

TACKLING INEQUALITIES: RESEARCH, POLICY, PRACTICE AND ADVOCACY

GUEST EDITORIAL

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The May 2001 issue of the Bulletin highlighted some significant inequalities in health and its determinants. In this issue we consider the roles of research, policy, practice and advocacy in tackling inequalities, and focus on some current Australian initiatives.

Health professionals and the health sector have a strong, though not universal or consistent, history of commitment to assisting disadvantaged people and reducing health inequalities. Many health care workers have striven in their personal and professional lives to help disadvantaged individuals and to direct the attention of health care services and society generally to the problems associated with, for instance, poverty, discrimination and geographical isolation. Systems and services have been created to promote equity of access to health services: for instance, Medicare, the NSW Health Resource Distribution Formula, and health care interpreter services. In addition, over recent years the health sector has developed a strong evidence base regarding the existence, origins and description of health inequalities.

Based on this evidence, and concerns for social justice, there has been growing pressure in recent years for the health sector as a whole to act to reduce health inequalities. Counterbalancing the strong desire to act, however, has been an awareness that:

- the evidence concerning the effectiveness of specific interventions to reduce inequalities is nowhere near as strong as the descriptive evidence;
- there is a paucity of models to guide the overall strategy;
- the causes of health inequalities largely rest in the broader social and, often global, economic environments;
- the problem is so immense that it can seem overwhelming;

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- powerful vested interests that have no desire to reduce inequalities covertly and overtly oppose the pressure for change;
- the health sector workforce is not well versed in the political and bureaucratic skills necessary to negotiate the changes required.

So, where are the opportunities to act and what can public health workers do? The articles in this issue provide some answers to these questions. Looking at the big picture, but with an eye on public health, Stilwell provides a lucid summary of some of the forces that create globalisation, its positive and negative consequences, and its inherent contradictions. While accepting that globalisation is inevitable, Stilwell emphasises that its form and consequences are not, and that there are opportunities to create a 'truly progressive globalisation' in which health inequalities are redressed. Wise makes a similar point as a prelude to identifying some very real opportunities for public health workers to influence the policies and practices of organisations and governments to reduce inequalities. Wise encourages us to act to influence the causes of inequalities rather than simply respond to its problems.

Dixon and Sibthorpe describe the Health Inequalities Research Collaboration that has been funded by the Commonwealth Government. The Collaboration is attempting to coordinate the efforts and output of researchers throughout Australia with an interest in health inequalities. The aims are to ensure that health inequalities research becomes a priority for organisations funding research, and that the outputs of the research are oriented to action to reduce inequalities. The current initiative by the NSW Department of Health to develop a Health and Equity Statement is described by Hyde. The Statement, due for release later this year, will complement and provide strategies for the achievement of the priority in *Healthy People 2005* to reduce inequalities in health in NSW.¹ Significantly, the clear intent is to develop strategies that will be incorporated into the routine activities of the health system.

Finally, Awofeso, Levy and Morris describe a tobacco control program in NSW Correctional Centres. Prison inmates experience multiple disadvantage (before and during incarceration) and there can be few more challenging settings than prison in which to control tobacco usage and exposure to tobacco smoke. Nonetheless, this paper provides encouragement for tackling tough problems.

For our own part we would emphasise the importance of the following measures to reduce health inequalities:

for governments generally to:

- stop making inequalities worse—recent examples of policies that have had a harmful effect on poorer people and/or favoured affluent people include the abolition of the Commonwealth Dental Health Program in 1996, the actual form of the Goods and Services Tax that was introduced in 2000, and the incentives offered to encourage people to take out private health insurance during 1999 and 2000;
- ensure that Health Impact Statements (which include consideration of the impact on health equity) are prepared on all proposed government policies and programs and major private sector developments—what, for instance, will be the impact of the expansion of gambling on health and health inequalities?
- reshape thinking on the goals of social and economic progress through, for instance, regular reporting of an index of human and social capital;

for health services to:

- identify the reduction of health inequalities as an explicit goal;
- allocate resources and target services to ensure that the inverse care law does not operate in either the access to or quality of illness care services;
- develop health promotion programs such that inequalities are not inadvertently increased because the more affluent groups in society benefit most;
- develop information systems that routinely monitor the magnitude of health inequalities and the progress of health authorities in reducing them;
- invest in research that systematically builds an evidence base regarding interventions;
- develop coalitions for action to reduce health inequalities with other government departments, non-government organisations, the private sector and the community;
- develop mutually reinforcing multilevel (local, state, national) programs to reduce inequalities;
- act as advocates for the disadvantaged and for change.

It is likely that, as in democratic societies elsewhere, Australian health inequalities will be reduced incrementally rather than by any dramatic political change or technological advance. The measures proposed in this issue form part of an incremental approach, and are capable of being implemented in the short term. We would ask health workers, and others, throughout Australia to turn their desire to act into personal and organisational action to reduce inequalities in health.

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GLOBALISATION: WHERE DO WE GO FROM HERE?

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Globalisation poses new challenges as well as new threats, especially to those who wish to make the world a more democratic, equitable, healthy and ecologically-sustainable place. This article describes the significance of globalisation, and its potential effect on social, economic and environmental policies, all of which influence public health.

GLOBALISATION: THREATS AND OPPORTUNITIES

'Globalisation' is often heralded as inevitable.¹ Policy makers are encouraged to accept the logic of closer international integration, and make the necessary adjustments to achieve globalisation. Indeed, globalisation does open up some significant opportunities. It can extend the opportunity to shop in the global bazaar for goods and services without leaving home, thereby removing traditional limits imposed on consumer choice. It can open up more opportunities for travel to international conferences—to network with like-minded professionals—and create the possibility of international tourism for more people (thereby, ironically, setting in motion processes of homogenisation that erode the distinctiveness of distant places). For business enterprises, globalisation offers opportunities for flexible production, cost reduction and tax minimisation. Concurrently, there are opportunities for environmentalists, human rights and indigenous rights activists to build more linkages, which help foster a global consciousness of their concerns.

However, there is a darker side. For example, there is evidence that the globalisation of capital is associated with the exploitation of labour, which can result in poorer health outcomes and increased mortality. Corporate tax minimisation transfers the burden of financing government infrastructure onto other forms of taxation, which can undermine the fiscal capacity of a nation-state to provide adequate public health and other social services for its population. As economic inequalities grow between those who benefit from the globalisation of capital and those who do not, more social and economic resources are required to cope with an increasingly unequal society. Because there is evidence that poor health outcomes and mortality are related to social and economic inequality,² globalisation has enormous implications for public health.

The mobility of financial capital makes it increasingly difficult for nation-states to pursue policies of social and economic management, including the financing of public health services. Because they are forced to pay continual

attention to the likely responses of global markets and global institutions, such as the credit-rating agencies, it seems that governments must choose between a high credit rating or an elaborate welfare state: because they cannot deliver both.³

A NEW ERA OF GLOBALISATION?

In the 1990s, international trade grew at the rate of around seven per cent per annum.⁴ Internationally, direct investment by global corporations increased threefold between 1987 and 1996.⁴ Production of goods and services by these global corporations grew three times faster than the combined world exports and imports of all nation-states.⁴ About one-third of all world trade now involves transfers between branches of global corporations in different countries.⁴ Even more striking is the growth of global finance. Between 1980 and 1996 the volume of funds raised in international capital markets more than quadrupled.⁴ Clearly, the nature of investment is rapidly becoming more and more global in character.

Whether these economic trends represent a qualitative change in the economic system is contentious. Some of the features of contemporary globalisation are not novel. For more than two centuries capitalist economic relationships have been spreading globally, involving processes of increasing national dependence and international interdependence. Throughout human history there have been many mini-globalisations: 'archaeologists of the ancient world are often surprised by the far flung origins of artifacts located at individual sites of excavation'.⁵

Although the novelty and intensity of globalisation is contested, it is clear that the last quarter century has seen an accelerated rate of global change. This has been a response to the increasing economic difficulties that emerged in the industrialised countries in the 1970s, which brought the long post-war boom to an end. Since then there has been a dramatic and interconnected set of structural economic changes undertaken by businesses and governments. Waves of mergers and takeovers have been generated as investors have sought greater returns on capital; and geographical restructuring has been driven by firms in the pursuit of cheaper labour, raw materials and lower taxes. In order to raise profitability, the application of new technologies and working arrangements have been motivated by the quest for higher productivity and lowered wages.

Governments have deregulated and privatised in order to expand the opportunities for private capital accumulation, and the role of the nation-state is being redefined in market-augmenting terms. Deregulation of capital and labour markets, the privatisation of public enterprises,

the removal of restrictions on international trade and capital flows, and the curtailment of social welfare entitlements, are policies pursued with varying degrees of vigour in different countries. Governments of all political colourings have been drawn into the push for 'reform', a term whose meaning has been dramatically transformed. The more unconstrained operation of markets now seems to be the principal goal, based on the expectation that this will reinvigorate the dynamism of the economy and open up more profitable investment opportunities.

THE DRIVERS OF GLOBALISATION

Globalisation results from the interaction of three phenomena: technological change, consumerism and economic policies.

Technological change

Technological change fosters stronger international linkages and extends the potential for 'global reach' in economic affairs. The capacity for global dissemination of information has been dramatically extended. Modern computer, communication and transport technologies generate enormous potential for what has been called 'time-space compression'.⁶ An increasing array of industries now lack locational ties to particular sources of raw materials, or even proximity to markets, and the international integration of the processes of production and distribution have led to the development of 'world industries'.⁷ These changes are particularly important to understanding the Australian context of globalisation because 'the tyranny of distance'—between state capitals as well as internationally—has traditionally been the source of our political parochialism.

Consumerism

Consumerism means that the fruits of global production are readily saleable. It is fostered by the marketing activities of corporations worldwide, competing for market shares, which reinforce the consumerist ethos: 'I consume therefore I am'. Alongside the technological and economic aspects of globalisation there are significant cultural elements too, leading towards the homogenisation of social values through modern mass consumption and advertising. Paralleling the ascendancy of the global corporation is the growth of a powerful cultural ideology of consumerism,⁸ which has major public health consequences—particularly as diets are transformed to focus more on the products of global corporations: everything from baby food to hamburgers to genetically-engineered foods.

Economic policies

Other pressures towards globalisation are internal and result from government policy decisions. Successive Australian governments in the last quarter century, regardless of their differences on other aspects of economic

policy, have agreed on the need to dismantle the policies of financial regulation and trade protectionism that had previously been a distinctive characteristic of Australian economic policy. This change in policy has been fuelled by the acceptance of particular economic ideologies that stress the beneficial effects of competitive markets and free trade.⁹

CONTRADICTIONS OF GLOBALISATION: THE RACE TO THE BOTTOM

The process of globalisation is not without limits or contradictions, three of which are outlined here.

Global production and global consumption

Global investment is attracted to particular localities by low-wage labour, which can contribute to a 'race to the bottom' in living standards. If living standards are reduced the question arises as to where additional demand for global products will come from. For any one export-oriented nation this is not a problem, since the sale of its products does not depend on the income of its workforce. However, if all nations are simultaneously engaged in labour cost-reduction, there is a global tendency towards a crisis of economic over-production and increased unemployment.

The pervasive fiscal crisis of the state

International competition can also contribute to a 'race to the bottom' in levels of corporate taxation, as governments seek to provide the conditions to attract mobile capital. This undermines the capacity of government to finance substantial public expenditures, which in turn limits the employment-generating capacity of public sectors. The policy of 'smaller government' contributes to this outcome, and undermines any political commitment to the pursuit of full employment. Permanent pools of unemployment lead to the development of a social underclass, with attendant problems of health inequalities, which in turn threatens the social order and the perceived legitimacy of its underlying economic system.

Economic growth versus ecological constraint

Globalisation driven by capital accumulation is anti-ecological. This is because of a third type of 'race to the bottom', as firms relocate to countries most keen to attract capital investment at the expense of environmental standards. There are major health implications of such environmental degradation. Some embryonic forms of global regulation—for instance, those arising from the various 'summits' at Toronto, Montreal, Rio de Janeiro and Kyoto—are aimed at limiting the environmentally-degrading activities. However, as long as their implementation depends on voluntary compliance by nation states, it seems that competitive pressures will continue to dominate the cooperative elements necessary to achieve ecologically sustainable outcomes.

RESPONDING TO GLOBALISATION

Wherever contradictions and tensions exist there are opportunities for alternative political responses. An interpretation of globalisation as inexorable generates a quite different response from one that sees it as contingent and malleable (and therefore contestable). Seeing globalisation as a contestable process focuses attention on political processes and choices. The globalisation of capital has quite different political and economic implications from the globalisation of labour, human rights or environmental consciousness. Indeed, the latter aspects show how some aspects of globalisation may have positive potential.

Concurrently, it is important to recognise that not all countries are equally affected. Semi-peripheral nations like Australia and Canada, which are economically developed but also dependent economies, may have a special position or a greater scope to shape their 'terms of engagement' with the global economy: to pursue strategic trade and industry policies, or environmental policies, and so forth. It is important to explore how different nations, and social groups within them—operating individually or in concert—can re-shape the elements within the globalisation process to make it more compatible with their interests.

