9 Improving public health practice

At the start of the 21st century, the primary functions of public health interventions were to protect and promote health and to prevent illness, injury and disability in the population.[9] Some enabling (or instrumental) activities were also required to make sure that the public health sector had the capacity, capability and competence to achieve its primary functions (Figure 9.1).[639] The development and maintenance of a skilled workforce, essential infrastructure, partnerships and research were critical to the role of public health, and underpinned its success.

Figure 9.1: An overview of public health functions

Primary functions	Assess health of populations	Monitor health Evaluate health risks and benefits Assess health inequalities
	Protect the public from threats to health	Prepare for threats to health Respond to threats to health Control and mitigate risks to health
	Promote health and prevent disease, disability and injury of populations	Promote health and wellbeing Prevent the occurrence of disease, disability and injury Detect disease, disability or injury in its early stages
Instrumental functions	Ensure public health capability	Develop and maintain the public health workforce Develop and maintain public health infrastructure Build public health partnerships
	Build the evidence base for public health	Conduct public health research Evaluate public health interventions

Source: Gruszin et al., *Public Health Classifications Project, Phase one: final report*, 2006, p. vi.

Modern public health practitioners operated in a variety of settings, using a range of methods that drew on many scientific disciplines, technologies and skill-sets (e.g., communicable disease control, food safety, health education, social marketing and urban planning).[639] The public health sector also facilitated partnerships at all levels of government (i.e., national, state and local governments) and with other agencies, including educational institutions and schools, workplaces, road safety units, product manufacturers, environmental protection authorities, non-government organisations (NGOs), community groups, and those representing consumers (Box 9.1), as well as academics and researchers.

The Australian government was the major source of public health funding, while the state and territory governments mostly applied those funds.[111] Public health activity was costed at the program level, and its success or otherwise was determined using technical measures such as effectiveness, population health status indicators, disease burden and potentially avoidable mortality.[13,357,557]

Public health employers and occupations were varied: there was no single occupation or industry group.[640] The workforce was pyramid-shaped, with a small percentage of dedicated public health specialists, and a larger majority of 'general health and associated workers' who undertook public health activities on either a regular or occasional basis.[639]

Many public health activities occurred outside of the government health sector: in local government, community groups, schools, kindergartens, workplaces, health-related NGOs, and non-health government departments, including planning and environmental protection agencies. Some traditional public health functions were funded by non-health portfolios (e.g., sewage disposal, provision of safe drinking water).

Significant public health functions that developed over the 20th century are described in this chapter. Essential resource and infrastructure components of public health included:

- healthy public policies;

- the public health workforce, and workforce development capacity (e.g., university and other training courses);

- funding and investment;

- partnerships;

- technical and physical infrastructure (e.g., public health laboratories and public health units in state and territory Health Departments);

- information and data collection systems (e.g., notifications of infectious diseases, registers - children immunised, cancer cases, population health surveys); and

- legislative infrastructure (e.g., public health lawyers, laws, regulations and standards).

Government involvement in public health started with policy that was frequently enacted in legislation. Legislation and regulation, and their monitoring and enforcement were pivotal tools in underpinning public health effort from colonial times (pre-Federation) (Box 9.2). The first national public health legislation in Australia was the Commonwealth *Quarantine Act 1908*.[30] While this *Act* provided for enforcement powers to detain and isolate individuals, much of the later public health legislation focused on changing population attitudes and behaviours, such as legislating for the mandatory wearing of seat belts in cars, and to limit alcohol intake when driving.

Public health practices

At the beginning of the 21st century, the public health sector had built an evidence base by conducting public health research and evaluating public health interventions. Interventions - programs, services and activities - addressed health issues across the areas of population health and wellbeing, diseases and conditions, injury, disability and functioning, as well as other areas (e.g., environmental, and socioeconomic factors) that also affected the population's capacity to be healthy.

Australian public health research was internationally applicable, from vaccine development to epidemiological studies (Section 9.3). Basic science, undertaken across many disciplines from microbiology to toxicology, supported public health epidemiology and played a major role in health interventions (e.g., in identifying the dangers of asbestos). The social sciences informed health promotion, health education, health policy development, social

Box 9.1 Consumers' Health Forum of Australia, 1987-

The Consumers' Health Forum of Australia (CHF) was an important part of the public health infrastructure that was created in the 1980s. It was an independent member-based, non-government organisation for health consumers. It helped shape Australia's health systems by representing and involving consumers in health policy and program development.[641] It received funding from the federal Department of Health and Ageing.

Health policy was developed by the CHF through extensive consultation with members, ensuring a broadly representative health consumer perspective, rather than narrower political or sectional interests. Priority consumer health issues for CHF included:

- the safety and quality of health care,

- appropriate use of medicines, and

- effective health care for people with chronic conditions.[641]

Box 9.2 Early public health legislation

The first comprehensive attempt at regulating public health was the English *Public Health Act 1848,* which

'provided remedial powers for nuisances and authorised the undertaking of public health work… provided controls over slaughter houses, common lodging houses and offensive trades. It contained building requirements; that all houses had to be built with drains, where possible connecting with a sewerage system or if not, a cesspit. It… created a public health structure; a General Board of Health was established as a national public health authority. At a municipal (local council) level Local Boards of Health were established with the power to appoint surveyors and inspectors of nuisances.[30] *Responsibilities for sewers were vested in the Local Board and there were powers to control and cleanse'.*[30]

The first public health act in Australia was the Victorian *Public Health Act 1854*. The English *Public Health Act 1875*, and the smallpox epidemics in the 1880s produced further colonial public health legislation: in Victoria in 1883 and 1889; Queensland in 1884; Tasmania in 1885; WA in 1886; SA in 1884 and 1898; and NSW in 1896.[9]

marketing and other behavioural interventions, and were used in research, the investigation of the burden of disease, and the evaluation of program implementation. Survey design, data analysis and anthropological methods were other important tools used to support public health activity.

Evidence-based medicine made a significant, and growing, contribution by identifying gaps between current public health practice and best evidence practice (for example, the systematic reviews of evidence undertaken by the Cochrane Collaboration, and studies by the National Institute of Clinical Studies). [126, 642] Health economics evolved as a discipline, developing tools to model comparative information for use in resource allocation and priority-setting for investment in public health. For example, it became good practice to base policy decisions about inclusions to the national immunisation schedule (and to other national programs, such as the PBS and organised cancer screening programs) on cost- benefit and cost-effectiveness studies.

Public health data collection was funded, although there was an opportunity for further investment in data analysis and its use in supporting policy development. Monitoring, surveillance and the assessment of population health were increasingly important tools for public health (Section 9.4).

Many public health practitioners surveyed for this report commented on the crucial importance of public health legislation in relation to many of the public health successes described in this report (Box 9.3). Australians were generally prepared to accept that some of their individual civil liberties would be restricted for the sake of the public good. They had, in the main, endorsed the introduction of strategies such as the wearing of seatbelts, random breath testing, and smoke-free premises' legislation, in a similar way to their acceptance of the need for quarantine for the treatment of infectious diseases in earlier times (e.g., people with tuberculosis agreed to go to sanatoria for treatment). [76] When quarantine was inappropriate, as for example, for people living with HIV/AIDS, the law was used to address possible discrimination, which might have impeded public health actions to protect the wider community and treat sufferers.

