

# Population Health Surveillance Strategy

NSW 2011 to 2020



Health

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# A message from the Chief Health Officer

NSW Health is committed to leading-edge surveillance that informs population health policies and programs. We recognise the role of surveillance in providing high quality and timely population health information, which is essential to our efforts to maintain, promote and protect the health of the people of NSW and reduce health inequalities.

This 10-year Strategy provides a comprehensive framework, key objectives and strategies for the development of surveillance information and knowledge, human capacity and technical infrastructure. The Strategy identifies four main areas of work: carrying out surveillance that drives the promotion of health and well-being and the response to health risks and inequities; strengthening surveillance capacity; transforming data into high quality information and knowledge; and readiness to monitor new and emerging threats to health. In addition, two principles span all components of the Strategy: the importance of addressing health inequities in improving population health, and reliable measurement and reporting of these inequalities; and the importance of high quality and continuous quality improvement in all aspects of population health surveillance.

The process for development of the Strategy included a review of Australian and international population health surveillance practices and consultation with public health professionals including the NSW Population Health Network. The Strategy has been endorsed by the NSW Population Health Executive Council.

The initiatives described in the Strategy will ensure that population health surveillance is effective as a driver of population health programmes and is responsive to public health threats.

I would like to thank all those who contributed to the development of the Strategy and look forward to working with the staff of Population Health Division and the NSW Population Health Network on its implementation.



**Kerry Chant**  
Deputy Director-General, Population Health and  
Chief Health Officer

# Introduction

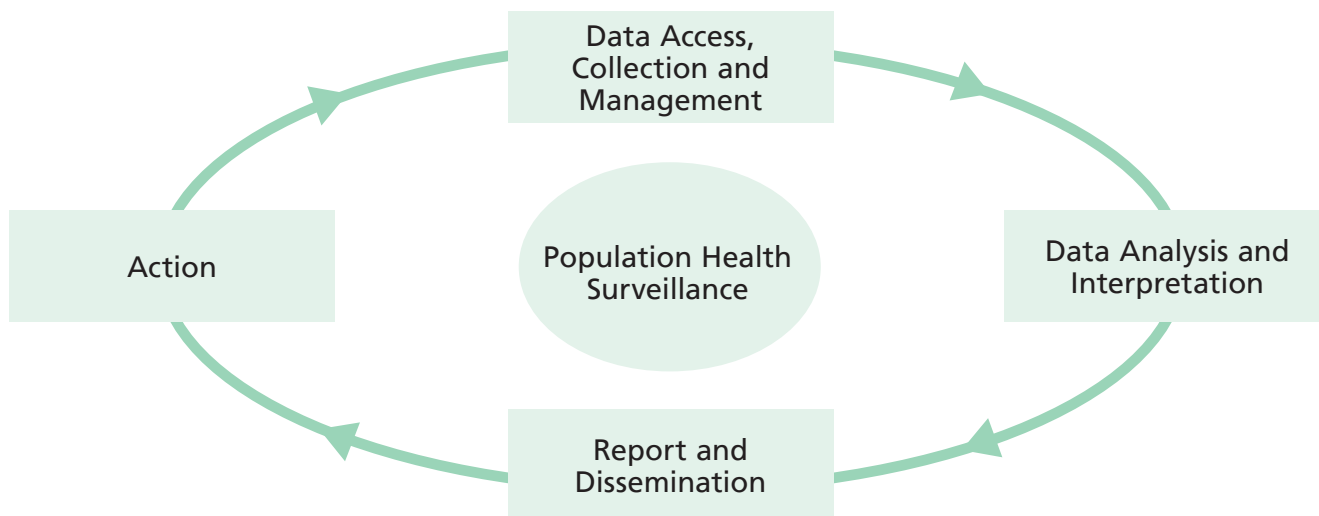
To maintain, promote and protect the health of the people of NSW, Population Health Services must be responsive to new and emerging acute threats, such as those from infectious diseases and environmental hazards, and implement evidence-based programmes aimed at reducing risky behaviours and promoting health and well-being. High quality and timely population health information is fundamental to achieving this.

Surveillance outcomes should stimulate policy development and research by identifying issues requiring action or further information needs. Population health surveillance is a major component of the drive and response cycle (Figure 1)

*[Population] health surveillance is the ongoing systematic collection, assembly, analysis, and interpretation of population health data, and the communication of the information derived from these data, to stimulate response to emerging health problems, and for use in the planning, implementation, and evaluation of health services and programs.*

Source: Thacker SB, Berkelman RL. Public health surveillance in the United States. *Epidemiol Rev* 1988;10:164-90.