Political responses to globalisation can also move beyond a narrow economic perspective to embrace culture and the environment. The recognition of the key role of land is an important bridge here. Land use is a down-to-earth dimension of the social and economic changes created by the globalisation of capital. Ownership of land is a major means by which part of the economic surplus is captured, contributing to growing social and economic inequalities. There is an obvious link here with the concerns of indigenous people, for whom the question of land is central. More generally, the 'common heritage capital' of all Australians, which includes our environmental assets and social infrastructure, is an important focus. In this way the relevant question becomes: 'what can be done to make the globalisation of capital more compatible with environmental and cultural concerns?'

While it has become conventional to categorise political responses to globalisation as a dichotomy of defensive nationalism versus progressive internationalism, beyond this dichotomy there are other interesting possibilities. Localised responses, which focus on the urban or regional level, have the potential to build alternative community structures and spawn grass-roots movements that challenge the hegemony of global capital. It makes little sense for defensive nationalists and progressive internationalists

to denounce each other; it is more important to articulate strategic choices that need to be made, encourage the sharing of information, and forge cooperative relationships.

CONCLUSION

Significant changes have been taking place in the world economy that have major social, environmental and public health implications. The globalisation of capital is a central feature underpinning these changes. The momentum of globalisation is linked to accelerated technological change and consumerism; and to the policies of national governments and global corporations. In its negative aspects, globalisation generates strong pressure on nation-states to remove regulations concerned with environmental protection and the development of local industry. Globalisation creates downward pressures on wage rates and tax levels, increases socioeconomic inequalities, and can contribute to poor health outcomes and increased mortality. The pursuit of a 'level playing field' for global corporations accentuates other imbalances: between capital and labour, between economy and environment, and between the private power of corporations and the democratic institutions within nation-states. These contradictions make the process of globalisation intensely political.

Not surprisingly, therefore, responses occur at various levels—global, national and local—and this opens up the possibility of a truly progressive globalisation: of human rights, of environmental consciousness, and of a global redress of the causes of health inequalities.

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TAKING RESPONSIBILITY TO ADDRESS INEQUALITIES IN HEALTH

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For many people, access to the prerequisites for health outlined in the preamble to the Ottawa Charter: peace, shelter, education, food, income, a stable ecosystem, sustainable resources, social justice and equity, continues to be a distant dream.¹ Despite 'major efforts by governments and international financial institutions in the latter half of the twentieth century to reduce poverty, primarily by promoting economic growth, we have more poor people today than when we started'.² Many of the population health gains that have been achieved over the past 150 years are in danger of being reversed. This article describes ways in which public health practitioners can take a greater personal responsibility for reducing inequalities in health.

CHALLENGING THE 'INEVITABILITY' OF GLOBALISATION

Current economic theories that drive globalisation regard unemployment, insecurity, a declining sense of wellbeing, and the erosion of 'social capital', not as evils to be fought against but at best as side effects to be treated by social policy, or at worst as levers to discourage resistance by wage earners.³ Current economic and social policies have redistributed national incomes in favour of profits to individual shareholders; strengthened the grip of private investors on the economy; and limited policy choices to those that have been approved by the financial markets. Economic policy choices are based on a value system that undermines the notion that public expenditure is an *investment* in education, health care, public health, welfare, employment creation, or even infrastructure such as roads. Instead, the underlying value system regards public services simply as *expense*.²

On the other hand, there are examples of globalisation working positively, through the combination of communication technologies and greater numbers of literate men and women, and through the consequent democratisation of knowledge. Hartigan pointed out that 'this explosive spread of information and knowledge drove the winds of democratisation throughout most of Latin America in the 1980s to overthrow autocratic governments. It contributed to the fall of communism in the 1990s and supports now both a rising awareness of what our pattern of production and consumption is doing to the environment and a heightened sensitivity to the inequalities that continue to limit the choices and opportunities available to men and women in different parts of the world'.³

Like Stilwell in the preceding article, Kelsey challenges the notion that the directions being taken by economic

globalisation are inevitable and irreversible, pointing out that they result from decisions made by individuals and organisations.⁴ It is possible to make alternative decisions to achieve different goals based on different values.

If we are to succeed in reducing inequalities in health, it is vital to harness the positive aspects of globalisation. There is a growing body of knowledge about actions that could and should be taken by governments and organisations to bring about reductions in social and economic inequalities; and therefore a reduction in health inequalities. Recent examples can be found in Australia, the United Kingdom, North America, and other countries.^{5, 6, 7, 8}

CONTRIBUTING TO THE SOLUTION: WORKING GLOBALLY

Multiple organisations and individuals are working to change the goals and directions of globalisation: economic, social and environmental. For example, the World Bank has been influenced to establish a major initiative in poverty reduction, and the decisions made by the World Trade Organization are now under intense scrutiny. A recent meeting of non-government organisations in Genoa canvassed specific methods by which less powerful people, organisations, and governments can participate equally with the more powerful in decision-making about world trade.⁹

CONTRIBUTING TO THE SOLUTION: WORKING NATIONALLY

Labonte points to the importance of working through our own government by suggesting that, while we may need to establish global governance for the common good, 'we may need even more to reduce the need for such governance by ensuring our national-level efforts are maintained, if not increased. The health (and social and environmental) inequalities arising from globalisation are not caused by globalisation per se. They are phenomena of national-level forms of economic and political organisation. Globalisation, through structural adjustment programs and the World Trade Organization, merely extends this organisation globally, reducing the ability of civil society groups to maintain healthy compromises between state and market control, or to challenge unhealthy forms of economic and political practices, within their own borders'.⁹ The nation-state still matters.

CONTRIBUTING TO THE SOLUTION: WORKING INDIVIDUALLY

When considering 'what can I do as an individual?' the first step is to be clear about the extent to which it is *our* governments, *our* institutions and organisations, and *our* decisions that create the conditions that determine the health of populations. It follows that the

action that can be taken and should be taken to address the determinants of health is within *our* capacity to take—individually as well as collectively. This does not mean it is easy.

It is easy, however, to feel that individual efforts amount to little given the scale of the problem. It is also true that some of the reluctance to act is because of a perceived need for more evidence before acting. There is now overwhelming evidence describing social, economic and health inequalities, and about many of their determinants. There is also some evidence of ways to address these—although much more evidence is needed. The challenge confronting individuals is to do what we can with the knowledge we have. The alternative to doing is waiting: for others to act, for more information, for an invitation to participate.

The ideas outlined below represent an attempt to bridge the gap between what should in general be done and what individuals can do.

Establish the reduction of health inequality as a national goal

Reducing preventable inequalities in health across and between populations should be a principal goal of governments, of the health sector and other sectors, and of individual public health practitioners. Much current policy assumes that through economic growth all people will become not only wealthier but also healthier. However, in Australia, as elsewhere, there appears to be limited concern about the growing inequalities in the distribution of wealth and health in the population.

A first step to reducing health inequality is the establishment of a national goal making equality of access to economic, social and environmental resources an outcome for which government is responsible to the public. This goal sets a policy framework for action, and accountability for progress; and highlights priorities for the investment of resources.

Becoming informed as a health practitioner: what and how

Every health practitioner should learn about:

- the determinants of health;
- the theories, policies and practices that are leading to increasing inequalities in health;
- alternatives that could guide the policy decisions of governments and organisations;
- how to influence decision-making, through learning about the governance and structures of organisations, and about processes used to set agendas and make decisions;¹²
- how other individuals engage in the process of bringing about change. There are significant and influential constituencies in all nations that recognise

the need for global cooperation, leadership from international organisations, venues for debate and advocacy, and the exchange and monitoring of information;

- the many perspectives on what constitutes ‘progress’ for different countries, different communities, and different individuals;^{10,11}
- the World Wide Web and its potential to bring about social and economic change.

Taking action

Because public policy is the outcome of decisions made by individuals, the challenge for public health practitioners is to become a more active part of this process as individual members of different groups.

Many of us work in or manage academic institutions and service-delivery organisations that have the power to set goals and to act to reduce inequalities in health. Many of us are members of professional associations such as the Public Health Association of Australia, the Australian Health Promotion Association, the Australian Medical Association, and the Australian Nurses’ Federation; or we belong to community organisations such as Parents and Citizens’, a sporting club, or a church. All of these associations and organisations represent constituencies that can influence the decisions of governments in relation to public health policy and practice. They also offer opportunities to collaborate with other individuals and groups who are concerned to reduce inequalities—within Australia and globally.¹³

If we do not act, who will?

Individuals should take every opportunity to act to reduce inequalities. It is not necessary to work on a large scale; but it is important to act within many individual spheres of influence. We can belong to different constituencies, and we can make every effort to influence the decisions of policy-makers. The challenge is to ensure constant vigilance, and to ensure that our actions are contributing to the solution rather than to the problem.

None of the ideas presented below are new. They recall the earlier days of the women’s movement in the 1970s when women acted to overcome exclusion from full participation in public life. They also reflect the methods used by gay men to bring about action to address the threat of HIV–AIDS; and by environmentalists to draw attention to the effects of unrestrained markets on the environment.

Because the voices for equality and social justice have been fragmented, it is necessary to mobilise advocacy in new ways as well as old. Global communication technologies, including the World Wide Web, make activism possible on a wide scale. The protests at meetings of the World Trade Organization have been reminders of the power of community mobilisation.

International efforts by groups of individuals have succeeded in forcing pharmaceutical companies to waive their patents to allow developing nations a greater access to cheaper drugs to combat the HIV–AIDS epidemic.

In relation to health inequalities, the role of the public health practitioner seems to have been confined to that of describing the problem and its determinants, although policy solutions are being proposed.¹⁴ To ensure that these policies are implemented, however, means becoming and staying informed about policy-making and implementation processes. It means using this information ourselves and with our communities. Public health practitioners can do this by:

Becoming more ambitious within our own organisations

As individuals we must ensure that we are key players in setting agendas, and in developing and implementing health policy. We need to move in from the margins and become central players within the health system. More than eight per cent of Australia's gross domestic product is invested in the health sector,¹⁵ and the health sector employs approximately eight per cent of the Australian workforce. This is an enormous sector with great influence, and capacity to reduce health inequalities lies, in part, within the health sector itself.

For example, as a health service manager:

- Does your health service state explicitly that its goal is to contribute to reducing inequalities in health?
- Do you actively seek to build relationships with members of disadvantaged groups to assist in making decisions about priority services?
- Does your service actively seek to employ members of disadvantaged or disenfranchised groups across all levels of the organisation?
- To what extent do you provide support and career development opportunities for such groups?
- To what extent do you report on progress in reducing inequalities directly to the community?
- To what extent do you support and encourage debate on these issues among staff?

Working closely with communities—particularly with those who are most marginalised

We need to build constituencies for change, capacities to act, and systems for active participation.¹³ This is much more likely to occur through membership of and participation in community organisations or activities than through our professional roles. Communicating with fellow parents, with other members of the branches of our political parties, with members of the golf club, with members of our churches, or with the local health action group, is likely to be as powerful as formal, official communication.

For example, as a member of a Parents and Citizens' committee or sports club:

- Do you 'know' the members of your Committee?
- What active measures are taken to encourage and support membership by disadvantaged groups?
- What active measures are being taken by your school to encourage and support children whose families are poor and not well educated to complete their education?

Moving into other sectors

Influencing the policies, programs and services provided by sectors other than health is clearly one of the keys to reducing inequalities in health. Working in partnership with other sectors is obviously important. But working from within sectors such as education, agriculture, trade and treasury is equally vital. Further, seeking to influence the curricula for undergraduate and continuing education for all professionals is a powerful role for academics, as is conducting relevant intervention research.

Actively participating in professional organisations

If you are a member of a professional association:

- Do you know the backgrounds of the members of your Board or Executive?
- Do you know the interests of your fellow members?
- What are the goals of your organisation, and to what extent do they contribute to reducing inequalities in health?
- Does the organisation have a working group focusing on action to enhance the organisation's contribution to reducing inequalities in health?
- What opportunities are there for members to be informed about the issues and to debate solutions? Are there regular opportunities for communication and action planning with members of disadvantaged groups? Are decision-makers from sectors other than health regularly invited to speak at conferences and workshops?
- To what extent does your organisation advocate directly, and with partner organisations, to influence the decisions of managers, politicians, and international agencies?

CONCLUSION

It will be impossible to reduce inequalities in health if individuals do not act to influence the goals and directions of globalisation. The role of public health practitioners and their professional networks will then be reduced to that of describing and alleviating the effects of inequality on the health of populations, and we will find ourselves continuing to respond to the problem rather than influencing its causes. Building evidence and developing professional solutions are important; but so are personal and political activism.

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HOW CAN A GOVERNMENT RESEARCH AND DEVELOPMENT INITIATIVE CONTRIBUTE TO REDUCING HEALTH INEQUALITIES?

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The Health Inequalities Research Collaboration (HIRC) is a research initiative to address health inequalities, established in July 1999 by the Commonwealth Minister for Health and Aged Care. Its ability to offer policy options to the government, like similar initiatives in other countries, is circumscribed by numerous factors. They include lack of consensus about the causes of health status differentials, inadequate evidence on how to intervene to reduce health inequalities, and an infrastructure that is underdeveloped in terms of intersectoral action. This article reflects on the work done during the first eighteen months of the Collaboration; on the dynamics that need to be accounted for in any research and development (R&D) response to persistent and growing health inequalities; and on some opportunities offered by the Collaboration in meeting these challenges.