Tobacco hypothecation (the principle of taxing tobacco to pay for strategies to reduce tobacco usage), and the creation of health promotion foundations, were 'world firsts' in public health legislation. The taxation system was also used as a public health tool, with consumers paying more for some unhealthy products (e.g., increased taxes on tobacco).

National public health policies aimed to provide a consistent response by governments to public health issues, and to set parameters for action and targets to be achieved. Examples included the *Tuberculosis Control Strategy*, the *National Tobacco Strategy*, the *National HIV/AIDS Strategy*, the *National Women's Health Strategy* and the *National Aboriginal Health Strategy*. In the latter half of the century, uniform national legislation and strategies were enacted and implemented at jurisdictional levels with appropriate local adaptation (e.g., in road safety, occupational health and safety, and food safety).

> **Box 9.3 Legislation identified as public health successes by survey respondents**
>
> The *Pure Food Acts*
>
> Public health legislation 'provided security (e.g., food could not be intentionally or unintentionally contaminated, asbestos had to be collected and disposed of in specific ways, cars had to have specific safety features)'
>
> Legislation to control and isolate infectious cases of notifiable diseases
>
> The Harvester Judgement (living or basic wage)
>
> Increasingly stringent legislation to ensure Air, food, water and product quality—and greater penalties for failing to do so
>
> Food surveillance and regulation
>
> Occupational health and safety legislation
>
> Road safety - compulsory seat belts, motor cycle helmets, drink driving legislation, speed limits
>
> Legislation to change behaviours at a population level: drink driving legislation, seat belt wearing legislation
>
> Introduction of Australian standards for items from baby baths to toys, vehicles to clothing
>
> Gun control - changes in legislation (after the Port Arthur tragedy) to reduce gun deaths

Australia was an early pioneer of health impact assessment methodology and in the development of municipal public health plans (Box 9.4).

Australian public health advocates also contributed to international public health forums, chief among which was the World Health Organization (WHO). Australia had an ongoing relationship with the WHO from its inception, and participated in global public health efforts, such as the successful smallpox and polio eradication programs, and the subsequent measles' eradication campaign. Australian public health reference laboratories provided annual data to the WHO on the strains of influenza in the region. There was also a national commitment to contributing data on a wide range of health indicators, to allow international comparison and monitoring of population health and wellbeing.

> **Box 9.4 Health impact assessment**
>
> 'At the policy level, Health Impact Assessment (HIA) [was] gaining increasing recognition as a tool for assessing the potential effects of a policy or program on health. HIA which systematically addresses equity also offered a way of incorporating equity concerns into the decision-making process. However, HIA was a comparatively new field, and decision makers were not usually trained in assessing the impact of policy decisions on equity. Through the Public Health Education and Research Program, the Australian government commissioned the development of an HIA framework to assist decision makers in systematically identifying potential health equity impacts of policies. This equity-focused HIA framework was tested to assess whether and where it added value to the decision-making processes.'[643]

Other significant components of public health not detailed in this report were public health laboratories, including reference laboratories that typed and provided critical data on infectious diseases; and dedicated public health physical infrastructure, such as sentinel animal programs (e.g., the 59 sentinel chicken flocks maintained around Australia to provide early warning of infectious viruses).[644]

The modern public health practice of preparing for and responding to public health emergencies was another important component, which involved:

- establishing systems and means of effective command;

- control and communication strategies to ensure that there were coordinated responses to emergencies and disasters (e.g., natural disasters such as bushfires, floods and cyclones); and

- nation-wide planning (e.g., for avian flu and other pandemics).[645]

> *Survey respondents: There were public health successes in 'Smoke free and QUIT smoking initiatives as part of a multi-pronged approach – health promotion, legislation, incorporation into acute care – [where] balances have been struck between individual and community rights.'*
>
> *'Driven by and owned by the population, there is increasing awareness of healthy behaviours (i.e., food selection, exercise, mental and spiritual health) and scepticism about the appropriateness of certain medical interventions. The health sector has inputted in many important ways into changing beliefs about health – through information, individual consultations and through dialogue at all levels.'*

Communication strategies in these cases included the need to inform the community and control public panic, as this could cause problems in addition to those related to the original emergency (demonstrated internationally after the SARS outbreak). While identifying these response systems as components of successful public health practice, survey respondents suggested that they could not as yet be cited as successes as they were still largely untested. The implementation of risk mitigation strategies, health impact assessments, and some other risk-related techniques were also relatively new developments that needed further assessment over the longer term to determine their efficacy.

There was no doubt that the public health practice of 'an organised response' to the protection and promotion of health and the prevention of illness, injury and disability in the population saved lives during the 20th century. Supporting, training and developing a specialised public health workforce (Section 9.1), conducting public health research

> *Survey respondent: 'Getting organised saves lives.'*

(Section 9.3), and monitoring and surveying the population's health (Section 9.4) were some of the essential elements. The successful establishment of an Aboriginal Community-Controlled Health sector is also included in this chapter, as it developed over more than thirty years into an organised, extensive and sustainable service, dedicated to improving the health and wellbeing of Indigenous Australians (Section 9.2).

Further public health practices operated over the longer term, and required sustained investment and the dedication of resources to this end. Many of the strategies and achievements described in this report were achieved after decades - in some cases, a century - of effort and investment by the public health sector.

Finally, the practice of public health included the many ways in which public health practitioners engaged with the community in promoting health and maintaining safe environments, and in warning of health risks. In the later decades of the 20th century and in the 21st century, public health successfully shifted its emphasis from legal coercion to strategies that encompassed persuasion, engagement and participation in working towards the public health ideal of 'an active partnership with citizens'.[1]

9.1 Training the public health workforce

1907 onwards

The earliest national government investment in public health education and training occurred in 1907, with the formation of the Australian Institute of Tropical Medicine (AITM). It was subsequently incorporated into the School of Public Health and Tropical Medicine (established in 1930), as part of the federal Department of Health, but based at the University of Sydney.[646] At the start of the 21st century, the Anton Breinl Centre for Tropical Medicine (named in 2002 in honour of the director of AITM from 1910 to 1921) occupied the site of the original AITM, at the James Cook University in Townsville.

The Australian and New Zealand Society for Epidemiology and Research into Community Health, established in the late 1970s, was one of the first professional associations to make a contribution to the development of public health practice, research, policy and debate, especially via its peer-reviewed journal. It became the Australian Public Health Association (APHA) in 1986, taking on a broader role in advocacy and policy development. By 2006, the Public Health Association of Australia (PHAA) had contributed policies and advocacy across the spectrum of public health issues, held an annual conference for public health practitioners, and had special interest groups to maintain 'watching briefs' on particular public health areas.[647]

The PHAA was one among many public health organisations, which also included the Australian Health Promotion Association, the Australasian Faculty of Public Health Medicine, the Australian Epidemiology Association, the Australian Institute of Environmental Health, the Biostatistics Collaboration of Australia, and the Health Services' Research Association of Australia and New Zealand.

> *Survey respondent:* '[The] Kerr White report of 1986 recommended expansion of public health training in Australia to build workforce capacity so that today public health professionals deliver a breadth of services to support the above listed public health interventions that were previously unimagined or dependent on small numbers of elite practitioners, and therefore unable to be implemented or limited to large population centres.'