Figure 1: Population health surveillance drive and response cycle



Adapted from: Ontario Ministry of Health and Long-Term Care. *Population Health Assessment and Surveillance Protocol*. Toronto, Ontario Ministry of Health and Long-Term Care, Oct 2008.

# Population Health Surveillance in NSW

The Population Health Surveillance Strategy (the Strategy) supports the strategic priorities of NSW Health. It builds on the substantial advances that have been made in population health surveillance in NSW over the last 15 years, including:

- **The Health of the People of NSW – Report of the Chief Health Officer** – this biennial report commenced in 1996 and provides comprehensive information on indicators of population health in NSW.
- **Health Statistics NSW** – a web-based portal for population health information that was established in early 2011, and which will become the primary source of population health information in the state.
- **The Public Health Real-time Emergency Department Surveillance System (PHREDSS)** – established in 2003 to provide a daily syndromic surveillance service of acute presentations to NSW Emergency Departments. Since 2008 PHREDSS has also included information on urgent ambulance call-outs in the metropolitan Sydney region.
- **The NSW Health Survey Program** – established in 1997 to monitor population health status and behavioural risk factors.
- **Notifiable Conditions Information Management System (NCIMS)** – established in 2010, NCIMS collects information on conditions notifiable under the 1991 NSW Public Health Act that was previously collected through the Notifiable Diseases Database.
- **The Centre for Health Record Linkage (CHeReL)** – established in 2006 to provide a record linkage service for health and health services research, monitoring and evaluation.
- **Health Outcomes Information and Statistical Toolkit (HOIST)** – a SAS-based data warehouse, analysis and reporting platform of key population health data collections. The Strategy also builds on experience gained in implementing enhanced surveillance for the global influenza pandemic and mass gatherings in Sydney such as the Olympic Games, World Youth Day and the Rugby World Cup.

# The Population Health Surveillance Strategy

The Population Health Surveillance Strategic Framework is shown in Figure 2. The aim of the Strategy is to support excellence in population health policy and practice through leading-edge surveillance activities. This aim is supported by four objectives:

1. Carry out surveillance that identifies and drives the promotion of health and well-being and the response to health risks and inequities
2. Strengthen surveillance capacity
3. Transform data into high quality information and knowledge
4. Be ready to monitor new and emerging threats to health

The underlying principles of equity and quality span all components of the Strategy:

## ■ Equity

Reduction of health inequities is fundamental to efforts to improve population health. Reliable measurement and reporting of these inequalities is an integral part of population health surveillance.