* *The views expressed in this article are those of the authors alone and do not represent the views of the Health Inequalities Research Collaboration Board.*

BACKGROUND

In spite of increasing government expenditures on health systems, health differentials are increasing in many countries. In Australia, health inequalities grew in the 1990s in relation to particular diseases such as type 2 diabetes and circulatory system diseases.¹ Much of the explanation of increasing social gradients in health is focusing on factors in the social environment. Indeed the uneven distribution of behavioural risk factors is argued to result from the uneven—some would say unfair—distribution of economic and social resources; and opportunities such as income, employment, social capital, social support and control in the workplace. In some circles, smoking, drinking too much alcohol and being overweight are explained as individual responses to the absence of resources such as these.^{2–3}

Still, there is much speculation and relatively little evidence about how factors in the social environment, often referred to as social determinants, have an effect on health status. As a result, the Commonwealth Government

is sponsoring an R&D effort to advise it about how to intervene to reduce health inequalities.

THE HEALTH INEQUALITIES RESEARCH COLLABORATION

A renewed interest in the social gradient of health is the context in which the Minister established the Health Inequalities Research Collaboration. The Ministerial Board, responsible for HIRC since March 2000, has determined that:

The goal of the Collaboration is to enhance Australia's knowledge on the causes of and effective responses to health inequalities, and to vigorously promote application of the evidence to reduce health inequalities in Australia.

Furthermore, the Collaboration will aim to:

- facilitate a research program to improve our understanding of the interactions of factors contributing to differences in health status;
- facilitate close collaboration and partnerships between researchers, practitioners and decision-makers;
- encourage synthesis, development and implementation of a range of policies, strategies and interventions to reduce health inequalities;
- inform policy makers and practitioners at all levels of the results of research and its relevance to policy and practice;
- evaluate the effect of policies, strategies and interventions to reduce health inequalities;
- build national capacity for increased research in health inequalities through support of research networks, research methods development, enhancement of data sets, skills development and fellowships;
- monitor trends in health inequalities.

Over the coming years, the HIRC Board will encourage research into the factors operating in three systems considered to be important to health status: families, communities, and primary health care. Each system will become the focus of a network of researchers, practitioners and policy makers. Rural and indigenous health considerations will permeate the Board's deliberations.

CHALLENGES

HIRC is expected to advise the Minister about actions that can be taken to reduce health inequalities. Providing such advice is not simple for a number of reasons, which are equally pertinent to any health inequalities R&D effort:

- While there is general agreement that for most diseases and injuries socioeconomic status (SES) is a risk factor,⁴ systematically intervening to flatten social hierarchies is not generally accepted to be the role of government.
- Consensus among researchers on the relationship between SES and health is not matched with consensus

on the importance of different causal pathways between SES and disease states and thus where to intervene. The journals are currently full of debate about the relative merits of intervening on material, behavioural or psychosocial pathways.⁵⁻⁶

- Most interventions that do occur appear to be on the behavioural pathway and to be generated by the health portfolio.⁷ Neglect of the material pathway is perhaps understandable, when one considers that the portfolios most closely associated with it are taxation, housing, employment and education and the practice of explicit health-related action in these sectors is underdeveloped.
- The commitment to randomised control trials as the principal means for gathering evidence of where to intervene effectively encourages policy inertia because of the enormous difficulties in conducting such studies in the social arena.⁸
- In the meantime, experimentally designed community based interventions and quasi-experimentally based health promotion programs are failing to achieve sustained and equitable outcomes. Community based interventions to reduce cardiovascular disease have produced such mixed results that some are questioning their efficacy as a disease prevention approach more generally.⁸ Health promotion programs have been criticised for being relatively less successful with low SES groups, thereby exacerbating health inequalities.⁷ As a result, we run the risk of practitioner paralysis while we fine-tune intervention designs.
- Finally, the mixed assessments of the health system's role in diminishing health inequalities offer little direction. Recently, Leon et al. concluded their international study with 'per capita expenditure on health does not determine life expectancy'.⁹ While average expenditure may not contribute to health outcomes some argue that the quality of services does contribute to differential health outcomes. There is renewed interest in the values and distributive issues that play a part in the functioning of health systems.¹⁰ Addressing the linkages between equity and health system performance, the World Health Report argued that it is 'not sufficient to protect or improve the average health of the population if—at the same time—inequality worsens or remains high because the gain accrues disproportionately to those already enjoying better health'.¹¹ The moral dimension adds complexity to an already complex scientific arena.

OPPORTUNITIES

Where does a body like HIRC sit in all of this? HIRC does not have a sufficient budget to fund research but it can advocate to grants bodies, like the NHMRC, that strategic research on the social determinants of health be supported. Similarly, it can build capacity in the research community by providing opportunities for research methods

development and for peer support of research. In addition, HIRC will be supporting collaborative and networking efforts between researchers, public health practitioners and policy makers and half of its budget will be spent on the three research networks described earlier.¹²

Like other public health bodies, HIRC remains some years from being able to provide policy options to reduce health inequalities based on widely accepted standards of evidence. So what can bodies like HIRC and health departments do now to reduce the gap between what we already know and what could feasibly work? We would argue that the steps are straightforward, while not being necessarily easy to adopt as a package because of the many players who would need to cooperate:¹³

- adopt a long term outlook on addressing inequalities;
- set targets to reduce health inequalities among particular population groups and for particular diseases, and establish sustainable mechanisms to monitor performance against these targets into the future;
- synthesise existing evidence from a range of sources, including the less accessible literature reporting practitioner and policy maker experience, about the intervention mix that has the best chance of altering disease trajectories, and implement programs based on this synthesis;
- tailor interventions for Australian conditions, acknowledging the cultural and political context in which interventions must find acceptance;
- establish machinery to oversight the implementation and coordination of the interventions;
- monitor changes in population health using specially designed social determinants' indicators, acknowledging the secular trends that are occurring.

Much of this relatively simple formula is being adopted in the United Kingdom. At the end of February 2001, the Minister for Health announced two areas in which he expected to see health inequalities reduced by 2010: infant mortality (a 10 per cent reduction in deaths in the first year of life between manual groups and the population as whole) and expectation of life (a 10 per cent reduction in the gap between the quintile of areas with the lowest life expectancy at birth and the population as a whole).¹⁴

The pursuit of a couple of realistic targets through specifically designed interventions, which are backed up by national and local health monitoring, should provide

a significant advance on the evidence base about interventions to reduce health inequalities in the UK. A similar effort in Australia could provide a circuit breaker to the policy inertia and practitioner paralysis that is in danger of dominating Australia's efforts to reduce health inequalities.

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TACKLING HEALTH INEQUALITIES IN THE NSW HEALTH SYSTEM: THE NSW HEALTH AND EQUITY STATEMENT

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The issue of equity and health has been a central concern of the NSW Department of Health for many years. A major focus has been on ensuring the equitable distribution of health resources and health services through the Resource Distribution Formula (RDF). This has resulted in a significant redistribution of health services and health service funding based on population need rather than where health services, especially hospitals, had historically developed.¹ However it has always been recognised that the RDF alone could not adequately address the significant health inequalities in NSW that have been extensively described in *The Health of the People of NSW—Report of the Chief Health Officer 2000*.² A more comprehensive approach was required to address and reduce health inequalities.

DEVELOPING THE NSW HEALTH AND EQUITY STATEMENT

The first step in the development of a specific health and equity policy initiative was made in 1999, when the NSW Department of Health Policy Development Committee considered a scoping paper that outlined the rationale, opportunities and processes for developing a *Health and Equity Statement*. The development of the statement was written into the Department's performance agreement later that year. These developments occurred in the broader context of several workshops with key international researchers in the field of health inequality sponsored by the NSW Department of Health and increased interest nationally and internationally in addressing health inequality.^{3,4,5} The NSW Department of Health Policy Branch was also actively involved in the development of the Royal Australasian College of Physicians policy booklet *For Richer, for poorer, in sickness and in health*.⁶ The specification of 'reducing health inequalities' as one of three health improvement initiatives in *Healthy People 2005* added extra impetus to the development of the statement.⁷

In 2000 the NSW Department of Health established a Health and Equity Project with the University of Western Sydney and the Centre for Health Equity Training, Research and Evaluation (CHETRE). As the Director of Health Services Policy in the NSW Department of Health, I was seconded to the University of Western Sydney to work with Professor John McCallum, Dean of Health at the University, and Elizabeth Harris, Director, CHETRE, to develop a *NSW Health and Equity Statement*.

A project management group, chaired by the Director-General of NSW Department of Health, was established;

the Chief Health Officer and Deputy Director General, Policy are also members. Two reference groups, one comprising external stakeholders and the other made up of internal Department of Health stakeholders, were formed to provide advice to the project team.

To broaden input to the project and build support for the *Statement*, the Chief Executive Officers (CEO) of most Area Health Services in NSW have been interviewed, and a series of forums for Area Health Service and Department of Health staff have been held across NSW. These were interactive workshops that presented important information from the Australian and international literature, identified potential strategies and encouraged the input of 'equity champions' in the health system.

AIMS AND OUTCOMES

The *NSW Health and Equity Statement* will provide advice to the NSW Department of Health and Area Health Services on action they can take to redress health inequalities. The aims of the statement are to improve the health of all people in NSW and to reduce the gap between those people with the best and poorest health, especially indigenous peoples. The statement will promote the inclusion of an equity focus in the day-to-day core business of the health system, and provide strategies that build on existing initiatives and directions and can be adopted at all levels of the health system. While fine tuning of strategies and monitoring of progress will be essential, it is not intended that specific equity-improvement projects will be established.

Five equity-promoting strategy areas were established early in the life of the project and a technical working group was formed for each one:

- *Strong Beginnings*: focusing on the early childhood years where there is strong evidence that the ante-natal period and the first eight years of life are crucial in securing long term good health outcomes;
- *Increased Participation*: building on existing work of the NSW Health Council to realise the potential of patient involvement and community management in health services to improve health outcomes;
- *A Focus on Place*: looking at ways in which services can best be delivered to meet the needs of a specific community taking into account changes in the physical, social and economic environments in which people live to create better living environments;
- *Regional Planning and Intersectoral Action*: increasing the capacity of the health sector to work with others on specific projects or through new organisational and funding mechanisms;
- *Organisational Development*: increasing the capacity of the health system, including non-government organisations and communities, to reduce health

inequalities through improved systems and infrastructure.

Following early consultations another focus area was added: *the allocation of health resources*.

It is expected that the project will produce a number of resources:

- the *NSW Health and Equity Statement*, which will outline a set of practical steps to be taken over the next five years to tackle health inequality;
- a targeted literature review in each of the five original strategy areas;
- a report on the findings of the interviews with the CEOs and the workshops.

The project is expected to be completed and the statement released by the end of 2001.

SUMMARY

The *NSW Health and Equity Statement* is an early and significant step in the journey to improve health and reduce the gap between people with the poorest and best health in NSW.

The statement complements *Healthy People 2005* and has the support of the Director-General, the Departmental

Executive and the CEOs of urban and rural Area Health Services. Although the statement will focus on what the NSW health system can do to reduce inequalities during the next five years, over time it will be important to extend the work to the social determinants of health that operate outside the usual responsibilities of the health system.

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MANAGING A TOBACCO CONTROL PROGRAM IN NSW CORRECTIONAL CENTRES, 1999–2001

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Tobacco smoking remains the leading cause of premature death and the number one preventable public health problem in Australia and in most developed countries.¹ Unlike the trends in the general population, where a decreasing prevalence has been observed over the past 30 years,² smoking prevalence among inmates of Australian correctional centres remains consistently high, with over two-thirds of the inmate population being regular smokers.³ This article describes a tobacco control program implemented in NSW correctional facilities from May 1999 to April 2001. The future directions of the program are also discussed.

PROGRAM STRUCTURE AND ACTIVITIES

The Tobacco Control Program (TCP) is jointly planned and monitored by the Corrections Health Service (CHS) and the Department of Corrective Services (DCS). At each correctional facility, the program is implemented by alcohol and other drug workers from DCS, and clinic nurses from CHS. The aims of the TCP are to:

- reduce the uptake of smoking;
- reduce tobacco consumption;
- promote smoking cessation;
- protect non-smokers from environmental tobacco smoke;⁴
- provide viable accommodation options for non-smoking inmates.

The TCP promotes non-smoking as the social norm while ensuring that its tobacco control activities are anti-smoking without being anti-smoker. It is not a tobacco prohibition program.

Between May 1999 and April 2001, the following activities were undertaken as part of the TCP:

- raising awareness about tobacco and health;
- prevalence studies of tobacco use among inmates;
- an attitudinal survey of staff and inmates;
- a pilot program of smoking cessation and support.