When the federal government commissioned the Kerr White review of the research and educational requirements for public and tropical health in 1986, there was only one School of Public Health in Australia.[648] The Kerr White Review Report (1986) recommended a decentralisation of public health training and the redistribution of funds, from the School of Public Health and Tropical Medicine, to new public health institutions across Australia.

It also proposed that:

- public health training become more multidisciplinary;
- a Public Health Education and Research Program (PHERP) be formed;
- an Australian Institute of Health be established; and
- a principal committee of the NHMRC be dedicated to public health research (the Public Health Research and Development Committee).[648, 649]

The report emphasised the need to orientate the health services' sector towards a more preventive focus.[650]

In response to the recommendations of the Kerr White Review, the federal Department of Health established the Public Health Education and Research Program (PHERP) (which , *inter alia,* established postgraduate public health education programmes in universities other than Sydney and James Cook), the Public Health Research and Development Committee of the NHMRC, and the Australian Institute of Tropical Medicine (which was re-established at the James Cook University of North Queensland, after an absence of 56 years).[649] PHERP was an initiative to strengthen national capacity to educate and train the public health workforce, and apply a greater focus on prevention.[650,651]

Public health practices

By 2006, both undergraduate and post-graduate courses (e.g., Master of Public Health (MPH), Master of Applied Epidemiology) were available, and there were approximately twenty MPH courses across Australia (Box 9.5). Although there were more schools of public health than twenty years earlier, and university faculties of public health in all jurisdictions, most had not attracted large numbers of 'high quality' postgraduate students, and a dearth of such students was a major barrier to public health research.[655] The Australian Network of Academic Public Health Institutions was formed to promote collaboration among Australian academic institutions involved in public health education and research, and to partner with governments to respond better to the national interest.

The growth of public health education in Australia contributed significantly to increased capacity; and greater investment in the tertiary education sector resulted in more public health undergraduate and MPH degree courses, and in the numbers of public health doctorates. The development of the *Population Health Competencies and Qualifications Package* by the Industry and Skills Council for the Vocational Education and Training sector was another important initiative to strengthen public health practice in Australia.

> **Box 9.5 Public health officers' training programs, 1993-**
>
> The Victorian Public Health Training Scheme (VPHTS), an opportunity to develop a broad understanding and exposure to public health practice in Victoria through a two year full-time training program, was an initiative of the Public Health Division of the Department of Human Services, and accredited by La Trobe University. For medical graduates, the program was accredited by the Australasian Faculty of Public Health Medicine of the Royal Australasian College of Physicians.[652]
>
> VPHTS was structured to develop public health competencies and skills through practical experience with six placements in a range of public health settings. A position on the scheme was designated specifically for a person of Aboriginal or Torres Strait Island background.
>
> VPHTS won the 2005 B-HERT National Award for Outstanding Achievement in Education and Training Collaboration, awarded by the Business and Higher Education Round Table.
>
> NSW also had a well established, three year, Public Health Officer Training Program (since 1994).[653, 640] The first Indigenous trainee completed the Program in 2001.[654] By 2005, WA had also commenced a three year competency-based Population Health Training Program.[650]

Additional capacity in tropical medicine resulted from Commonwealth core funding for the Anton Brienl Centre, and the Australian Centre for International and Tropical Health and Nutrition, established in 1995 as a joint venture between the Queensland Institute of Medical Research and the University of Queensland. PHERP also funded the National Centre for Epidemiology in Population Health (NCEPH) at the Australian National University in Canberra, as well as individual universities and consortia offering postgraduate degrees and short courses for the professional development of the public health workforce.[651] General Practice Divisions, medical colleges and professional associations were other points of contact for public health practitioners from various disciplines.

In response to public health workforce needs in national priority areas identified by the PHERP Review, Australian government funding was made available for the 2006-2010 phase of PHERP to target specific workforce needs in:

- Indigenous health;
- biosecurity and disaster management;
- obesity, physical activity and nutrition; and
- other emerging priorities.[651]

Innovative approaches in education and training technologies contributed significantly to the development of public health infrastructure, and this investment enabled public health education to become more widely available across Australia.

> *Survey respondent:* '*The universities were the successful drivers who introduced public health training to health professionals [and] should be encouraged to introduce public health curricula and courses in disciplines such as engineering, business management, finance, economics, politics, and philosophy.*'

Later directions included innovative delivery modes such as web-based, intensive and semester-length approaches; distance education modules for practitioners in rural and remote Australia and those working with Indigenous communities; mentorship arrangements; capacity building in Equity-focused Health Impact Assessment; and the establishment of registrar positions to enhance the public health capacity of general practitioners.[651]

There were significant increases in the Indigenous public health workforce, mainly during the latter part of the 20th century. By 2003, there were over 50 trained Indigenous medical practitioners, while 35 Indigenous students had commenced a course in general medicine in 2002.[656] Membership of the Australian Indigenous Doctors' Association (AIDA) in 2003 included 55 Indigenous medical practitioners and 70 Indigenous medical students.

Several initiatives to improve Indigenous workforce capacity were underway. For instance, the Puggy Hunter Memorial Scholarship Scheme, (established in 2002) provided scholarships for Indigenous students in health careers. AIDA and the Congress of Aboriginal and Torres Strait Islander Nurses continued to increase their capacity and assistance and support to members, especially medical and nursing students.

Factors critical to success

Improvements in training, the increasing professionalism of the public health sector, and the implementation of a continuous learning model were some of the critical factors in the development of the public health workforce. The growth of public health education successfully contributed to increasing public health capacity and capability.

For public health medical practitioners and other professional public health staff, continuous refreshment of skills became the norm, as the knowledge required to fulfil their roles increased over time. The availability of specialised training and development, and greater professionalisation were all nominated as public health successes by survey respondents.

The development of an Indigenous public health workforce, including the roles of Aboriginal and Torres Strait Islander Health Workers and Environmental Health Workers (Box 9.6 and Box 9.7), and increasing numbers of Indigenous doctors, nurses, allied health professionals and researchers began to make a contribution, but more progress was still required.

Future challenges

In considering the future directions for public health workforce development, the PHERP Review identified that innovative strategies were needed to respond to the future challenges of:

- globalisation;
- transformations in science and medical technologies (e.g., genomics and health informatics);
- demographic and community trends;
- the changing nature of work, and of the health workforce;
- the evolution of health systems and the impact of health system reform; and
- the demands of health stewardship and leadership.[650]

The skills' shortage directly affecting the health industry and an older health workforce resulting from Australia's increasingly ageing population were major challenges.[659] Continued improvements in population health depended on securing a sufficient future supply of qualified public health practitioners.

Although a good start had been made, increasing Indigenous public health workforce recruitment, development, training and retention (as recommended by the PHERP Review) remained significant issues.[659] Building public health capacity in the broader health workforce and related industries, such as transport, housing and urban planning, was also essential.

Innovative strategies were required to address recruitment and retention issues in the public health workforce, including improved workforce monitoring and planning. A coordinated system for the collection of public health workforce information and data was needed to ensure that the numbers and distribution of public health practitioners were adequate for future requirements.

