plan of Action*. Within the Department, the Drug Programs Bureau was the coordinating branch.

The Drug Programs Bureau website has a list of state, national, and international links. **http://internal.health.nsw.gov.aulpublic-healthldpb/contact.htm**.

The website for the NSW Drug Summit can be found at **www.druginfo.nsw.gov.au/druginfo/summit/index.html**.

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FACT*SHEET*

SEVERE ACUTE RESPIRATORY SYNDROME (SARS)

WHAT IS SARS?

Severe Acute Respiratory Syndrome (SARS) is a contagious form of pneumonia first identified in southern China in late 2002.The syndrome has only recently been recognised and information is therefore limited.

WHAT CAUSES SARS?

The organism that causes SARS is thought to be a new type of coronavirus.

WHO IS AT RISK OF CONTRACTING SARS?

Currently, the risk of people in Australia contracting SARS is probably low. Affected areas have included parts of China, Hong Kong, Singapore, and Toronto. For an updated list o affected areas, see the World Health Organization's website at **www.who.int**.

Those who have been in close contact with someone who has been diagnosed with SARS are also at risk. Close contact may include having cared for, lived with, or having direct contact with the fluid from the nose and throat, and faeces of SARS patients.

WHAT ARE THE SYMPTOMS?

People usually start to develop symptoms two to seven days after being exposed to the virus. People with SARS have a fever (greater than 38ºC) and respiratory symptoms that may include cough or breathing difficulties. These symptoms usually begin abruptly. Other symptoms include headache, chills, muscle aches, poor appetite, dizziness, diarrhoea and sore throat. Some people with SARS develop severe pneumonia (lung infection). The overall death rate is about 15 per cent. The risk of death increases with age.

HOW IS SARS DIAGNOSED?

At present, the diagnosis is only likely to occur in people who have travelled to a country affected by SARS. Even in such people, the symptoms of SARS are commonly seen in other illnesses, so your doctor may test for a variety of infections before diagnosing SARS. Specific tests for the SARS virus are being developed.

HOW IS SARS SPREAD?

SARS is thought to be spread through contaminated droplets from a person sick with the illness (through coughing or sneezing) or by contaminated hands or objects. Only people in close contact with a SARS patient are thought to be at risk. Rarely, the virus may be spread in the air from very ill patients. People who do not have symptoms are not thought to be infectious.

People who have fever and respiratory symptoms should seek advice from their doctor, but call ahead before visiting so your doctor can prepare.

HOW CAN YOU HELP PREVENT THE SPREAD OF SARS?

If you are suspected of having SARS and are being cared for at home, you should:

- follow the instructions given by your doctor;
- limit your activities outside the home: for example, do not go to work, school or public places;
- wash your hands often and well, especially after you have blown your nose;
- cover your mouth and nose with tissue when you sneeze or cough;
- if possible, wear a surgical mask when around other people in your home;
- refrain from sharing cutlery, towels or bedding with anyone in your home until these items have been washed with soap and hot water;
- clean surfaces (counter or tabletops, door knobs, bathroom fixtures) that have been contaminated by body fluids (sweat, saliva, mucous, or even vomit or urine) from the SARS patient with a household disinfectant used according to the manufacturer's instructions. Wear disposable gloves during all cleaning activities. Throw these out when you are finished and do not reuse them;
- follow these instructions for 10 days after your fever and respiratory symptoms have gone away.

For updated guidelines, see the NSW Department of Health website at **www.health.nsw.gov.au** or the World Health Organization website at **www.who.int**.

For more information please contact your doctor, local public health unit or community health centre—See under NSW Government at the front of the White Pages.

March 2003

NSW HEALTH
Working as a Team

COMMUNICABLE DISEASES REPORT, NSW: MARCH 2003

TRENDS

Notifications of communicable diseases received through to January 2003 appear in Table 2 and Figure 1.