RAISING AWARENESS ABOUT TOBACCO AND HEALTH

Historically, correctional facilities have been neglected in tobacco control initiatives, at both state and national

levels. For example, correctional centres were not mentioned in the NSW Tobacco and Health Strategy 1995–1999,⁵ or the National Tobacco Strategy 1999–2003.⁶ To raise awareness about tobacco and health in correctional centres, the issue of tobacco control was made a priority health issue in the CHS performance agreement with the NSW Department of Health. Also, tobacco control was made a regular theme at joint CHS–DCS public health planning meetings; and key figures in the area of Australian tobacco policy were approached to advise on guidelines for a tobacco control initiative. A publication highlighting the inadequacy of the attention given to tobacco control programs in correctional centres was published in an international peer-reviewed journal in 1999,⁷ and a presentation on tobacco control in NSW correctional centres was given at the 12th Annual Health Promotion Conference.⁸ Inmates designed two varieties of an anti-tobacco poster, which were distributed to all correctional facilities. Since 2001, nurses and alcohol and other drug workers have been counselling inmates on the health effects of tobacco.

PREVALENCE STUDIES ON TOBACCO USE AMONG INMATES

A prevalence study of tobacco use was undertaken in NSW correctional facilities in 2000. The study found that, on average, 72 per cent of inmates were regular smokers, which is more than three times the national average of 22 per cent for the same year. Smoking prevalence was higher in metropolitan prisons, among female inmates, and among inmates in psychiatric wards.⁹ The data have provided a valuable advocacy tool for tobacco control activities in NSW correctional facilities.

ATTITUDINAL SURVEY OF STAFF AND INMATES

In 2000, a self-administered attitudinal survey on current prison tobacco policies was conducted among inmates, DCS staff, and CHS staff. Analysis of survey responses indicated agreement on the following issues:

- inmates and/or staff of DCS and CHS should not be totally restricted from smoking within NSW correctional facilities;
- further restrictions on smoking in correctional facilities would result in increased tension between staff and inmates;
- further restrictions on smoking would be acceptable if help (counselling and pharmacotherapy) were offered to inmates and staff who want to quit smoking.

Although most inmates supported the lifting of all current restrictive tobacco policies,¹⁰ most CHS and DCS staff opposed such a policy change. The majority of inmates thought that restrictions on tobacco would violate their civil liberties, while the CHS and DCS staff were equivocal on this point. Current tobacco control programs in NSW correctional centres, such as smoking cessation support, were guided by the results of the survey.

PILOT SMOKING CESSATION AND SUPPORT PROGRAM

Two pilot programs on smoking cessation among inmates, incorporating free nicotine replacement therapy, were commenced in June 2000. Nine female inmates and 15 male inmates enrolled on the program. After six months, four of the male participants had ceased smoking completely, while all but 11 of the remaining 20 participants had substantially reduced the average quantity smoked. The evaluation of the program provided an indication of the context-specific issues that needed to be addressed when statewide implementation commenced.

DISCUSSION

Inmates of NSW correctional centres have the same attributes as other smokers in the community,³ and tend to:

- come from lower socioeconomic groups;
- have a lower education;
- possess a number of lifestyle factors such as drug and alcohol abuse, poor diets, and decreased physical activity.¹¹

Several factors make the implementation of tobacco control programs in NSW correctional centres particularly difficult:

- unfulfilled expectations of a ‘trickle-down effect’ of policies adapted from the general population;
- ‘prison culture’, which makes tobacco smoking accepted as the norm by both staff and inmates of correctional centres;
- the apparently ‘beneficial effects’ of nicotine in stimulating ‘reward centres’ of the brain, which is an important coping mechanism for inmates who are secluded in cells for between 12–17 hours daily;¹²
- reluctance by correctional and health authorities to allocate adequate resources for addressing the problem of tobacco use in correctional centres.

The prevalence of tobacco use in correctional centres in Australia and most developed countries remains high, in contrast to the remarkable success of reducing smoking prevalence in the general community.^{9,13} However, it is possible to build the capacity of tobacco control programs in correctional centres, in the hope of eventually reducing smoking prevalence within correctional centres to community levels. Future initiatives include: enhanced awareness campaigns, a repeat of prevalence studies and attitudinal surveys, the establishing of designated smoke-free wings and cells, and the expansion of smoking cessation and support programs to four other correctional facilities during 2001.

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IDENTIFYING WORK-RELATED INJURY AND DISEASE IN ROUTINELY COLLECTED NSW HOSPITALISATION DATA

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Occupational disease and injury has been estimated to account for nearly three per cent of the global burden of disease.¹ In NSW in the 1998–99 financial year, there were 38,069 workers' compensation cases reported to the National Occupational Health and Safety Commission. However, this figure is an under-estimation of the true incidence of occupational disease and injury in NSW, because it includes only cases resulting in compensation under NSW workers' compensation legislation, it only includes cases involving absences from work of five days or more, and because self-employed people are not generally covered for workers' compensation.² This article describes an analysis of the NSW Inpatient Statistics Collection (ISC) to identify work-related hospitalisations, and comments on its potential for monitoring occupational disease and injury in NSW.

METHODS

The NSW ISC is a census of separations from NSW public and private hospitals, which is routinely collected by the NSW Department of Health. Clinical coders at each hospital or health service code medical record information for each hospital admission episode and enter the data into a database that is periodically uploaded to the central data repository held at the NSW Department of Health. Information collected includes patient demographics,

payment status, diagnoses and clinical procedures. External causes are recorded for hospitalisations following injury or poisoning and can be recorded for other conditions.

For the period used for this analysis (1999–00 financial year), diagnoses, external causes and procedures in the ISC were coded according to the International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification (ICD-10-AM), first edition.³ In the first edition of the ICD-10-AM, the fifth character of the ICD code for external cause classifies the activity being undertaken by the patient when the injury or illness occurred. An activity code of '2' indicates 'working for income'.³ A principal diagnosis and up to 20 additional diagnoses were coded, and up to three external causes could be coded.

A fourth character was also available for coding in the ICD-10-AM (1st edition) to code the place where the injury or illness occurred. We did not use this fourth character because it only identifies a subset of work-related places, such as industrial or construction areas. It does not permit identification of whether the person was engaged in a work-related activity at that place, and it is possibly less likely to be noted on the medical record than the activity the person was engaged in.

Hospital separations from the 1999–00 financial year ISC database were identified as occupationally related if they had any of:

- a first external cause coded combined with an activity when injured of 'working for income' (ICD-10-AM

codes starting with 'V', 'W', 'X' or 'Y' and a '2' as the activity code);

- a payment status indicating workers' compensation;
- an ICD-10-AM code of 'Z04.2' ('Examination and observation following work accident') in any of the principal or other diagnoses;
- an ICD-10-AM code of 'Z57' ('Occupational exposure to risk factors') in any of the principal or other diagnoses;
- an ICD-10-AM code of 'Y96' ('Work-related condition') in any of the three external cause codes.⁴

At the time of analysis, the ISC data for 1999–00 did not include data for NSW residents hospitalised in other states. Non-residents of NSW admitted to NSW hospitals were excluded.

RESULTS

There were 10,608 hospitalisations of NSW residents in 1999–00 that were identified as being work-related, with 85 per cent occurring in men. Six per cent of hospitalisations were in workers aged under 20 years, 36 per cent were aged 20–34 years, 35 per cent were aged 35–49 years, 20 per cent were aged 50–64 years, and three per cent were aged 65 years and over. Of hospitalisations with any indication of being work-related, the majority (96 per cent) were identified by examining the activity code associated with the first external cause code (Table 1).

The most common principal diagnoses among hospitalisations identified as being work-related were open wounds, fractures and muscular or tendon injuries of the wrist or hand (19 per cent), followed by back pain (5 per cent) (Table 2). The most common external causes of injury or other conditions were unknown in 10 per cent of hospitalisations, related to overexertion, strenuous or repetitive movements in another 10 per cent, and machinery-related (excluding mobile machinery) in nine per cent (Table 3). Among hospitalisations not assigned an injury principal diagnosis (ICD-10-AM codes beginning with 'S' or 'T'), the diagnoses were likely to be largely injury-related but falling under other diagnosis groups in the ICD-10-AM (Table 4).

Among hospitalisations with a cause of overexertion, strenuous or repetitive movements, the most common principal diagnoses were back pain (17 per cent), dislocation, sprain and strain of joints and ligaments of the knee (12 per cent), and inguinal hernia (11 per cent). Among those with a cause of other and unspecified machinery, the most common principal diagnoses were traumatic amputation of part or all of the hand or fingers (21 per cent), open wounds of the wrist, hand or fingers (19 per cent), and fractures of the wrist, hand or fingers (17 per cent).

DISCUSSION

This analysis demonstrates that hospitalisations as a result of work-related injury and disease can be identified using the NSW ISC. Injuries of the hand, back and knee are the most commonly identified work-related conditions requiring hospitalisation in NSW, and that overexertion, repetitive or strenuous movements and machinery are the most commonly identified factors leading to work-related hospitalisation. This information can supplement the information collected using more selective criteria in other data collections such as the Workers' Compensation collection.

Identification of work-related hospitalisations in the ISC depends on whether the patient reported relevant information, whether an occupational link was clinically identified, and the completeness of medical records. Based on this analysis, the sensitivity and specificity of the ISC for determining work-related diseases and injuries cannot be determined. Other limitations include the possibility of multiple counting of patients due to multiple admissions of the same patient during the period of study, and the inability to identify the occupations or industries involved. Coding accuracy is unlikely to be a serious concern. Victorian hospital coding validation studies have found low percentages of coding error, with only six per cent of principal diagnoses to be in error at the three-character level and 22 per cent at any level;⁵ and only 16 per cent of external cause codes containing an error.⁶

Traditionally, data on occupation-related disease have not been well covered in Australia,^{7–9} with the exception of

TABLE 1

WORK-RELATED HOSPITALISATIONS BY METHOD OF IDENTIFICATION, NSW, 1999–00

Method of identification	No.	% (N=10,608)
First external cause with an activity of working for income	10,214	96.3
Principal diagnosis is Z04.2: Examination/observation following work accident	2	0.0
Principal diagnosis is Z57: Occupational exposure to risk factors	3	0.0
Other diagnosis is Z04.2: Examination/observation following work accident	4	0.0
Other diagnosis is Z57: Occupational exposure to risk factors	202	1.9
Any external cause code is Y96: Work-related condition	126	1.2
Payment status is workers' compensation	156	1.5

Note: Percentages do not add to 100 per cent because a hospitalisation can exhibit more than one indication of being work-related. Totals were excluded for this reason.

TABLE 2**TEN MOST COMMON PRINCIPLE DIAGNOSES AMONG WORK-RELATED HOSPITALISATIONS, NSW, 1999–00**

Principal Diagnosis (ICD-10-AM code)	No.	% (N=10,608)
Open wound of wrist and hand (S61)	786	7.4
Fracture in wrist, hand or fingers (S62)	688	6.5
Injury of muscle and tendon in wrist, hand or fingers (S66)	562	5.3
Dorsalgia (back pain) (M54)	550	5.2
Dislocation, sprain or strain of joints and ligaments of knee (S83)	537	5.1
Traumatic amputation of fingers or hand (S68)	503	4.7
Fracture of forearm (S52)	423	4.0
Fracture of lower leg, including ankle (S82)	409	3.9
Internal derangement of knee (M23)	201	1.9
Fracture of foot, excluding ankle (S92)	199	1.9
Total	4,858	45.9

TABLE 3**TEN MOST COMMON EXTERNAL CAUSES OF INJURY, POISONING OR OTHER CONDITIONS AMONG WORK-RELATED HOSPITALISATIONS, NSW, 1999–00**

External cause (ICD-10-AM code)	No.	% (N=10,608)
Exposure to unspecified factor (X59)	1,066	10.2
Overexertion and strenuous or repetitive movements (X50)	1,023	9.8
Contact with other or unspecified machinery (W31)	950	9.1
Struck by thrown, projected or falling object (W20)	500	4.8
Caught, crushed, jammed or pinched in or between objects (W23)	494	4.7
Striking against or struck by object (not sports equipment, projected, or falling objects) (W22)	424	4.1
Fall on same level from slipping, tripping or stumbling (W01)	399	3.8
Contact with other powered hand tools and household machinery (not lawnmower) (W29)	386	3.7
Foreign body or object entering through skin (W45)	374	3.6
Contact with knife, sword or dagger (W26)	335	3.2
Total	5,951	57.0

TABLE 4**TEN MOST COMMON NON-INJURY PRINCIPAL DIAGNOSES AMONG WORK-RELATED HOSPITALISATIONS, NSW, 1999–00**

Principi diagnosis (ICD-10-AM code)	No.	% (N=2,436)
Dorsalgia (back pain) (M54)	550	22.6
Internal derangement of knee (M23)	201	8.3
Inguinal hernia (K40)	159	6.5
Care involving use of rehabilitation procedures (Z50)	123	5.0
Other joint disorders, not elsewhere classified (M25)	120	4.9
Shoulder lesions (M75)	99	4.1
Mononeuropathies of upper limb (G56)	89	3.7
Other intervertebral disc disorders (M51)	87	3.6
Cellulitis (L03)	78	3.2
Gonarthrosis (arthrosis of the knee) (M17)	61	2.5
Total	1,567	64.4

Note: 'Non-injury' was classified as ICD-10-AM diagnoses other than those starting with 'S' or 'T'

the National Occupational Health and Safety Commission Mesothelioma Register. Occupational health and safety (OHS) and workers' compensation agencies have been the main source of information, but underenumeration of work-related conditions by Australian workers' compensation data has been estimated at between 35 and 57 per cent.^{7,10-12} The NSW ISC may provide information that can complement other data sources as it has the advantage of including all workers hospitalised due to injury, regardless of their employment arrangements. Injury-related conditions overshadowed other conditions in our analysis; a more restrictive analysis may provide useful information about non-injury conditions.