Box 9.6 Developing an Indigenous public health workforce

The development of an Indigenous public health workforce began with the important roles of Aboriginal and Torres Strait Islander Health Workers and Environmental Health Workers. By 2001, there were 853 Aboriginal and Torres Strait Islander people employed as Health Workers, representing almost 23% of all Aboriginal and Torres Strait Islander people in health occupations (3,742 people) and 93% of all workers in this occupation.[657] The 114 Aboriginal and Torres Strait Islander Environmental Health Workers were 3.5% of the 3,302 people employed in this occupation, and 3% of all Aboriginal and Torres Strait Islander people working in health occupations.

The endorsement of the Aboriginal Health Worker and Torres Strait Islander Health Worker national competency standards in 1998 first recognised the role of these health workers nationally. Later, revised national competencies and qualifications in Aboriginal and Torres Strait Islander health work introduced a national standard of qualifications, clarified their role and helped strengthen the recruitment and retention of Indigenous Health Workers.

A strong Indigenous public health workforce required effective recruitment, development, training and retention practices, as identified by the PHERP Review on strengthening workforce capacity for population health.[650] More Indigenous academics were needed to lead and teach these programs.[658]

Box 9.7 Environmental Health Workers in Indigenous communities, 1993-

Environmental Health Workers promoted and enhanced environmental health (housing, water quality, control of mosquitoes and other vectors, refuse, food safety and sewage) in Indigenous communities. They were first introduced in the NT in 1993, and were subsequently employed in most states and territories.[658]

9.2 Aboriginal Community-Controlled Health Services

1971 onwards

In 1971, the first Aboriginal Community-Controlled Health Service (ACCHS) was established by the local Aboriginal community in the suburb of Redfern in Sydney, to address the discrimination experienced in mainstream health services, the ill health and premature deaths of Aboriginal people, and the need for culturally appropriate and accessible health services.

Community-controlled health service provision was defined as:

> '… the local community having control of issues that directly affect[ed] their community. Aboriginal people must determine and control the pace, shape and manner of change and decision-making at local, regional, state and national levels…' — The Ottawa Charter for Health Promotion, 1986.[8]

ACCHSs were characterised by the principle of self-governance. Each was initiated by the local Indigenous community, was based in and controlled by that community, and delivered holistic and culturally appropriate primary health care to Aboriginal people. From 1971 onwards, a growing number of these services delivered community-controlled primary care and health promotion, identifying social health determinants, addressing ways to reduce inequalities, and advocating for improvements in Indigenous health.

ACCHSs adopted an integrated primary health care model that was consistent with the philosophy of Aboriginal community control and a holistic view of health, and with public health perspectives:

> 'Aboriginal health is not just the physical well being of an individual but is the social, emotional and cultural well being of the whole community in which each individual is able to achieve their full potential thereby bringing about the total well being of their community. It is a whole-of-life view and includes the cyclical concept of life-death-life.' — National Aboriginal Health Strategy, 1989.[660]

The health of Aboriginal and Torres Strait Islander populations improved on a number of measures, but not all, and a very significant disparity in health status remained between Aboriginal and Torres Strait Islander peoples, and other Australians. Some of the infrastructure required to deliver benefits, such as an Indigenous public health workforce, were being addressed in part, and a number of the preconditions for improving health were in place.[656] However, much faster progress was needed.

In 2004, it was reported that Indigenous mortality rates had declined over the four previous decades and life expectancy was expected to improve.[661,662] The contribution of infectious diseases, maternal, perinatal and nutritional conditions to the burden of disease had decreased. Excess mortality and morbidity, however, still persisted, and an increase in chronic diseases also added to the poorer overall health of Indigenous Australians.[663]

Time trends indicated that the health of Aboriginal and Torres Strait Islander populations had improved slightly in those jurisdictions that had the best quality data (SA, WA, and NT). Over the period 1991 to 2003, there was a 16% decrease in deaths from all causes, a 44% decline in infant deaths and a 55% fall in perinatal deaths.[154] Deaths caused by circulatory system diseases declined at a faster rate than for other Australians and the gap between the two narrowed.[154] Low birthweight, however, was still twice as prevalent among infants of Indigenous mothers compared with other infants; and large disparities still remained in the occurrence of chronic diseases, infectious diseases, poor oral health, and hearing loss, and in significantly lower life expectancies.[154]

Alarmingly, some diseases, long since eradicated in the non-Indigenous population, still affected the Indigenous population (e.g., leprosy, rheumatic fever, donovanosis).[664,665,666] Although there was better management and falling rates of trachoma, otitis media, and sexually-transmitted diseases in some remote communities, more needed to be accomplished in others to address these diseases.

While some observers pointed to the failures in Aboriginal and Torres Strait Islander peoples' health and apportioned blame to the health system for the poorer health in these communities, others, such as Ernest Hunter, believed that, from the time of the first ACCHS in 1971, much had changed for the

better.[656] In the early 1970s, there was a very limited non-Indigenous health workforce, and no Aboriginal and Torres Strait Islander health workforce; little understanding of the policy context of Indigenous health; and virtually no appropriate research capacity.[656] Employment opportunities declined in the downturn of the 1970s and social conditions worsened, community housing and sanitation were 'appalling', health services were poorly resourced, community governance was in its infancy, and new problems were appearing in a policy vacuum.[656]

In 1967, when 90% of eligible voters voted to change the Australian Constitution in a referendum, the Commonwealth parliament was finally empowered to enact laws for Aboriginal peoples and Torres Strait Islanders and to include these Australians in the Census. From 1996, there was an increase of 146% in real terms in Australian government funding for Indigenous-specific health programs, with corresponding increases in the numbers of staff employed in these services and in the episodes of health care provided.[667] By 2003, major capital works in the health sector in the 1980s and 1990s had provided facilities so that health services could be delivered, a (small but growing) workforce had been developed, a federal role in Indigenous Australians' health was apparent, and there was growing cooperation across the divide separating the community-controlled and the mainstream health sectors.

> *'It was only approximately three decades ago that governments began taking Indigenous health seriously, around the time that the community-controlled sector came into being. It is only in the last decade that it has been a national priority.'* − E Hunter, Australasian Psychiatry, *vol. 11 2003, p. 423.[656]*

Public health practices

The development of ACCHSs was an organised response by Aboriginal and Torres Strait Islander peoples to prevent illness and promote health in their populations, and 'the practical expression of Aboriginal self-determination in Aboriginal health'. ACCHSs aimed:

- to provide sustainable services - built up over more than thirty years;
- to address many of the determinants of poor health;
- to be responsive to their communities; and
- to provide effective mechanisms for primary health care delivery.

> ***Survey respondents:*** *The health of Indigenous Australians 'has a long way to go to reduce the health inequalities', and 'needs to be a top priority'.*

There were more than 140 ACCHSs operated by Indigenous communities across Australia in 2005.[669]   They varied in size from large multi-functional services providing a range of services and employing several medical practitioners, to small services without medical practitioners, which relied on Aboriginal Health Workers and nurses to provide primary care, preventive health care and health education.[668] Approximately one-third of ACCHSs provided 24-hour emergency care.[668] ACCHSs also played a vital role in linking with mainstream health care services.