BLOOD-BORNE AND SEXUALLY TRANSMISSIBLE INFECTIONS

The number of notifications of gonorrhoea and chlamydia continues to rise. Notifications of gonorrhoea have reached their highest levels since laboratory reporting began in 1991. Notifications of chlamydia have reached their highest levels since reporting began in 1999.

There are, however, important differences in the epidemiology of these diseases in NSW. Chlamydia is approximately four times more frequently notified than gonorrhoea (5621 versus 1469 cases in 2002). Data for the three months to January 2003 show that when compared with gonorrhoea cases, chlamydia cases tend to be younger (52 per cent were under 25 years of age compared with 21 per cent of gonorrhoea cases), more commonly female (53 per cent compared with seven per cent) and more widely distributed about the state (38 per cent live in rural areas compared with only 14 per cent of gonorrhoea cases).

These data and anecdotal reports indicate that chlamydia is more common in younger heterosexually-active people than in men who have sex with men, while gonorrhoea is more common in men who have sex with men. Both infections can be prevented through practicing safe sex such as using condoms with sexual partners. Transmission can be restricted through the early diagnosis and treatment of cases, and by screening and treating the infected sexual partners of cases.

Patients can talk in confidence to a general practitioner or local sexual health service to obtain more information about screening for these diseases. Clinicians can call their local sexual health service for advice and assistance with partner contact tracing and screening. These services are listed under *Sexual Health Clinics* in the White Pages.

VECTOR-BORNE DISEASES

Over the summer relatively few arbovirus infections were notified. Barmah Forest virus infection however continues to predominate, especially on the coastal areas in the north of the state.

ZOONOSES

Reports of Q fever have increased in recent months. This increase is most likely to be related to increased Q fever immunisation-related screening, although a real increase in disease transmission cannot be ruled out. In January, cases were notified predominantly from the rural areas in the west and north of the state.

Q fever can be transmitted to people from farm and native animals, and those most at risk are workers in the meat and farming industries. The Commonwealth-funded Q fever program targets people who are at increased risk, and involves pre-immunisation screening for prior infection. For more information, contact your local Public Health Unit.

REPORT OF AN OUTBREAK OF PSITTACOSIS ASSOCIATED WITH WILD BIRDS IN THE BLUE MOUNTAINS

Background

Psittacosis is caused by infection with the bacteria *Chlamydophila psittaci*. It is considered a relatively rare disease in humans, and is usually spread to humans by inhalation of bacteria from dried bird droppings or other particles from infected birds. Psittacosis became a notifiable disease in NSW in 2001. In that year, 36 cases were notified.

The available literature suggests that pet birds and aviaries are the source of most infections in humans.[1,2] Prior to the outbreak in the Blue Mountains, the largest reported psittacosis outbreak in Australia occurred in Bright, Victoria, where 16 cases were identified. In these cases, illness was associated with mowing or trimming lawns, and gardening, in environments presumed to be infected with droppings and particles from wild birds.

In May 2002, clinicians of the Blue Mountains District Hospital (BMDH) in Katoomba reported an increase in admissions for severe community-acquired pneumonia in previously healthy adults. One clinician suggested a link to human contact with sick or dead parrots. Investigations were undertaken to confirm the existence of an outbreak, to identify its cause and any potentially-modifiable risk factors. This report provides a summary of the initial results of the outbreak investigation, and the preliminary recommendations.

Methods

Review of past admissions for pneumonia

Rates of admission to hospital for pneumonia in residents of the Blue Mountains were reviewed for the period 1995–2000.

Case identification

The causative organism for cases of pneumonia admitted to hospital between March and June 2002 was sought through collection and testing of acute and convalescent serology. Possible cases were identified both retrospectively (March to May) and prospectively (June), based on the following case definition:

- admitted to hospitals in the Blue Mountains or adjacent areas with pneumonia;
- resident of the Blue Mountains area;

- 15–75 years of age;
- radiological changes consistent with pneumonia;
- no medical history of heart failure or chronic obstructive pulmonary disease.