Users of Australian ISC data should be aware that from July 2000, with the introduction of the second edition of the ICD-10-AM, the activity associated with an external cause was coded using a separate external cause code, 'Y93', whereas previously this was coded into the fifth character of the cause code as used in this study.¹³ Also, NSW ISC data may have more complete recording of workers' compensation cases from July 2000, following identification of problems with recording of payment status (NSW Department of Health, personal communication). The planned future introduction of unique patient identifiers in NSW will address the issue of multiple counting of patients.

In conclusion, the ISC offers an indication of the relative frequency and pattern of work-related injuries and diseases and their causes, thereby providing a guide to prevention of work-related injury and perhaps disease. Unexpected patterns of injury or disease may highlight areas where further research is required. Based on this analysis, prevention and research activities should include hand protection, and safe methods of strenuous or repetitive movement to prevent back and knee injuries and inguinal hernias as well as safe use of machinery.

ACKNOWLEDGMENTS

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MEN FULLY ALIVE AND BUILDING SPIRIT: BUILDING HEALTH

NATIONAL MEN'S AND BOY'S HEALTH CONFERENCE AND NATIONAL INDIGENOUS MALE HEALTH CONVENTION

Men Fully Alive, the 4th National Men's and Boy's Health Conference, will be held over the period 26-29 September 2001 at the Hawkesbury Campus of the University of Western Sydney. The Conference will support and celebrate programs and research that build on boys' and men's health and wellbeing.

Building Spirit: Building Health, the 2nd National Indigenous Male Health Convention, will be held in the same location just prior to the Conference. There will be a crossover of information between the mainstream Conference and the Convention. Indigenous men will appoint a delegation to inform the mainstream Conference about the highlights of the Convention.

For more information, or to register a place at the Conference or Convention, visit the Web site at; www.menshealth.uws.edu.au; or contact the Men's Health Information and Resource Centre by telephone at (02) 4570 1713, or by email at menshealth@uws.edu.au. Alternately, contact the Conference Secretariat by telephone at (02) 4570 1690, or by email at a.campbell@uws.edu.au.

MEASLES

WHAT IS MEASLES?

Measles is an acute viral disease that may have serious complications. In the past, measles infection was very common in childhood. Now, due to immunisation, measles infection is uncommon in NSW.

WHAT ARE THE SYMPTOMS OF MEASLES?

- The first symptoms of infection with measles are fever, tiredness, runny nose, cough and sore red eyes. These symptoms usually last for several days before a red blotchy rash appears. The rash starts on the face over 1–2 days and spreads down the body. Sometimes the rash peels. The rash will last for 4–7 days.
- Up to a third of people infected with measles will experience a complication. Complications are more common in young children and in adults. Complications include ear infections, diarrhoea and pneumonia, and may require hospitalisation. About one in every 1000 people with measles develops encephalitis (swelling of the brain).

HOW DO YOU CATCH MEASLES?

- Measles is usually spread when a person breathes in the measles virus that has been coughed into the air in droplets by an infectious person. Measles is one of the most easily spread of all human infections. Just being in the same room as someone with measles often results in infection.
- People with measles are usually infectious from up to five days before the rash occurs until four days after. The time from getting infected to becoming sick is usually 10 to 12 days. The rash usually appears around 14 days after getting infected.

HOW IS MEASLES DIAGNOSED AND TREATED?

- Measles can be difficult to diagnose because there are many other viruses that cause similar illnesses with a fever and a rash. Sometimes the presence of white spots inside the mouth, called Koplik's spots, the timing of the fever and the rash, and the characteristics of the rash, can help a doctor to make the diagnosis.
- Whenever measles is suspected, a blood test and/or swabs from the throat should be collected to confirm the diagnosis. Confirming the diagnosis is important so that other people who may be at risk of measles can be identified. By law, cases of measles are notified to public health units so that measures can be taken to help control further spread.
- The treatment for the symptoms of measles are rest, plenty of fluids and paracetamol for fever. Where measles causes complications, other treatments may be needed.
- While a person is infectious with measles it is important that they remain at home to reduce the possibility of spread to other people.

HOW CAN I PROTECT MYSELF AGAINST MEASLES?

- The best protection against measles is through immunisation with a vaccine called MMR (measles, mumps and rubella vaccine). This vaccine provides protection against infection with measles, as well as against mumps and rubella.
- MMR vaccine should be given to children at age 12 months and a second dose at age four years. These two doses of MMR provide protection against measles to over 98 per cent of those immunised.
- MMR vaccine is a safe and effective vaccine that has been used worldwide for many years.
- While many older adults are immune to measles because they were infected as children, young adults may not have received measles immunisation or have been infected by measles itself. MMR immunisation should be considered by all young adults born after 1970, especially those who are health care workers or who plan to travel overseas.

WHAT IF I COME INTO CONTACT WITH SOMEONE WITH MEASLES?

- If you have never been infected with measles or have not received two doses of vaccine you are at increased risk of measles infection.
- If it is less than three days since you came into contact with measles, immunisation with MMR can prevent infection.
- If more than three days and less than seven days have passed since coming into contact with measles, an injection called immunoglobulin can protect you. Immunoglobulin contains antibodies against the measles virus and is especially recommended for young children and people with underlying illnesses who have a greater risk of developing complications if they catch measles. Immunisation with MMR vaccine should not be given until three months after immunoglobulin as the immunoglobulin antibodies can prevent the vaccine from working.
- Unimmunised children who have come into contact with measles and who do not receive MMR or immunoglobulin should not attend school until 14 days after the rash appeared in the person with measles. Likewise, it is recommended that susceptible adults do not attend work during this period. This is because non-immune people can unknowingly spread the infection to others.
- Your local Public Health Unit can advise further regarding the need for immunisation, immunoglobulin and exclusions from work and school in the case of exposure to measles.

July 2001

MEASLES IN NSW, 1991–2000

Julia Brotherton

NSW Public Health Officer Training Program

Measles is an acute and highly-infectious viral disease. It is of public health importance because measles can cause serious illness and death. Each year, measles causes the death of almost a million children worldwide.¹ Vaccination against measles provides a high degree of protection (95 per cent protection after a single dose, and 99 per cent after two doses).² Available epidemiological evidence suggests that, in many parts of Australia, endemic measles circulation (that is, the ability of the virus to be sustained in the community) has been eliminated due to the achievement of high childhood vaccination rates.^{3,4} There have been steady rises in vaccination rates among NSW children since the introduction of the Australian Childhood Immunisation Register, and since the 1998 National Measles Control Campaign, when over 75 per cent of NSW primary school children received a dose of measles, mumps and rubella vaccine (MMR).⁵

Symptoms of measles include fever, conjunctivitis, runny nose and cough. A typical red blotchy rash develops on day three to seven of the illness. Usually, the rash starts on the face and spreads down the body. Sometimes the rash peels.⁶ Characteristic white spots called Koplik spots, which occur inside the mouth, may also help to distinguish measles from other illnesses. Complications of measles include pneumonia, ear infections, croup, diarrhoea and inflammation of the brain (encephalitis). Measles tends to be more severe in infants, in adults and in children who are malnourished.⁶ Rarely, measles infection can cause subacute sclerosing panencephalitis, which is a type of progressive brain degeneration.

Humans are the only known host of the measles virus. Measles is one of the most highly communicable infectious diseases,⁶ and is transmitted from person-to-person through airborne respiratory droplets or through direct contact with respiratory secretions. The incubation period between exposure and fever is usually 10 days, but may vary between 7–18 days, and the time between exposure to onset of rash is usually 14 days. Measles is infectious from one day before the beginning of the prodrome of illness to onset of rash until four days after the onset of rash.⁶

Measles surveillance in NSW enables the identification and vaccination of contacts at risk of infection in order to prevent the spread of measles among susceptible people. It also allows monitoring of the epidemiology of the disease to inform prevention strategies. The use of a laboratory technique, known as genotyping, can also facilitate the study of chains of transmission of measles, which help to identify the origin of the cases. Measles viruses are grouped into at least eight distinct genotypes, largely on the basis of the genes that code for proteins

called haemagglutinin and nucleoprotein.⁷ In this report we review the epidemiology of measles cases notified in NSW since 1991.

METHODS

Under the NSW Public Health Act 1991, all medical practitioners, hospital chief executive officers, laboratories, school principals, and directors of child care facilities, must notify suspected cases of measles to their local Public Health Unit (PHU). Case definitions incorporate:

- **suspected cases:** people with morbilliform (measles like) rash, fever present at the onset of rash and cough;
- **presumptive cases:** people with a morbilliform rash lasting at least 3 days, fever over 38.3° at rash onset and at least one of cough, coryza, conjunctivitis or Koplik spots;
- **confirmed cases:** people meeting the criteria for either suspected or presumptive case and either: laboratory proven measles infection (measles virus detected or IgM antibody to measles or rise in IgG antibody to measles in the absence of vaccination); or
- an epidemiological link with a confirmed infectious case.

PHU staff record the details of presumptive and confirmed cases on the confidential statewide Notifiable Diseases Database (NDD). We analysed the characteristics of notified cases from NDD during the period 1991 to 2000 by date of onset. Notification rates were calculated using mid-year population estimates from the Australian Bureau of Statistics (ABS) for each year. Additional information was sought from PHUs about all notifications since January 1999 to identify imported cases and clusters. PHU staff coordinate the collection of specimens for measles genotyping from at least one case in a cluster and at least two cases in an outbreak. These specimens are forwarded to the Victorian Infectious Diseases Reference Laboratory for virus culture in B95a cells and subsequent genotyping.⁸

The NSW Department of Health's Inpatients Statistics Collection (ISC) was used to identify hospital separations of NSW residents with an ICD-9 diagnosis code of 055 (measles). Data were only available for complete calendar years from 1994 to 1999. ABS Causes of Death data was reviewed to identify deaths from measles in NSW residents.

RESULTS

During the 10-year period, 6390 cases of measles were reported in NSW. Of these cases, 1183 (18.5 per cent) were confirmed by laboratory tests. The number of notifications that were laboratory confirmed fluctuated from year to year with the least number confirmed in 1991 (four per

cent) and the most in 2000 (61 per cent). The least number of notifications were received in 1999 (32 notifications), which was also the first year in which no measles cases were reported in NSW for an entire month (September 1999). The highest number of notifications were received in 1993 (2348 notifications) (Table 1). The average annual incidence for the 10-year period was 10.4 notifications per 100,000 persons. Most cases of measles (51 per cent) occurred in the spring (Figure 1). The number of reported cases has remained low since the Measles Control Campaign of late 1998.

AGE AND SEX OF CASES

Over the 10-year period, 3243 cases (51 per cent) were male. However, the sex of 16 cases was not reported (0.3 per cent). By year, the percentage of males fluctuated between 41 per cent and 57 per cent.

By age group, most notifications were reported in children under five years of age (34 per cent of all notifications). Notifications in the under five year old age group peaked in 1993 at 150 per 100,000. By 2000 the rate had fallen to only 3.3 per 100,000. Proportionally, this age group has remained the most affected over time. Measles notifications overwhelmingly reflect that measles is a childhood disease. Ninety-six per cent of notifications over the 10-year period were in people under the age of 25 years (Figure 2, Figure 3).

VACCINATION STATUS

Since 1993, when measles vaccination status was routinely recorded on NDD, 1927 (38 per cent) of the 5079 notified cases did not have their vaccination status entered on NDD. Of the 3152 (62 per cent) cases with documentation of vaccination status, 1701 (54 per cent) reported previous vaccination against measles. In 2000, only 20 of the 36 notified cases (56 per cent) had their vaccination status reported; of these 20 cases 11 (55 per cent) reported previous vaccination against measles.

HOSPITALISATION AND MORTALITY

Between 1991 and the end of 2000, 431 hospitalisations are documented in notified measles cases listed in NDD (seven per cent of all notifications). In comparison, NSW ISC hospital separation data for the shorter period, 1994 to 1999 (when complete calendar year records are available) identifies 501 admissions with measles infection (Table 1). For the same period, NDD recorded only 169 hospitalisations; thus hospitalisation with measles is under-reported to public health units. Three deaths are recorded, which concur with the Australian Bureau of Statistics causes of death data for this period.

ENHANCED INFORMATION ABOUT NOTIFICATIONS SINCE JANUARY 1999

In 1999 and 2000, 68 measles cases were notified. Overall, 35 cases were laboratory confirmed and four further cases were identified as epidemiologically linked to a laboratory confirmed case: that is, 39 of the total 68 were confirmed (57 per cent). Of the remaining 29 presumptive cases, 24 were sporadic notifications in children with a clinical diagnosis alone and no source was identified. The other five cases were: three clinical diagnoses in tourists from countries where measles remains endemic; a clinical diagnosis in a child who had been interstate during the exposure period (that is, possible importation); and a clinical diagnosis in a nurse.