ACCHSs received funding from the Australian government, state and territory governments, or both. The Australian government provided funding to the ACCHSs via the Office for Aboriginal and Torres Strait Islander Health (OATSIH). OATSIH-funded community-controlled health organisations and the Indigenous populations they served were widely spread across Australia, including the most remote areas of the country (Map 9.1).
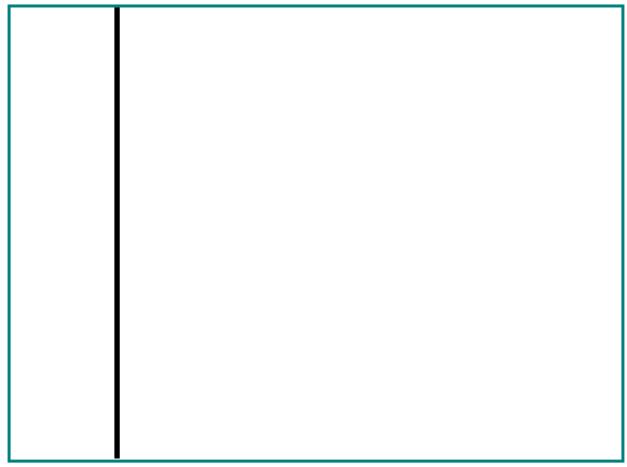
All Australian government-funded ACCHSs that employed doctors or allied health workers could apply to be covered by Medicare and patients using these services were bulk-billed. This applied to around 120 of the Australian government-funded services. State and territory governments also funded a number of community-based Indigenous primary health care services.

In addition, there were about 100 Northern Territory and Queensland government Indigenous primary health care services in rural and remote locations, where there was no private provider that offered

bulk-billing through Medicare. The Medicare funds received from direct billing were used for the provision of additional primary health care services for Aboriginal and Torres Strait Islander peoples.

By June 2005, ACCHSs provided substantial employment, with a workforce of approximately 215 full-time equivalent medical practitioners, 292 nurses, 665 Aboriginal Health Workers, and a range of allied health workers, totalling around 3,000 full-time equivalent staff.[668] The services offered significant employment opportunities for Aboriginal and Torres Strait Islander health professionals: around 61% of ACCHS employees in the 141 services spread across Australia were Indigenous Australians.[668]

Map 9.1: OATSIH-funded community-controlled health organisations, 2006-2007, and 2006 Indigenous population

Note: OATSIH-funded community-controlled health organisations are those that were identified as community-controlled by OATSIH's funding system, ORAC. Population figures are by 2006 Statistical Local Area, from the 2006 Census Indigenous Usual Place of Residence count.

Source: Produced by the Office for Aboriginal and Torres Strait Islander Health (OATSIH), Program Management and Implementation Section, 2008.

ACCHS consultations were more complex than those in private general practices, with a 1998 study reporting 'more young patients, more new patients, more home visits, more new problems and problems managed per patient, and more consultations leading to emergency hospital admission'.[670] Moreover, in many ACCHSs, Aboriginal Health Workers were the first point of contact for patients, and only 35% of consultations involved GPs.[670]

Later comparisons between Indigenous primary care consultations in the ACCHS sector and those in mainstream general practice in 2000 and 2001 concurred with these findings. ACCHS patients had a younger age distribution, and consultations required the management of significantly more problems (1.65 problems per consultation compared to 1.48 for Indigenous patients in non-ACCHS practices, and 1.45 problems per consultation for non-Indigenous patients).[671] Aboriginal Health Workers and nurses participated in a large number of consultations.[671] Thus, ACCHSs played an important part in the health system by providing care for Aboriginal and Torres Strait Islander patients with complex care needs.

The National Aboriginal Community Controlled Health Organisation (NACCHO) was the national peak Indigenous health body representing ACCHSs throughout Australia.[672] It was established in the 1990s, superseding the National Aboriginal and Islander Health Organisation (NAIHO) that had been formed in 1976.[669]

NACCHO was governed by an elected Aboriginal Board of Directors and worked:

- to create conditions which enhanced Aboriginal peoples' access to primary health care services and other services in the event of sickness;

- to advocate for resources for ACCHSs to meet fully the health and health-related needs of their communities;

- to assess health needs for the prevention, treatment and control of epidemic, endemic, and chronic diseases affecting Indigenous peoples; and

- to improve the effectiveness and cultural validity of national health policies, programs and initiatives for Indigenous peoples.[669]

In 1994, in partnership with the Royal Australian College of General Practitioners (RACGP), NACCHO developed the nation's first curriculum in Aboriginal health for GP Registrars, and a supplementary Indigenous health training module for GPs was produced in 2000.

Collaborative efforts led to the establishment of the Section 100 (S100) pharmaceutical access scheme in 1999 (Box 9.8). Section 100 of the *National Health Act 1953* was used to provide access for remote Aboriginal communities to all drugs on the Pharmaceutical Benefits Scheme (PBS). This allowed eligible Indigenous health services to be supplied PBS medicines in bulk through the community pharmacy, which was then reimbursed directly by the Health Insurance Commission (later, Medicare Australia). Medicines became more accessible to the community and more closely integrated with primary health care.

The Scheme ensured that Aboriginal and Torres Strait Islander people in remote areas could access PBS medicines at no cost. In 2004, there were 47 ACCHSs and 128 state- and territory-operated Aboriginal Health Services in remote areas that accessed medicines using S100, and access to medicines had significantly increased.[673,674]

Box 9.8   S100 - Improving Indigenous access to medicines, 1999-

In 2004, an evaluation of the PBS Medicine Supply Arrangements for Remote Area Aboriginal Health Services reported many positive assessments, such as:

'*"I think the biggest strength is being able to have the luxury of getting the medicine we should have. What that means for our patients is that they get the same care that they'd be getting if they saw a GP in Alice Springs and that's the way it should be"(Doctor, NT).*

The evaluation concluded that the program had increased access to medicine in all jurisdictions, especially oral hypoglycaemic agents, ACE inhibitors, asthma medicine and acute medicines used to treat conditions prevalent in Aboriginal and Torres Strait Islander communities.[674]

In 2005, Couzos suggested that improving the up-take of medications by Indigenous people in non-remote areas was a government 'best buy' and a cost effective way to reduce the excess burden of disease faced by Aboriginal and Torres Strait Islander peoples.[673] The majority of the diseases causing 'excess deaths' were treatable with medications (e.g., medication that was cost-effective in preventing renal failure in the Aboriginal population).[675,676]

Expansion of the program to non-remote areas at a cost from $41 million per year - at prescribing rates based on S100 utilisation rates - to $96 million per year if prescribing rates increased to the average Australian level - required less than a 2% increase in PBS expenditure.[675,676] The per capita level of PBS spending on Aboriginal and Torres Strait Islander peoples, however, still needed to be set higher because of the excess burden of disease suffered by these populations.

A federal budget initiative to establish medicines on the PBS specifically for Aboriginal and Torres Strait Islander peoples was implemented in 2004, in response to a NACCHO proposal to address Indigenous health needs.[677]

The 2004 launch of the Medicare Benefits Schedule (MBS) item 710 (a rebate for an Aboriginal and Torres Strait Islander adult health check for those aged 15-54 years) was the direct outcome of NACCHO's advocacy, as was the MBS rebate for a child health check (for Aboriginal and Torres Strait Islander children aged 6 weeks to 14 years).[678,679]

Other efforts towards addressing health inequality included the reform of the Commonwealth Hearing Services' Program for a reduced age threshold for Indigenous peoples, and the new Asthma Spacers Ordering Scheme to address the identified poor access to spacer devices.[680 681,682] The national vaccination schedule was also tailored to prevent infectious diseases to which Indigenous children were particularly susceptible (see Sub-section 1.3.1).[683]

ACCHSs and their state and national representative bodies effectively advocated for Aboriginal and Torres Strait Islander peoples' health, and, slowly, mainstream health services started to change to better meet the needs of Indigenous Australians. However, there was little firm evidence to prove a demonstrable contribution to improved Indigenous health via this mechanism of health service delivery.