A confirmed case of psittacosis was defined as:

- possible cases in whom *Chlamydophyla psittaci* infection was confirmed by serology or polymerase chain reaction (PCR) testing. A positive serological result included a seroconversion with a four-fold or greater rise in titre, single high titre, or static high titre.

The Wentworth Area Public Health Unit contacted cases and arranged for blood collection at special clinics at the Blue Mountains District Hospital. Blood was tested for influenza, mycoplasma, chlamydia, legionella, adenovirus and Q fever. Throat swabs were taken from some of the later cases and these specimens were examined using PCR testing.

Case control study

A case-control study was undertaken, using confirmed or possible cases that had not tested negative at the time of the study. Reported exposures in these 'study' cases were compared with controls, who were randomly selected from the Blue Mountains telephone book. Interviews of cases and controls were conducted from the CATI (Computer Analysis of Telephone Interviews) facility within the NSW Department of Health.

Testing of birds

Sick or dead birds found in the Blue Mountains region during June were also submitted for testing for *Chlamydophila psittaci*.

Results

Past admission for pneumonia

A review of admissions for pneumonia during 1995–96 to 1999–00 found significantly higher rates of admission for residents of the upper Blue Mountains, when compared to those of residents of the lower regions of the Blue Mountains and the NSW state average. Overall, residents of the upper Blue Mountains had a standardised separation ratio of 176.6 (95 per cent CI 161.2–193.2) for pneumonia over this period, compared to 91.6 (95 per cent CI 80.6–103.6) for residents of the lower Blue Mountains.

Case identification

Between 1st March and 30th June 2002, 95 possible cases were identified. Of these possible cases, 77 (81 per cent) resided in the upper Blue Mountains (Bullaburra to Mount Victoria).

Serological results were obtained for 87 possible cases. Sixty of these cases (69 per cent) were positive for *Chlamydophyla psittaci*. Of the 27 cases (31 per cent) who tested negative for psittacosis, seven had an alternative diagnosis made by the doctor on receipt of the laboratory results. Fifty-one of the laboratory confirmed cases (85 per cent) were residents of the upper Blue Mountains.

Case control study

Preliminary analysis of the case control study included 62 cases and 310 controls.These findings are presented in Table 1. Illness was associated with: being male, aged 50–64 years, and residing in the middle or upper Blue Mountains.

Compared with no contact, direct contact with wild birds was also associated with illness. Indirect contact with wild birds was not significantly associated with illness, except

TABLE 1

FREQUENCIES OF EXAMINED RISK FACTORS FOR PSITTACOSIS IN CASES AND CONTROLS, BLUE MOUNTAINS, 2002

Variable	Cases		Controls		Crude Odds Ratio	95% Confidence Interval
	N	(%)	*N*	(%)		
Upper Blue Mountains resident	49	(80)	104	(34)	20.4	7.0–58.0
50–64 years of age	32	(52)	89	(29)	8.6	2.5–29.3
Male	37	(60)	125	(40)	2.2	1.2–4.0
Direct contact with birds specifically:						
Touching bird feathers	14	(23)	22	(7)	3.8	1.7–8.4
Touching bird droppings	20	(32)	33	(11)	4.0	2.0–8.0
Handling dead birds	10	(16)	11	(4)	5.2	1.9–14.2
Watch birds in garden	44	(71)	165	(53)	2.1	1.1–4.1
Seeing dead birds	12	(19)	22	(7)	3.1	1.3–7.1
Direct contact with wild birds—any of the above	30	(48)	52	(17)	6.6	3.1–13.8
Mowing without catcher	26	(42)	65	(21)	2.4	1.3–4.5
Use compost	19	(32)	49	(16)	2.5	1.2–4.8
Current smoker	2	(3)	58	(19)	0.1	0.02–0.6

for specific activities such as mowing lawns without a catcher or using compost.