Of the 68 measles notifications, 10 (15 per cent) were identifiable as imported cases. Most of these cases were imported from countries in the Asia-Pacific region. A further six cases in NSW residents had an identifiable epidemiological link with one of the imported cases (see below).

Three clusters were identified in NSW:

- **cluster one** had seven cases, with transmission occurring between relations and playmates (no source identified; no genotyping available);⁹

TABLE 1

MEASLES NOTIFICATIONS, HOSPITALISATION AND DEATHS, NSW, 1991–2000

Year of onset	Notified cases	Rate /100,000	Rate /100,000 males	Rate /100,000 females	Laboratory confirmed	Hospital admissions	Deaths
1991	503	8.5	9.2	7.8	20 (4%)	NA	1
1992	808	13.6	13.3	13.8	76 (9%)	NA	2
1993	2348	39.1	40.0	38.0	460 (20%)	NA	0
1994	1484	24.5	24.2	24.6	302 (20%)	290	0
1995	596	9.7	10.8	8.7	138 (23%)	75	0
1996	191	3.1	3.0	3.1	35 (18%)	31	0
1997	273	4.4	4.4	4.3	98 (36%)	73	0
1998	119	1.9	2.2	1.6	19 (16%)	19	0
1999	32	0.50	0.4	0.6	13 (41%)	13	0
2000	36	0.56	0.5	0.6	22 (61%)	NA	0
Total	6390	10.4	10.6	10.1	1183 (18.5%)	501	3

NA=not available

- **cluster two** had at least five (and possibly seven) cases with spread acquired through a doctor's waiting room and child care centre (no source identified; genotype H identified in two cases);¹⁰
- **cluster three** was the largest cluster with 10 cases identified (seven notified in NSW residents) and affected predominantly young adults living and working in Northern Sydney (epidemiologically linked to an imported index case; genotype G2 identified in index case and in two other cases).⁹

Of the 24 notifications in those aged 15 years or over, at least three (12.5 per cent) occurred in health care workers and one occurred in an airport worker.

DISCUSSION

Measles incidence, as reflected by notification data, has dramatically declined in NSW over the last 10 years. The elimination of endemic measles in NSW is evidenced by the fact that when importation of the disease occurs secondary cases are uncommon and clusters are small. This remarkable achievement has only been possible with a comprehensive and coordinated strategy to achieve high immunisation rates. Maintenance of these rates will be critical to ensure ongoing measles control. Other countries, such as the United States of America, Canada, and the United Kingdom, have led the way in demonstrating that measles can be eradicated.¹¹ Australia, including NSW, is now monitoring the achievement of the WHO 'elimination phase' of measles control.^{12,13} This phase refers to countries that have achieved high vaccination coverage and, in doing so, prevented periodic outbreaks. The objective is then to interrupt measles transmission completely. This phase shifts the emphasis

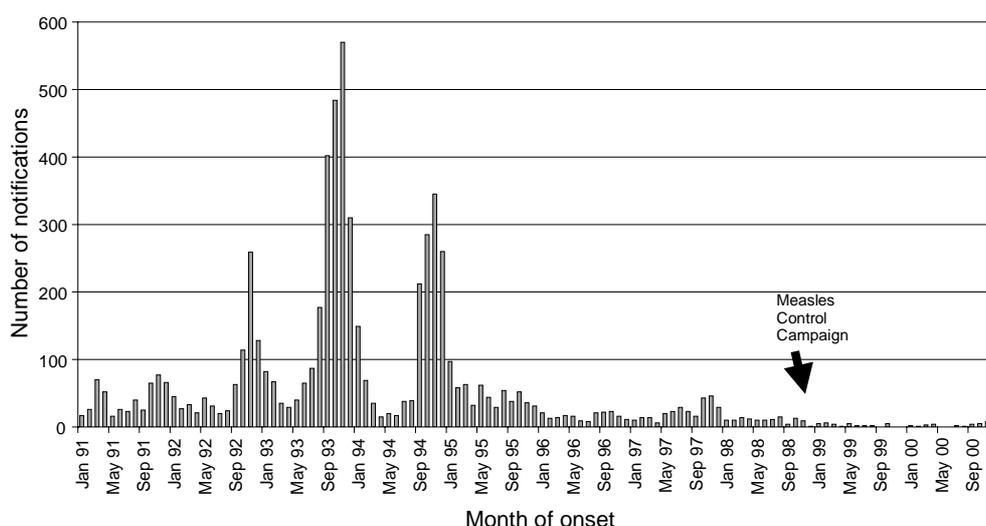
onto following up and verifying all cases of measles to inform strategies for eliminating any gaps in a community's protection against the resurgence of measles. For example, in Australia young adults have been identified as a group at increased risk of measles.¹⁴

The current vaccination schedule incorporates measles vaccination as MMR (measles, mumps and rubella vaccine) for all children at the age of 12 months, with a second dose at four years of age. MMR coverage is at over 91 per cent by age 24–27 months.¹⁵ The 1998 Measles Control Campaign was required to provide immediate and ongoing community immunity to measles when the recommendation for the timing of the second dose of MMR vaccine was brought forward from 10–16 years to four years of age. Although a single dose of MMR vaccine provides a high degree of immunity to individuals, in order to achieve sustained community immunity, a two dose schedule is required.¹⁶ As can be evidenced from the available NSW notification data, many cases of measles occur in those reporting receipt of one dose of measles vaccine, reflecting that one in 20 people will not become immune after a single dose and perhaps that recollection of receipt of measles vaccination, especially in young adults, can be unreliable.¹⁷

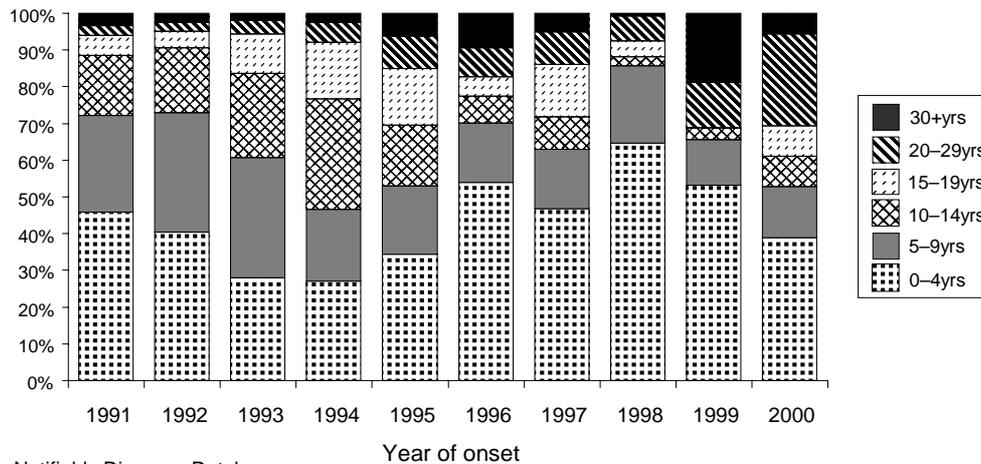
As measles becomes rare, the proportion of false positive diagnoses and laboratory results will increase (as positive predictive value falls due to a low prevalence of measles.) In the current situation, care is required in interpretation of case definitions and the necessity for laboratory confirmation is reinforced, where possible using reference laboratories and confirmatory testing. It is quite possible that many of the sporadic notifications in children do not in fact represent measles. Where sporadic laboratory

FIGURE 1

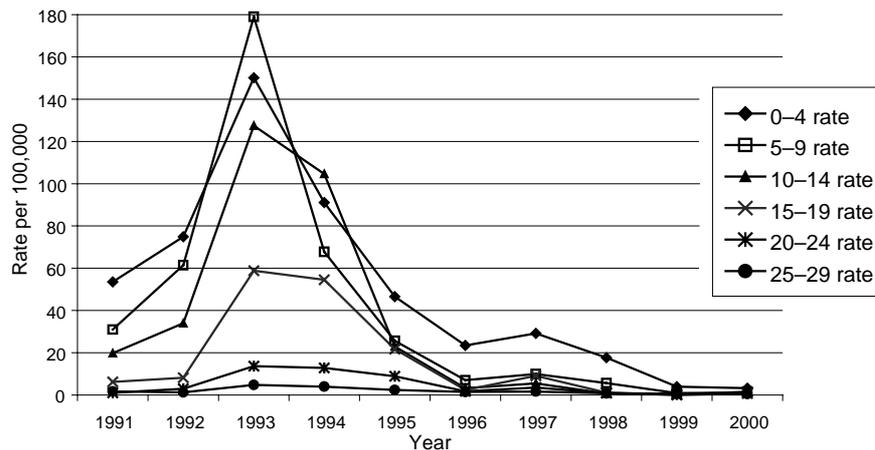
MEASLES NOTIFICATIONS BY DATE OF ONSET, NSW, 1999–2000



Source: Notifiable Diseases Database

FIGURE 2**MEASLES NOTIFICATIONS BY AGE AND YEAR OF ONSET, NSW 1991–2000**

Source: Notifiable Diseases Database

FIGURE 3**MEASLES NOTIFICATION RATES BY AGE GROUP TO AGE 30 YEARS, NSW, 1991–2000**

Source: Notifiable Diseases Database

confirmed cases occur, the explanation may lie in the existence of unidentified overseas or interstate contacts, or with the problem of false positive IgM diagnosis.

Although the number of measles cases notified is falling and the proportion that are laboratory confirmed is increasing, the notification data demonstrates room for improvement; laboratory confirmation of all notified cases must be the goal. Similarly, while the NSW ISC data recorded many more hospitalisations with measles than NDD did, it may be that difficulties with diagnosis are also being reflected in the ISC data, leading to an overestimation of hospitalisations due to measles. For example, if measles is considered as a differential diagnosis it may appear in the coding for the admission without being confirmed. Recent enhancements to NDD,

will allow easier differentiation of presumptive and confirmed cases and public health unit staff are now routinely recording information about clustering and importations of measles that will facilitate ongoing analysis of the NSW situation.

The NSW experience in 2001 to date is reflecting the patterns of the last few years. This year, a single imported case in a young adult resulted in a single second case in NSW but multiple cases interstate (epidemiologically linked to genotype D8).⁸ Of the 12 notifications received to date for June 2001, almost half (five) occurred in either health care workers, overseas travellers or airport workers. The challenge remains to ensure that each and every child is protected against measles but in addition young adults who plan to travel overseas, or who work in health or

travel, need to ensure that they are protected against measles infection through immunisation. Free MMR vaccine is currently available to 18–30 year olds as part of a national immunisation campaign.

ACKNOWLEDGEMENTS

I am indebted to the Public Health Unit staff around NSW who provided data on measles notifications in NSW. Kind thanks to Mike Catton and the staff at the Victorian Infectious Diseases Reference Laboratory for providing genotyping of specimens from suspected measles cases in NSW.

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COMMUNICABLE DISEASES, NSW: JULY 2001

TRENDS

Notifications of illness caused by the mosquito-borne **Barmah Forest infection** increased during the three months to May in the Mid North Coast Area, where 51 cases were reported for May (Table 5). Fewer reports were received for this disease in other areas. In contrast, notifications for **Ross River virus infections** declined during the same period; and Hunter, Mid North Coast and Central Coast Areas, which are all on the coast north of Sydney, received the most reports of this illness.

This month we look at some data derived from the early stages of surveillance of **invasive pneumococcal disease** (IPD) and **shigellosis** (Figure 1). These conditions became notifiable by laboratories in early 2001. Data received suggest that the risk of IPD is higher among infants, and perhaps rural dwellers, although it is possible that statewide data is incomplete as all laboratories may not

yet be prepared for reporting to their public health units. In contrast, data received on **shigellosis** cases suggests that it is overwhelmingly transmitted among Sydney men. Seventy-four per cent of case notifications (32 of a total of 43 cases) were in residents of South Eastern Sydney. In 2000, an outbreak of shigellosis was identified among men who have sex with men in inner Sydney. The identification was linked to venues that allow sex on premises.^{1,2} The risk for shigella infection can be reduced by careful attention to hand-washing, especially after using the toilet, before handling food, before and after sex, and by avoiding contact with faecally-contaminated materials.

Laboratory staff are urged to check with their local public health unit to ensure that they are complying with notification requirements for these and other notifiable conditions.

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INVASIVE PNEUMOCOCCAL DISEASE IN NSW

Julia Brotherton and Sue Campbell-Lloyd

In 2001, invasive pneumococcal disease has become a laboratory notifiable disease in NSW. This will allow the epidemiology of the disease to be monitored, and will inform prevention strategies.

The bacteria *S. pneumoniae* causes localised infections of the respiratory tract (in particular otitis media and sinusitis) as well as invasive disease causing systemic illness, commonly manifested as bacteraemia, pneumonia or meningitis. Only invasive disease is notifiable. A confirmed case is defined by the isolation of *S. pneumoniae* from a normally sterile site (for example, from blood culture, cerebrospinal fluid, joint fluid, peritoneal, pleural or pericardial fluid) by either culture or nucleic acid tests such as polymerase chain reaction (PCR). Isolation of *S. pneumoniae* from a non-sterile site (such as sputum, nasal aspirates and ear discharge) is not notifiable.