Factors critical to success

The underlying factor that was critical to the success of ACCHSs was that of Indigenous self-determination – health services developed by the Indigenous community for their members, and in line with the Aboriginal and Torres Strait Islander view of health which incorporated wellbeing and a whole-of-life perspective, and which non-Indigenous health services appeared unable to adopt.

> *'How do you link the body part funding and the body part [government] departments to a holistic framework of fixing the health problem? … you have the dollars for the ears, the dollars for the eyes, dollars for the heart, the kidney. Well, it's alright if you're in a system where you can actually go off and have the opportunity of seeing all these things in one place but, as we all know out there, this is not the case. So you are constantly dealing with different [national] policies, let alone the States and Territory policies… I think to myself… we might as well talk to the brain because it must [be] in charge of the body and we can get some sense out of that fellow. Then we get to the brain and we find… I asked the Minister this: "Why do you white people break things into pieces?" and then, "you've got the Department of the Brain?" [only to] find out we've got different parts of the brain… It's all in parts again so we go to suicide prevention, national injury, crime strategies, the stolen generation, the drug strategy, emotional wellbeing - why? Why? It's so confusing for the individual person, for anybody to make any sense out of it.' − Dr Arnold ('Puggy') Hunter, recipient of the Human Rights and Equal Opportunity Commission's Human Rights Medal in 2001 and former Chair of the National Aboriginal Community Controlled Health Organisation, who passed away at the age of 50 years in 2001.[684]*

Future challenges

Future challenges for improving the health of Aboriginal and Torres Strait Islander peoples in both ACCHSs and in mainstream primary health care services, included:

- correcting the under-funding of primary health care services provided to Aboriginal and Torres Strait Islander peoples to reflect better their greater need for services;
- increasing the development, retention and training of the Indigenous public health workforce, including enhancing and supporting the role of Aboriginal Health Workers;
- implementing 'well person' health checks in general practice (including the development of a communication strategy for the broader Indigenous population to increase the use of such services);

- improving pharmaceutical access for Indigenous people in non-remote areas;

- reducing racism and discrimination in mainstream health services;

- improving Indigenous identification in health information collections;

- better dissemination of Indigenous data, especially those from Aboriginal Medical and Health Services; and making a sustained major investment in improving the health of Aboriginal and Torres Strait Islander peoples, in true partnership with Indigenous Australians.[685,686,606,678,650]

Finally, the health of Australia's Indigenous population was unlikely to improve significantly until the legacy of colonisation and historic displacement from land, culture and spirit was acknowledged, and the broader determinants of their wellbeing effectively addressed.[687]

9.3 Research into public health

1915 onwards

'Researchers active in public health are needed to provide informed advice on the benefits and costs of proposed public health measures; for example, the detection and prevention of cancer and cardiovascular disease.' − *WP Anderson,* Medical Journal of Australia, *vol. 167, 1997, p. 608.[688]*

In 1915, the first substantial medical research institution, the privately-funded Walter and Eliza Hall Institute, was established in Melbourne.[689] The Baker Institute (Alfred Hospital, Melbourne) followed in 1926, with the Kolling Institute (Royal North Shore Hospital, Sydney) in 1931, and the Kanematsu Institute (Sydney Hospital) in 1933.

It was not until 1936 that the federally-funded National Health and Medical Research Council (NHMRC) was set up. At first, it was closely integrated into the structure of the federal Department of Health; but, as research assumed greater importance during World War II and medical scientists assumed more prominence in the NHMRC, research support was increased. The annual endowment that had been thirty thousand pounds in 1937 reached almost one million pounds just ten years later, in 1947.[1]

The NHMRC 's Public Health Research and Development Committee (PHRDC) was established in 1986, in response to the recommendations of the Kerr White Review. The formation of the PHRDC gave greater recognition to public health research, more access to funding and a central focus on training a public health workforce.

The *National Health and Medical Research Council Act 1992* included objectives:

- to raise the standard of individual and public health; and
- to foster public health research and training throughout Australia.[690]

In 1993, the Bienenstock review examined the functioning of the NHMRC and recommended that an overarching strategy to guide health research be developed for Australia.[691] Despite advances in public health research and training (consistent with the recommendations of that report), the PHRDC was subsequently merged with the Medical Research Endowment Fund, and public health funding was 'in jeopardy of losing its well-earned profile'.[692] In 2006, public health research was still not recognised as a separate entity in the NHMRC funding arrangements.[693]

In 2002, the Australian government announced the following national research priorities:

- an environmentally sustainable Australia;
- promoting and maintaining good health;
- frontier technologies for building and transforming Australian industries; and
- safeguarding Australia.[699]

Arguably, at least three if not all of these strategic areas were related to public health. The national research priority area, of 'promoting and maintaining good health', had the following four goals:

- a healthy start to life;
- ageing well, ageing productively;
- preventive health care; and
- strengthening Australia's social and economic fabric.[699]

The NHMRC was to fund a program of research to address the latter two goals together (funding of $10 million over five years was allocated in support of this program with a focus on 'larger scope and longer duration' proposals).[699] The NHMRC also provided monies for public health graduate scholarships and fellowships for training in public health research in Australia and overseas.[700]

Public health practices

There were many examples of specific pieces of public health research that had a global impact, from the work of Fenner in eradicating smallpox, to Dwyer and Ponsonby's identification of effective preventive strategies for Sudden Infant Death Syndrome (SIDS), and Bower and Stanley's discovery of the role of folate in neural tube defects - all conditions that could be prevented.[702,300,395] Other examples of successful public health research ranged from identifying exposure to UV radiation in sunlight, and rubella as a cause of deafness. Eight significant research achievements are detailed in Box 9.9.

A number of research reports highlighted successes attributable to research which, while not identified as 'public health', nevertheless enhanced the health of the public. Three of these reports are described below.

> **Box 9.9 Successful public health research**
>
> Specific examples included:
>
> - raising awareness of and changing sun exposure behaviours [Lancaster, Armstrong, Holman];
> - limiting exposure to asbestos and reducing incidence of asbestosis and mesothelioma [WA group];[701]
> - reduced exposure to lead with lead abatement and removal programs (e.g., petrol, paint), monitoring of those exposed, policy changes [McMichael, Baghurst];
> - reductions in cigarette smoking attributable to campaigns, leading to reduced lung cancer and respiratory diseases [North Coast Healthy Lifestyle campaign, 1970s];
> - reduction in deafness caused by rubella [Gregg];
> - prevention of birth defects caused by thalidomide [McBride]; and
> - interventions to prevent iodine deficiencies in remote inland populations [Hetzel].