Testing of birds
Of the five birds submitted for immuno-fluorescent antibody testing, only one young parrot was positive for *Chlamydophila psittaci.*

Conclusions
The largest reported outbreak of psittacosis among humans in Australia to date occurred in the Blue Mountains between March and June 2002. Preliminary analysis indicates that direct contact with wild birds, and lawn mowing without a catcher, were associated with illness. Exposure to domestic and farm birds was not associated with illness.

The investigation of this outbreak has provided new information about psittacosis, and has reinforced the finding from the 1996 outbreak in Bright that large outbreaks of infection in humans can be associated with wild birds, rather than with pet birds and aviaries.[3]

The risk of infection in this outbreak appeared to be limited to residents of the mid-to-upper Blue Mountains, and to the March–June period of 2002. However, the finding of increased rates of pneumonia in the upper Blue Mountains at similar periods during previous years raises the possibility that psittacosis recurs seasonally in this area. Anecdotal reports from members of the local Wildlife and Information Rescue Service (WIRES), which suggest clinical signs of psittacosis in wild birds during autumn in previous years, adds support to this hypothesis. Active surveillance for cases of pneumonia, together with laboratory testing for psittacosis in both birds and humans, will be continued over the coming year in an effort to answer this question.

These investigations will also examine why residents of the upper Blue Mountains were most at risk of psittacosis in autumn 2002, and of hospitalisation with pneumonia in the autumn of recent years. Surveillance of both birds and humans will be undertaken to determine if there are conditions in the upper Blue Mountains with regard to the environment (for example, weather patterns and bird habitats), the birds (for example, the density and distribution) or human factors (for example, the distribution or behaviours of susceptible populations) that facilitate psittacosis transmission. Identification of such factors can help to inform future prevention strategies, both locally and in other areas with a similar ecology.

Acknowledgements
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RESPIRATORY DISEASES

Notifications of meningococcal and invasive pneumococcal disease cases approached their usual low points in January.

VACCINE-PREVENTABLE AND OTHER DISEASES

No cases of measles have been identified in NSW for over five months now (since August 2002). Notifications of pertussis are at inter-epidemic levels, and only occasional cases of Legionnaires' disease were reported in recent months.

ENTERIC DISEASES

In January, over 200 notifications of salmonellosis were received. Among these, the most common serovar was *S. typhimurium* (36 per cent).

The national *S. potsdam* investigation was closed this month. A total of 70 cases were identified as part of the outbreak in November and December. Despite extensive case interviews, the source of the outbreak is unclear.

Four related cases of gastroenteritis (including one case in whose stool *Salmonella 4,12; D* was isolated) were identified in children who shared a common meal at a restaurant in inner Sydney in January. Two separate cases of hepatitis A reported eating at a restaurant in Sydney's south within the same week in December. While there was no proof that these restaurants were responsible for causing these infections, Public Health Unit food inspectors reviewed restaurant food handling procedures to minimise the risk of further cases.

FIGURE 1

REPORTS OF SELECTED COMMUNICABLE DISEASES, NSW, JANUARY 1998 TO JANUARY 2003, BY MONTH OF ONSET

Preliminary data: case counts in recent months may increase because of reporting delays.
Laboratory-confirmed cases only, except for measles, meningococcal disease and pertussis
BFV = Barmah Forest virus infections, RRV = Ross River virus infections
LI = Legionella longbeachae infections, Lp = L. pneumophila infections
Gp C and Gp B = disease due to serogroup C and serogroup B infection, other/unk = other or unknown serogroups