Methods

We reviewed existing data describing the epidemiology of invasive pneumococcal disease in NSW by analysing data from the NSW Inpatient Statistics Collection for the six-year period from mid 1994 to mid 2000. Admissions to hospital in NSW residents with invasive pneumococcal disease were examined by identifying those admissions with diagnostic codes for pneumococcal meningitis and pneumococcal sepsis (ICD-9 codes 320.1 or 038.2). Pneumococcal pneumonia cases were not considered. Population rates were calculated using NSW 1998 mid-year population estimates from the Australian Bureau of Statistics (ABS). Population rates for Aboriginal or Torres Strait Islander people were calculated using 1996 ABS census data.

Results

The average annual rate of hospitalisation with invasive pneumococcal disease for NSW residents for the six-year period was 3.7 hospitalisations per 100,000 population (Table 1). Highest rates were seen in children under 5 years of age (19.7 hospitalisations per 100,000 children) and in the very elderly (19.1 per 100,000 persons aged 85 years or over). Of the 515 cases identified in children under the age of five, 14 children were identified as being of Aboriginal or Torres Strait Islander background. Using 1996 ABS population estimates this gives a rate of 14.2 hospitalisations per 100,000 Aboriginal or Torres Strait Islander children under five years of age, compared to a

TABLE 1

FREQUENCY AND AVERAGE ANNUAL RATES OF HOSPITALISATION WITH PNEUMOCOCCAL SEPSIS OR PNEUMOCOCCAL MENINGITIS IN NSW RESIDENTS, BY AGE GROUP AND AREA, FOR THE FINANCIAL YEARS 1994–00

Characteristic	Total hospitalisations	Average annual rate per 100,000
Age		
0–4	515	19.7
5–9	38	1.4
10–14	10	0.4
15–19	9	0.3
20–24	17	0.6
25–29	33	1.1
30–34	35	1.2
35–39	54	1.8
40–44	44	1.6
45–49	50	1.9
50–54	47	2.0
55–59	39	2.2
60–64	57	3.7
65–69	82	5.7
70–74	79	6.0
75–79	100	10.0
80–84	106	17.1
85+	89	19.1
Area of residence		
Central Sydney	117	4.0
Northern Sydney	206	4.5
Western Sydney	141	3.5
Wentworth	56	3.0
South Western Sydney	181	4.0
Central Coast	97	5.8
Hunter	102	3.2
Illawarra	70	3.4
South Eastern Sydney	169	3.7
Northern Rivers	38	2.5
Mid North Coast	46	3.0
New England	47	4.5
Macquarie	12	1.9
Mid-Western	37	3.7
Far West	9	3.1
Greater Murray	40	2.6
Southern	36	3.3
TOTAL NSW	1404	3.7
Source: NSW Inpatient Statistics Collection		

rate of 19.7 per 100,000 children of non-Aboriginal or Torres Strait Islander background.

Comment

The limitations of using hospitalisation data include reliance on the correct coding of admissions, the probable under reporting of Aboriginal or Torres Strait Islander status, and possible variance in operational definitions used by coders in different area health services. The data does however demonstrate clear differences in hospitalisation rates with pneumococcal meningitis and pneumococcal sepsis by age group, consistent with both national and international data.^{1,2} Geographically, it does not appear that the Far West Area of NSW has disease rates

similar to Central Australian regions, where the burden of illness amongst Aboriginal children is particularly high.¹ Hospitalisation data is an under representation of the true burden of illness due to invasive pneumococcal disease in NSW, and it will be of great interest to compare notification data with hospitalisation data as it becomes available.

The Australian Technical Advisory Group on Immunisation has recently recommended the introduction of a new conjugate pneumococcal vaccine on the Australian Standard Vaccination Schedule for Aboriginal and Torres Strait Islander children. The National Health and Medical Research Council has sought public comment on the recommendations as part of its consultation phase and the vaccination schedule will be announced in the near future. The vaccine was released onto the private market in May 2001 and has been licensed by the Therapeutic Goods Administration for use as a four dose schedule at two, four, six and 18 months of age.

References

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FOOT-AND-MOUTH DISEASE: PUBLIC HEALTH IMPLICATIONS

Tracey Oakman

The recent outbreak of foot-and-mouth disease in the United Kingdom has wide implications for disease control in Australia, including the control of the disease in humans.

Foot-and-mouth disease affects all cloven-hoofed animals, including: pigs, sheep, goats, cattle and deer; and is a highly contagious animal disease. It is caused by a virus of the Picornaviridae family and is a zoonosis infection.¹ The last recorded case of foot-and-mouth disease in Australia was in 1872.²

Foot-and-mouth disease can affect humans. The illness can cause malaise, headaches, skin itch, and vesicles on the mucous membranes of the hands and feet. Clinically it may resemble hand, foot and mouth disease.³ Occurrence in humans is rare.¹ The incubation period is 2-6 days and symptoms are usually mild and self-limiting.¹ Person-to-person spread has not been reported. Suspected and confirmed cases should not have contact with susceptible livestock to avoid transmission of the disease.¹

In March 2001, the surveillance officer at the Albury Centre for Public Health was contacted by a local pathologist. The pathologist was concerned that a

person had been admitted to a local hospital with blisters around his mouth and on his feet. The patient had recently returned to Australia from a trip to England and Scotland where he was working with pigs and shoeing horses. The patient was in London for two days prior to flying to Australia.

Three days after his arrival in Australia, the patient presented to hospital with temperature, influenza-like symptoms, sore neck, and a rash that had started around the mouth and had then moved to the torso and feet. Doctors suspected meningococcal disease.

The man was admitted to hospital and cerebro-spinal fluid and blood cultures were sent to pathology for analysis. No indication of meningococcal disease was found.

Two days later, clinical symptoms—including the severity of illness—indicated that the patient was suffering from a varicella-zoster virus infection; however, because of his travels, foot-and-mouth disease could not be ruled out. The patient had no previous history of chicken pox. After consultation with the NSW Department of Health and the NSW Department of Agriculture, blood was collected and sent for varicella-zoster testing. These results were negative for varicella-zoster virus IgM and IgG. The NSW Department of Agriculture expressed an interest in obtaining the acute and a convalescent sera for testing for foot-and-mouth disease. A second specimen of serum was positive for IgM and IgG for varicella-zoster virus. Specimens referred to the Australian Animal Health Laboratory, Geelong, were negative for foot-and-mouth disease.

Varicella-zoster IgM is usually elevated within five days of infection.⁴ Collection of the first specimen would have been at about day three from the onset of infection and may explain the first negative test. Testing the specimens for foot-and-mouth disease demonstrated the commitment by the NSW Department of Agriculture to thoroughly investigate any suspected case of foot-and-mouth disease in Australia.

From a public health perspective, if a patient presents for medical attention with a history of exposure to foot-and-mouth disease, and with the consistent symptoms, serology should be ordered requesting testing for foot-and-mouth disease. Arrangements for tests can be made with the Australian Animal Health Laboratory in Geelong. The patient should be advised to remain isolated from animals until a diagnosis is made.

Acknowledgment

Dr David Blaxland, for the initial disease notification.

References

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TABLE 2

NEW DIAGNOSES OF HIV INFECTION REPORTED, NSW, 1981 TO MARCH 2001

Characteristic	1981–1990		Period of diagnosis 1991–2000		Jan–Mar 2001		Total	
	N	(%)	N	(%)	N	(%)	N	(%)
Gender								
Male	6396	(93.0)	4815	(91.9)	75	(83.3)	11286	(92.5)
Female	284	(4.1)	342	(6.5)	13	(14.4)	639	(5.2)
Other	200	(2.9)	80	(1.5)	2	(2.2)	282	(2.3)
Age								
0–2	16	(0.2)	22	(0.4)	0	(0)	38	(0.3)
3–12	33	(0.5)	9	(0.2)	0	(0)	42	(0.3)
13–19	177	(2.6)	76	(1.4)	1	(1.1)	254	(2.1)
20–29	2475	(36.0)	1609	(30.7)	26	(28.9)	4110	(33.7)
30–39	2516	(36.6)	1982	(37.9)	38	(42.2)	4536	(37.2)
40–49	1177	(17.1)	994	(19.0)	15	(16.7)	2186	(17.9)
50–59	330	(4.8)	353	(6.7)	3	(3.3)	686	(5.6)
60+	125	(1.8)	119	(2.3)	3	(3.3)	247	(2.0)
Not reported	31	(0.5)	73	(1.4)	4	(4.4)	108	(0.9)
Exposure								
Male homosexual–Bisexual	3689	(53.6)	3347	(63.9)	37	(41.1)	7073	(57.9)
Male homosexual–Bisexual–IDU	102	(1.5)	164	(3.1)	1	(1.1)	267	(2.2)
Injecting drug use	196	(2.9)	162	(3.1)	1	(1.1)	359	(2.9)
Heterosexual	195	(2.8)	693	(13.2)	16	(17.8)	904	(7.4)
Haemophilia–Coagulation disorder	109	(1.6)	7	(0.1)	0	(0)	116	(1.0)
Blood–Tissue recipient	89	(1.3)	28	(0.5)	0	(0)	117	(1.0)
Needle–stick injury	0	(0)	4	(0.1)	0	(0)	4	(0)
Vertical	6	(0.1)	27	(0.5)	0	(0)	33	(0.3)
Not Stated	2494	(36.3)	805	(15.4)	35	(38.9)	3334	(27.3)
Residence								
Sydney	2699	(39.2)	3815	(72.8)	52	(57.8)	6566	(53.8)
Rural	244	(3.5)	523	(10.0)	11	(12.2)	778	(6.4)
Unknown	3937	(57.2)	899	(17.2)	27	(30)	4863	(39.8)
Total	6880	(100)	5237	(100)	90	(100)	12207	(100)

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- Varilrix, product monograph 1998; 16.

20 YEARS OF AIDS

Twenty years ago, on 5 June 1981, the *Morbidity and Mortality Weekly Report* first reported a cluster of pneumocystis pneumonia in five homosexual men in Los Angeles.¹ The AIDS epidemic ensued. By the end of 2000, more people (21.8 million) had died of AIDS than in both World Wars combined.²

Things have improved a little in recent years, most notably through effective prevention efforts (especially safe sex and needle-and-syringe programs) and the development of highly-effective antiretroviral therapies. But still there is no cure, and no vaccine, and there are no affordable therapies in those developing countries with the highest burden of disease. There are indications that drug resistant strains of the HIV virus may emerge;³ while increases in notifications of sexually transmissible infections, such as gonorrhoea and chlamydia, indicate a rise in high risk behaviours that lead to HIV infection. There is also increasing complacency about HIV infection, which is a risk factor in itself.

In NSW, there are still around 400 people who are newly-infected with HIV each year. To the end of March 2001, the cumulative number of HIV diagnoses in NSW was 12,207. The total number of HIV diagnoses for 2000 was 368 compared to 396 in 1999 and 416 in 1998. The characteristics of these cases is summarised in Table 2. Risk exposure information was poorly reported for the period 1981–1990. For the period 1991–2000, male-to-male sex was reported by 64 per cent of cases, injecting drug use by three per cent, and heterosexual sex by 13 per cent. Ninety notifications were received for the first quarter of 2001; however, risk information was not yet available for 39 per cent of these.

To the end of March 2001, the cumulative number of AIDS cases and deaths in NSW was 4884 and 3323. The characteristics of these cases appears in Tables 3 and 4.