1. *Promoting the health of Australians: case studies of achievements in improving the health of the population* identified areas of public health improvement, including:
   - the control of HIV/AIDS;
   - the prevention of cardiovascular disease;
   - reduced smoking and better tobacco control;
   - reduced death and illness from road injury and trauma; and
   - reduced deaths from cervical cancer.[703]
2. *The virtuous cycle: working together for health and medical research* detailed case studies that demonstrated the connection between research – some of which was in the public health area – and improvements in the health of the population or in the performance of the health system, including:
   - HIV/AIDS control;
   - *Haemophilus influenzae* immunisation;
   - bicycle helmets in Victoria;

- scalds' prevention in NSW;
- folate and the prevention of neural tube defects;
- managing lead contamination in Broken Hill;
- prevention of SIDS; and
- the *Strong Women Strong Babies Strong Culture Program* in the NT.[704]

3. *Ten of the best: NHMRC funded health & medical research successes* contained two programs of public health research:
   - the impact of breastfeeding on allergies and asthma in childhood; and
   - community attitudes to colorectal cancer screening.[705]

While there was much effective public health practice, it was less clear that public health research had been as successful. Despite the evidence that it was in prevention that the largest health gains were to be made in population health improvement, the level of research investment in this area was still far from adequate to achieve that goal.

Future challenges

With the restructuring of the NHMRC research program, the public health sector needed to advocate further for increased resources to better reflect the contribution that it could make to research that could improve the health of the population.

9.4 Monitoring the public's health

1901 onwards

The monitoring and assessment of the state of a population's health in order to improve overall health (i.e., the health of the whole population rather than of an individual) is one of the oldest public health activities. It was necessary because the whole community benefited from public health actions to ensure clean safe drinking water and food, removal of refuse and sewage to prevent disease, immunisation coverage sufficient to provide 'herd' immunity, and so on.

From the inception of the earliest data collections on vital statistics in Australia (commencing in Tasmania in 1838, before Federation) and the first analyses of all-cause deaths, a range of public health disciplines emerged and developed.[5] These included epidemiology (the study of the patterns, causes, and control of disease in groups of people), biostatistics and sophisticated techniques, such as the calculation of odds, risk ratios and fractions of the burden of disease that were attributable to various diseases, conditions and risk factors.[357]

These enabled the monitoring of the health status of population sub-groups (some of whom, such as Aboriginal and Torres Strait Islander peoples, were numerically small) and specific geographic areas in relation to the whole population. This information underpinned public health policy development and implementation, priority-setting and resource allocation. Public health reporting was able to identify potentially preventable or modifiable health-related inequalities, so that resources could be targeted towards their reduction.[706] An Australian government-commissioned study on the socioeconomic determinants of health found, generally, that people living in low socioeconomic areas:

- had higher death rates for most major causes of death;
- experienced more ill health; and
- used the acute health care system more often because of their poorer health, and made less use of preventive services.[569]

An effective public health system was essential, not only to preserve and enhance population health status, but also to lessen health disparities between groups in the population, and to reduce the costs of reparative health services. Towards the end of the 20th century, it was in potentially preventable diseases, disability and injury that the greatest gains were to be made to improve the Australian population's health. Public health monitoring and assessment techniques and disciplines provided the tools to identify and intervene to improve the health of the most disadvantaged groups, and of the population as a whole.

Public health practices

> *'Australia has been exceptionally well provided with statistical systems since, approximately, 1850; and is, therefore, in a better position than, probably, any other country to present reliable statistics. The statistics which express the state of public health of a community are grouped under the general term "vital statistics". These "vital statistics" show, numerically, the number of the population, its age- and sex-constitution, the additions to the population by births and migration, and the losses to the population by deaths and migration. Vital statistics should also, to be complete, give information as to the amount of sickness; but the main vital statistics collected relate only to deaths.'*
> — *JHL Cumpston,* Health and disease in Australia, *1989, p. 78.[5]*

Vital statistics (data pertaining to births, deaths and marriages) were the first statistics to be collected in Australia which permitted the health of the population to be monitored. Registration of deaths became compulsory in 1838 in Tasmania, 1841 in WA, 1842 in SA, 1853 in Victoria and 1856 in NSW and Queensland; and compulsory registration of the cause of death followed later.[5]

The Australian parliament passed the *Census and Statistics Act* in 1905, thereby enabling the national coordination of statistical collections; and the Commonwealth Bureau of Census and Statistics (now the Australian Bureau of Statistics [ABS]) was created in 1906. A uniform census was developed in 1901 to coincide with the federation of the colonies, and the first *Australian Census of Population and Housing* was conducted in 1911, with the latest in 2006.[707]

In 1906, the *International Classification of Causes of Death* was adopted as the standard classification for use in all states and nationally, as recommended by the Commonwealth Statistician.[5] Later, Australia adopted other international classification systems (such as those for diseases, disability and external causes of injury); and was an early user of standardised and internationally accepted systems of data collection and classification.

The ABS conducted the first *Australian Health Survey* in 1977-78, surveying a representative sample of the population, and producing a wealth of data, some of which were used in compiling this report.[708] Further *National Health Surveys* were conducted at approximately six-year intervals: in 1983, 1989, 1995 and 2001. The 2001 *National Health Survey* was the first in a new series of health surveys to be conducted at three-yearly intervals, with the next survey undertaken in 2004-05.

The Census provided demographic data on age, sex, and other attributes relevant to calculating rates and defining population groups, while the National Health Surveys generated basic information on the health of the population, for use by researchers to investigate a multiplicity of health and related issues. The existence of time series, such as the Census and National Health Surveys, was important as it was the collection of standardised information over time that permitted the identification of longer term trends. Those trends allowed an assessment as to whether Australia's health had improved, and in which areas, over the 20th century. They also identified areas that needed to be targeted by the public health sector, in order to improve the health of disadvantaged groups within the population.

The Australian Institute of Health and Welfare (AIHW) was a significant component of the health monitoring infrastructure from the time of its creation as the Australian Institute of Health in 1987, with a brief to 'report to the nation on the state of its health'.[709] In 1992, its ambit was expanded to include statistics on community services as well as health, and it became the AIHW to reflect this change. The AIHW contributed to the monitoring of population health through its program of

publications, and its ability to draw together data from the ABS and other sources to present a comprehensive picture of the health of the Australian population biennially.[13]

The AIHW, in association with the ABS, also reported regularly on the health of Aboriginal and Torres Strait Islander peoples.[154] The publication of dedicated reports on Indigenous health was credited with contributing to the awareness of, and ability to monitor, the major health inequalities affecting this population group. Such information also provided a base from which to argue the case for action.[656]

Monitoring the health (and health risk) status of groups in the population relative to the norm (or average) of the whole population, and to that of the most advantaged groups, allowed the identification of avoidable differences within the population, and the better targeting of resources and programs to improve their health status. The first national *Social Health Atlas* in Australia, which illustrated these disparities, including geographic variations, was published in 1992.[711] This was followed by a second edition in 1999, providing detailed information on the distribution of socioeconomically disadvantaged groups, on associations between socioeconomic disadvantage and health status, and on changes in the absolute and relative levels of the health status of disadvantaged groups.[712,713] Later atlases reported on potentially avoidable mortality and hospitalisations.[714,557]

> '*In the community at large, population surveys offer the only mechanism for obtaining information about health status, health risks, and health-related behaviours.*'
>
> – L Jorm, NSW Public Health Bulletin, vol. 12, 2001, p. 213.[710]

Although the National Health Survey was undertaken regularly from 1977–78, its sample size was not large enough to yield estimates for small local areas, and did not cover the most remote areas of Australia, those areas with high proportions of Indigenous populations. From the 1990s, state-based population health surveys were developed to supply up-to-date regional health information, and to assist in health planning, the management of chronic diseases, and the evaluation of public health and other interventions.[715,716] Most of the states and territories undertook population health surveys and published their findings.