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

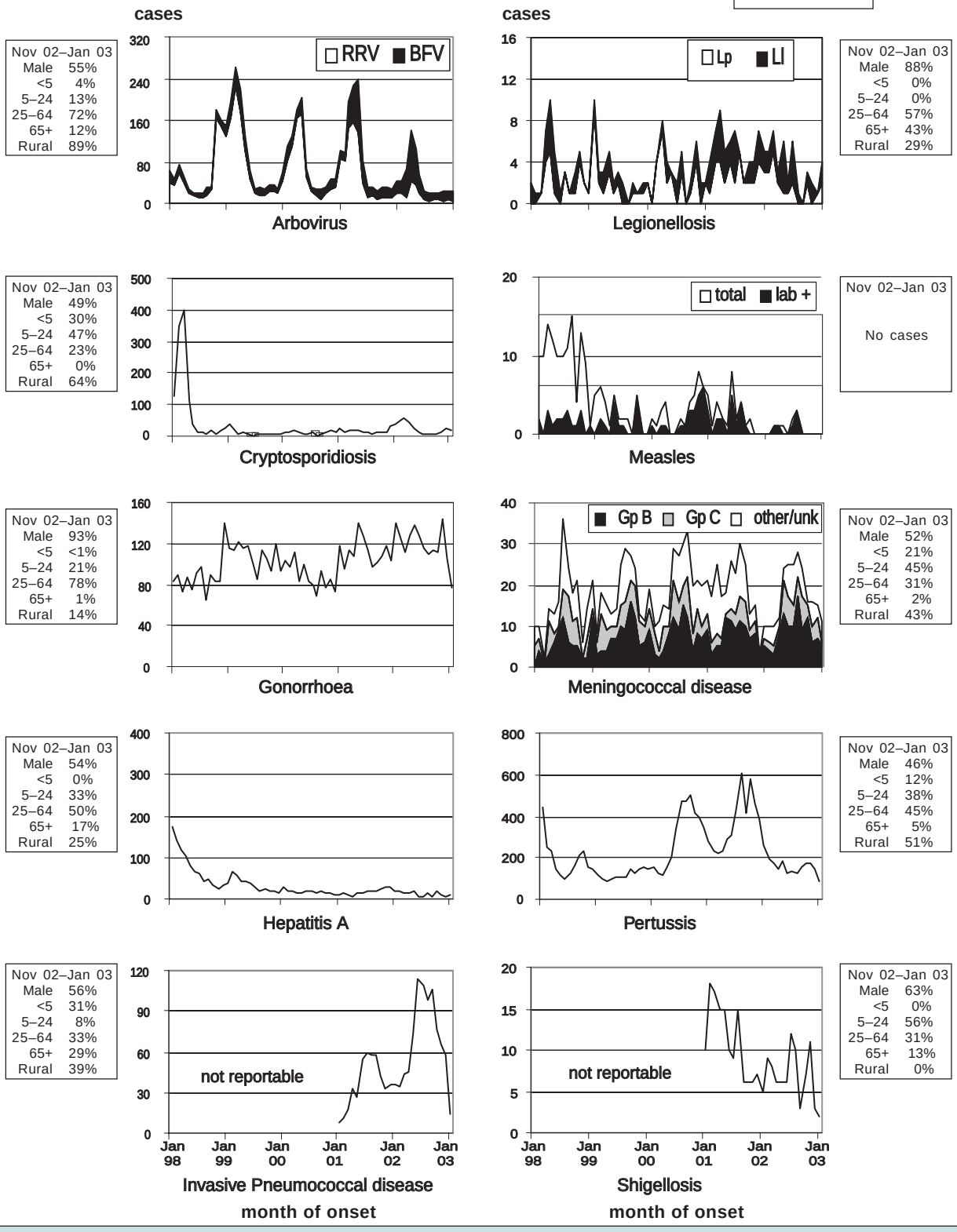

TABLE 2 REPORTS OF NOTIFIABLE CONDITIONS RECEIVED IN JANUARY 2003 BY AREA HEALTH SERVICES

Condition	Area Health Service																	Total	
	CSA	NSA	WSA	WEN	SWS	CCA	HUN	ILL	SES	NRA	MNC	NEA	MAC	MWA	FWA	GMA	SA	CHS	for Jan†	To date†
Blood-borne and sexually transmitted																				
Chancroid*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlamydia (genital)*	36	80	44	13	33	22	53	16	105	12	14	17	7	13	12	22	6	-	523	523
Gonorrhoea*	25	6	14	3	2	2	2	5	64	3	-	4	1	2	2	1	1	-	140	140
Hepatitis B—acute viral*	-	-	1	-	1	-	1	-	-	1	1	-	1	1	-	-	-	-	7	7
Hepatitis B—other*	49	37	38	2	33	4	6	8	33	1	3	4	3	3	1	-	-	2	227	227
Hepatitis C—acute viral*	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	2	2
Hepatitis C—Other*	77	30	53	19	32	29	26	30	76	20	38	9	5	17	1	17	8	13	504	504
Hepatitis D—unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Syphilis	14	8	3	1	16	2	1	1	21	3	2	4	-	1	1	1	-	-	81	81
Vector-borne																				
Barmah Forest virus*	-	-	-	-	-	1	3	2	-	6	8	2	-	-	-	1	-	-	23	23
Ross River virus*	-	-	-	-	-	-	-	-	-	-	3	1	-	-	1	-	-	-	5	5
Arboviral infection (Other)*	-	1	1	-	1	-	1	1	-	-	-	-	-	-	-	-	1	-	6	6
Malaria*	-	5	3	-	2	-	1	-	-	-	-	-	-	-	-	-	1	-	12	12
Zoonoses																				
Anthrax*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brucellosis*	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Leptospirosis*	-	-	-	-	-	-	-	-	-	-	3	1	-	-	-	1	-	-	5	5
Lyssavirus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Psittacosis*	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	2	2
Q fever*	-	1	-	-	-	-	1	-	-	6	4	4	20	4	-	-	-	-	40	40
Respiratory and other																				
Blood lead level*	-	2	-	-	2	-	1	-	-	-	1	-	-	-	82	3	1	-	92	92
Influenza*	-	-	3	-	1	-	-	6	11	2	-	-	-	-	-	1	-	-	24	24
Invasive pneumococcal infection*	-	4	1	1	4	1	6	-	10	-	-	1	2	1	-	-	2	-	33	33
Legionella longbeachae infection*	1	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	3	3