References

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- Sepkowitz KA. AIDS—the first 20 years. *New Engl J Med* 2001; 344: 1764–1772.
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TABLE 3

DIAGNOSES OF AIDS REPORTED, NSW, 1981 TO MARCH 2001

Characteristic	1981–1990		Period of diagnosis 1991–2000		Jan–Mar 2001		Total	
	N	(%)	N	(%)	N	(%)	N	(%)
Gender								
Male	1569	(97.0)	3094	(94.9)	6	(85.7)	4669	(95.6)
Female	46	(2.8)	157	(4.8)	1	(14.3)	204	(4.2)
Other	2	(0.1)	9	(0.3)	0	(0)	11	(0.2)
Age								
0–2	0	(0)	7	(0.2)	0	(0)	7	(0.1)
3–12	6	(0.4)	6	(0.2)	0	(0)	12	(0.3)
13–19	10	(0.6)	5	(0.2)	0	(0)	15	(0.3)
20–29	332	(20.5)	490	(15.0)	0	(0)	822	(16.8)
30–39	655	(40.5)	1380	(42.3)	4	(57.1)	2039	(41.8)
40–49	430	(26.6)	937	(28.7)	0	(0)	1367	(28.0)
50–59	131	(8.1)	337	(10.3)	2	(28.6)	470	(9.6)
60+	53	(3.3)	98	(3.0)	1	(14.3)	152	(3.1)
Not reported	0	(0)	0	(0)	0	(0)	0	(0)
Exposure								
Male homosexual–Bisexual	1394	(86.2)	2560	(78.5)	6	(85.7)	3960	(81.1)
Male homosexual–Bisexual/IDU	53	(3.3)	130	(4.0)	0	(0)	183	(3.8)
Injecting drug use	5	(0.3)	42	(1.2)	0	(0)	47	(1.0)
Heterosexual	51	(3.2)	325	(10.0)	1	(14.3)	377	(7.7)
Haemophilia–Coagulation disorder	27	(1.7)	24	(0.7)	0	(0)	51	(1.0)
Blood–Tissue recipient	62	(3.8)	44	(1.4)	0	(0)	106	(2.2)
Vertical	2	(0.1)	12	(0.4)	0	(0)	14	(0.3)
Not Stated	23	(1.4)	123	(3.8)	0	(0)	146	(3.0)
Residence								
Sydney	1335	(82.6)	2706	(83.0)	6	(85.7)	4047	(82.9)
Rural	156	(9.6)	522	(16.0)	1	(14.3)	679	(13.9)
Unknown	126	(7.8)	32	(1.0)	0	(0)	158	(3.2)
Total	1617	(100)	3260	(100)	7	(100)	4884	(100)

TABLE 4

AIDS DEATHS REPORTED, NSW, 1981 TO MARCH 2001

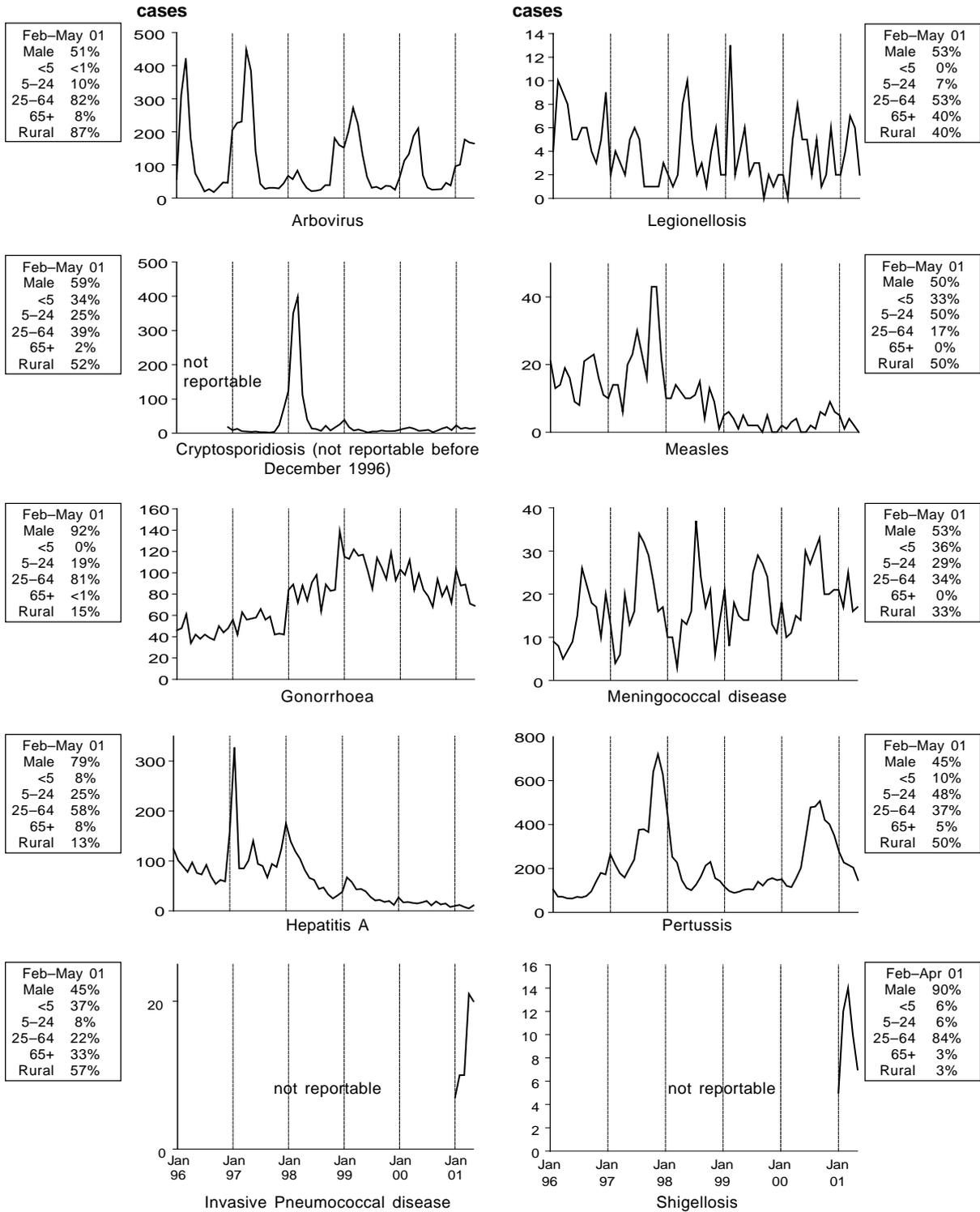
Characteristic	1981–1990		Period of diagnosis 1991–2000		Jan–Mar 2001		Total	
	N	(%)	N	(%)	N	(%)	N	(%)
Gender								
Male	960	(96.7)	2237	(96.2)	3	(75.0)	3200	(96.3)
Female	32	(3.2)	83	(3.6)	1	(25.0)	116	(3.5)
Other	1	(0.1)	6	(0.2)	0	(0)	7	(0.2)
Age								
0–2	0	(0)	3	(0.1)	0	(0)	3	(0.1)
3–12	4	(0.4)	5	(0.2)	0	(0)	9	(0.3)
13–19	5	(0.5)	6	(0.3)	0	(0)	11	(0.3)
20–29	184	(18.5)	392	(16.9)	0	(0)	576	(17.3)
30–39	401	(40.4)	953	(41.0)	3	(75.0)	1357	(40.8)
40–49	271	(27.3)	677	(29.1)	1	(25.0)	949	(28.6)
50–59	90	(9.1)	215	(9.2)	0	(0)	305	(9.2)
60+	38	(3.8)	75	(3.2)	0	(0)	113	(3.4)
Not reported	0	(0)	0	(0)	0	(0)	0	(0)
Exposure								
Male homosexual–Bisexual	862	(86.8)	1898	(81.6)	2	(50.0)	2762	(83.1)
Male homosexual–Bisexual–IDU	28	(2.8)	98	(4.2)	1	(25.0)	127	(3.8)
Injecting drug use	1	(0.1)	19	(0.8)	0	(0)	20	(0.6)
Heterosexual	23	(2.3)	164	(7.1)	1	(25.0)	188	(5.7)
Haemophilia–Coagulation disorder	17	(1.7)	28	(1.2)	0	(0)	45	(1.4)
Blood–Tissue recipient	47	(4.8)	43	(1.8)	0	(0)	90	(2.7)
Vertical	1	(0.1)	6	(0.3)	0	(0)	7	(0.2)
Not Stated	14	(1.4)	70	(3.0)	0	(0)	84	(2.5)
Residence								
Sydney	818	(82.4)	1951	(83.9)	4	(100.0)	2773	(83.5)
Rural	73	(7.3)	347	(14.9)	0	(0)	420	(12.6)
Unknown	102	(10.3)	28	(1.2)	0	(0)	130	(3.9)
Total	993	(100)	2326	(100)	4	(100)	3323	(100)

FIGURE 1

REPORTS OF SELECTED COMMUNICABLE DISEASES, NSW, JANUARY 1996 TO MAY 2001, BY MONTH OF ONSET

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

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



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

TABLE 5 REPORTS OF NOTIFIABLE CONDITIONS RECEIVED IN MAY 2001 BY AREA HEALTH SERVICES

Condition	Area Health Service (2001)																Total			
	CSA	NSA	WSA	WEN	SWS	CCA	HUN	ILL	SES	NRA	MNC	NEA	MAC	MWA	FWA	GMA	SA	CHS	for May†	To date†
Blood-borne and sexually transmitted																				
AIDS	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	3	51
HIV infection*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33
Hepatitis B - acute viral*	-	-	-	-	3	-	-	-	2	-	-	-	-	-	-	1	-	-	6	38
Hepatitis B - other*	24	56	2	14	1	1	9	7	63	3	2	4	5	1	1	2	7	8	211	1,549
Hepatitis C - acute viral*	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	2	51
Hepatitis C - other*	81	40	-	20	-	17	42	36	118	3	24	13	7	2	-	25	44	49	523	3,495
Hepatitis D - unspecified*	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2	8
Hepatitis, acute viral (not otherwise specified)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chancroid*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlamydia (genital)*	7	23	26	19	-	13	21	13	94	1	10	16	9	10	2	16	6	4	293	1,661
Gonorrhoea*	-	8	7	-	-	1	1	3	60	1	1	5	1	-	1	-	2	2	93	456
Syphilis	14	-	10	2	-	1	-	1	21	4	1	1	1	-	-	1	1	2	61	244
Vector-borne																				
Arboviral infection (BFV)*	-	-	-	-	-	-	-	2	-	2	51	1	-	-	-	1	3	-	60	162
Arboviral infection (RRV)*	2	3	4	5	-	23	52	7	1	5	26	3	3	-	4	4	3	-	145	525
Arboviral infection (Other)*	2	2	1	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	8	19
Malaria*	-	3	-	-	-	2	2	-	1	-	-	-	-	-	-	-	-	-	8	66
Zoonoses																				
Anthrax																				
Brucellosis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leptospirosis*	-	2	-	-	-	-	-	-	1	-	5	-	-	-	-	-	-	-	8	32
Lyssavirus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Psittacosis	-	-	-	-	-	-	-	1	-	2	-	-	-	-	-	-	-	-	3	12
Q fever*	-	-	1	-	-	-	2	-	-	-	3	-	3	-	-	-	1	-	10	54
Respiratory and other																				
Blood lead level*	-	-	-	-	-	1	4	1	3	-	-	1	-	-	11	-	1	-	22	207
Influenza	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	7
Invasive Pneumococcal Infection	-	10	1	3	-	3	4	3	-	1	-	-	-	-	-	-	-	-	25	67
Legionnaires' Longbeachae*	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	10
Legionnaires' Pneumophila*	-	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	3	13
Legionnaires' (Other)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leprosy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Meningococcal infection (invasive)	3	1	4	1	2	2	-	2	5	1	-	-	1	-	-	-	1	-	23	102
Mycobacterial tuberculosis	3	5	6	1	-	1	-	-	12	-	-	-	-	-	-	1	-	-	29	157
Mycobacteria other than TB	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	2	19
Vaccine-preventable																				
Adverse event after immunisation	-	3	-	-	-	1	-	1	3	-	-	-	-	-	-	-	-	-	8	35
H.influenzae b infection (invasive)*	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	3
Measles	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	13
Mumps*	-	2	1	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	5	14
Pertussis	23	26	12	23	25	8	30	12	48	25	6	11	20	9	-	8	2	-	288	1,318
Rubella*	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	35
Tetanus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Faecal-oral																				
Botulism	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cholera*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cryptosporidiosis*	-	1	-	1	-	-	1	-	5	3	1	3	2	-	-	-	2	-	19	85
Giardiasis*	-	9	6	5	-	1	13	2	14	5	2	2	1	1	-	5	-	-	67	426
Food borne illness (not otherwise specified)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16
Gastroenteritis (in an institution)	-	-	-	-	-	-	22	-	-	-	-	-	-	-	-	-	-	-	22	215
Haemolytic uraemic syndrome	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Hepatitis A*	4	3	4	-	-	-	-	-	2	1	1	-	-	-	-	-	-	-	15	54
Hepatitis E*	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	7
Listeriosis*	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	10
Salmonellosis (not otherwise specified)*	7	16	18	4	-	2	11	2	16	3	8	6	3	4	1	4	3	-	109	772
Shigellosis	-	1	-	-	-	-	-	-	10	-	-	-	-	-	-	-	1	-	12	49
Typhoid and paratyphoid*	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	18
Verotoxin producing Ecoli*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* lab-confirmed cases only

† includes cases with unknown postcode

CSA = Central Sydney Area
NSA = Northern Sydney Area
WSA = Western Sydney AreaWEN = Wentworth Area
SWS = South Western Sydney Area
CCA = Central Coast AreaHUN = Hunter Area
ILL = Illawarra Area
SES = South Eastern Sydney AreaNRA = Northern Rivers Area
MNC = North Coast Area
NEA = New England AreaMAC = Macquarie Area
MWA = Mid Western Area
FWA = Far West AreaGMA = Greater Murray Area
SA = Southern Area
CHS = Corrections Health Service

NSW PUBLIC HEALTH BULLETIN

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Dr Michael Giffin is managing editor.

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

Submission of articles

Articles, news and comments should be 1000–1500 words or less in length and include a summary of the key points to be made in the first paragraph. References should be set out in the Vancouver style, described in the *New England Journal of Medicine*, 1997; 336: 309–315. Send submitted articles on paper and in electronic form, either on disc (Word for Windows is preferred), or by email. The article must be accompanied by a letter signed by all authors. Full instructions for authors are available on request from the managing editor.

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