A range of other information systems also contributed to the monitoring and surveillance of public health, including:

- the Hospital Morbidity Database (compiled by AIHW from data collected by the states and territories) that provided information on people who were hospitalised, the cause of their hospitalisation, and details on the length of their stay, surgical procedures, and other information relating to their hospital admission;
- Medicare Australia's data on the population's use of Australia's universal health insurance scheme, Medicare, and of pharmaceuticals;
- population-based disease registries which held data on cases of cancer (excluding skin cancer), diabetes and end-stage renal failure;
- the BEACH program (Bettering the Evaluation And Care of Health) which provided information on general practice activity (visits to GPs);
- the National Perinatal Data Collection which collected data on all births and perinatal deaths in Australia (based on hospital notifications from state and territory perinatal data collections);
- the national dental data collections that provided information from the National Dental Telephone Interview Survey (commencing in 1994) and other surveys on dental health and access to services;
- the *Community Housing Infrastructure Needs Survey* (CHINS) that collected data on housing and environmental conditions in Aboriginal and Torres Strait Islander populations in urban, rural and remote areas;
- the first *National Survey of Mental Health and Wellbeing* in 1997, which gathered baseline information about the prevalence of mental illness in Australia, with a second survey planned;

- the 2004-05 *National Aboriginal and Torres Strait Islander Health Survey* (NATSIHS), the largest health survey of Indigenous Australians ever conducted, with a sample size of 10,439 persons (or about one in 45 of the total Indigenous population). This survey, conducted in remote and non-remote areas throughout Australia, collected information from Indigenous Australians about health related issues, including health status, risk factors and actions, and their socioeconomic circumstances; and
- the *Survey of Disability, Ageing and Carers* (conducted by ABS) which provided information on people with disabilities, on older people, and carers.

Over the 20th century, a substantial investment was made in public health reporting, which supported many individual data collections, including registers, surveys and inventories. For example, the condition of the Australian environment was reported upon every five years (the latest being *Australia - State of the environment 2006*); and all known pollutant emissions were registered in a national inventory.[717,718] Monitoring, surveillance and other assessments of the population's health were essential in underpinning the capacity of the public health sector to perform its primary functions.

Factors critical to success

According to Cumpston, it was Australia's early start that led to the excellence of its statistical collections. The willingness to use standard definitions and methodologies also contributed to the success of monitoring activities, and allowed Australia to contribute actively to the development of international data collections, and to benchmark against similar countries overseas.[5]

Public health training and research were also important, as the necessary disciplines developed to a sophisticated level, and required sustained investment to build and retain capability and capacity. Government involvement at many levels was a further factor, as surveillance to detect diseases and events - especially those that occurred in small populations or were relatively rare - was statistically challenging, with high resource requirements.[719]

Future challenges

In 2006, the challenges for the future were the maintenance of the many excellent data collections that existed to monitor population health in Australia, and the establishment of an ongoing program of regular national health surveys, to ensure that the latest information was available to underpin policy and program development. While a national child nutrition and physical activity survey and an adult mental health survey were planned, remaining areas which had no up-to-date, nationally representative data were those of child and adolescent mental health, nutrition, and biomedical and other risk factors for the commoner chronic diseases.[720]

Other challenges lay in making better use of the data that were routinely collected, and in analysing data and disseminating the results in ways that would allow greater use by the community. On the policy side, there was a need to use data and research more effectively to advocate for those whose health and wellbeing were currently the poorest in society.

In summary, future challenges included:

- developing data collections to fill the remaining gaps in data;
- making data more accessible to the community;
- using data more effectively to underpin policy and program development; and
- undertaking research to make a difference to the health of the most disadvantaged in Australian society.

Table 9.1: Historic highlights of successful public health organisation, infrastructure and training

1907	Earliest government investment in public health education and training, with the formation of the Australian Institute of Tropical Medicine (subsequently incorporated into the School of Public Health and Tropical Medicine at the University of Sydney).
1910	The Australian Institute of Tropical Medicine (AITM) was formed.
1915	The Walter and Eliza Hall Institute founded in Melbourne – the first (private) major medical research institution in Australia.
1921	Federal Department of Health established.
1925	Royal Commission on Health undertaken.
1927	Federal Health Council established – the first formal mechanism to encourage cooperation between the Commonwealth, state and territory governments.
1928	The Anti-Cancer Foundation established.
1930	National School of Public Health and Tropical Medicine established at Sydney University.
Late 1930s	Central Cancer Registry implemented and registration of cancer cases commenced.
1936	National Health and Medical Research Council (NHMRC) established (replacing the Federal Health Council in 1937).
1959	The National Heart Foundation established.
1970s	The Australian and NZ Society for Epidemiology and Research into Community Health (ANZSERCH) established. National Aboriginal and Islander Health Organisation (NAIHO) formed.
1971	The Aboriginal Medical Service opened in Redfern, Sydney, becoming the first Aboriginal Community-Controlled Health Organisation (ACCHO).
1981	Australia became a signatory to the WHO *Health For All 2000 Strategy*.
1984	Australian Community Health Association formed.
1985	Federal government commissioned the Kerr White Review of research and educational requirements for public and tropical health in Australia. The National Occupational Health and Safety Commission, established in 1983, became a statutory body. Australian Public Health Association (APHA) formed (from ANZSERCH).
1986	The Public Health Research and Development Committee (PHRDC) of the NHMRC established in response to the recommendations of the Kerr White Review.
1987	Australian Institute of Health (AIH) created as a statutory body to report to the nation on the state of its health. Public Health Education and Research Program (PHERP) formed to strengthen national capacity to educate and train Australia's public health workforce. Consumers' Health Forum of Australia established.
1989	*National Aboriginal Health Strategy* published. *National Women's Health Policy* launched. First *National HIV/AIDS Strategy*.
1990s	NAIHO became the National Aboriginal Community Controlled Health Organisation (NACCHO).
1992	Salmond Review of Public Health Education and Research highlighted the overall success of PHERP; and recommended a more strategic approach to future allocation of PHERP funds. The *National Health and Medical Research Council Act 1992* included the objective to foster public health research and training throughout Australia. The AIH became the Australian Institute of Health and Welfare (AIHW) and included community services' statistics in its ambit.
1993	The Bienenstock Report on the functioning of the NHMRC recommended an overarching strategy to guide health research in Australia.
1994	NACCHO, in partnership with RACGP, developed Australia's first curriculum in Indigenous health for GP Registrars, and, in 2000, developed a supplementary training module for GPs.
1996	Creation of the National Public Health Partnership.
1998	The Wills Review focused on the future role of health and medical research in Australia to the year 2010.
1999	Independent review of Phase II of PHERP recommended increased funding and public health research on national health priorities.
2001	The NHMRC established Capacity Building Grants in Population Health Research.
2003	The National Strategic Framework for Aboriginal and Torres Strait Islander Health published.
2005	Review of Phase III of PHERP recommended strengthening workforce capacity for population health in national health priority areas.
2006	National Public Health Partnership dismantled, and two new committees established in its place.