Legionella pneumophila infection*	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Legionnaires- disease (Other)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leprosy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meningococcal infection (invasive)*	-	-	2	-	1	1	1	-	4	-	1	2	1	-	-	-	-	-	13	13
Tuberculosis	7	4	6	3	14	-	-	2	6	-	1	-	1	1	-	-	-	-	45	45
Vaccine-preventable																				
Adverse event after immunisation	-	-	2	1	-	1	1	-	-	1	-	-	1	-	-	-	2	-	9	9
H. *Influenzae b* infection (invasive)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mumps*	-	1	2	-	1	-	-	-	1	1	-	-	-	-	-	-	-	-	6	6
Pertussis	11	23	15	3	16	6	28	3	22	8	11	5	-	3	-	4	3	-	162	162
Rubella*	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Tetanus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enteric																				
Botulism	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cholera*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cryptosporidiosis*	-	1	4	1	2	-	-	-	1	2	2	3	-	-	-	1	1	-	18	18
Giardiasis*	5	7	8	1	3	3	7	4	15	2	-	3	2	4	-	-	-	-	64	64
Haemolytic uraemic syndrome	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Hepatitis A*	2	1	1	-	-	-	-	-	4	-	-	-	-	-	-	-	1	-	9	9
Hepatitis E*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Listeriosis*	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Salmonellosis (not otherwise specified)*	22	25	24	7	35	11	16	8	40	36	6	9	2	8	1	10	6	-	266	266
Shigellosis*	1	-	1	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	5	5
Typhoid and paratyphoid*	-	1	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4
Verotoxin producing *E. coli**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

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

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References should be set out in the Vancouver style.
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Full instructions for authors are available on request from the managing editor.

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