## ■ Quality

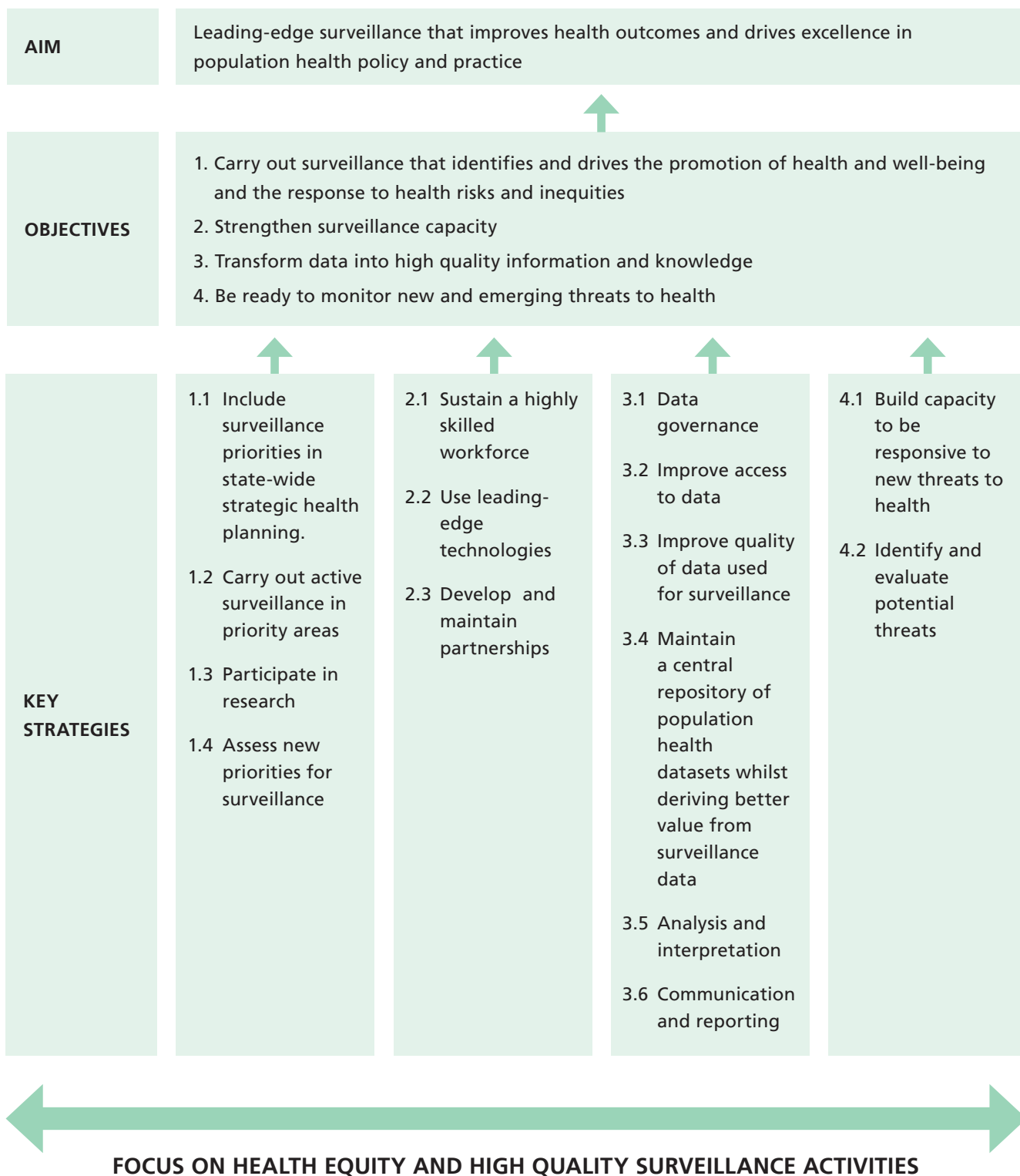
The Strategy recognises the importance of high quality in all aspects of population health surveillance, and the importance of continuous improvement in quality.

These objectives will be achieved through strategies that focus on assessing population health status, detecting new and re-emerging conditions, monitoring risks to health, stakeholder partnerships, and continuing to develop human resource capacity in epidemiology, biostatistics, programme evaluation, data management and data analysis. These strategies are described on pages 6 and 7.

The Strategy will ensure that the use of routinely collected data in surveillance is integrated and optimised. NSW has a very rich collection of large population health datasets. Advances in information technology and analytic techniques can be harnessed to make the best use of these information resources for informing efforts to improve population health. This will be achieved by:

- Creating better system interoperability between existing disease-specific surveillance systems
- Continual improvement in surveillance methods through learning from local, national and international experience
- Leveraging developments in informatics to develop and improve surveillance systems, such as record linkage and the national Healthcare Identifiers Service
- Automation of routine collection, collation and reporting of surveillance information allowing human resources to be used for response and further development work
- Building surveillance systems that are adaptable and extendable, and that respond to changing needs in a timely manner and are supported by thorough business continuity planning
- Ensuring mechanisms are in place to be aware of new and re-emerging infectious diseases and possible environmental health hazards
- Improve detection of new and re-emerging diseases through further development of syndromic surveillance

Figure 2: Framework for Population Health Surveillance Strategy NSW 2011 – 2020



# Strategic Objectives

Strategies	What we will do
<b>1. Carry out surveillance that identifies and drives the promotion of health and well-being and the response to health risks and inequities</b>	
1.1 Include surveillance in state-wide strategic health planning.	1. Include surveillance for priority areas in relevant state plans
1.2 Carry out active surveillance in priority areas	<p><i>Communicable diseases</i></p> <ol style="list-style-type: none"> <li>1. Establish close to 'real-time' surveillance for notifiable infectious diseases</li> <li>2. Establish user-friendly information management and reporting infrastructure for infectious disease outbreak investigations</li> </ol> <p><i>Biosurveillance</i></p> <ol style="list-style-type: none"> <li>3. Maintain and develop emergency department surveillance</li> <li>4. Expand ambulance calls surveillance</li> <li>5. Expand syndromic surveillance</li> </ol> <p><i>Environmental health</i></p> <ol style="list-style-type: none"> <li>6. Enhance surveillance of environmental hazards, chemical contamination, air quality, water quality, soil</li> </ol> <p><i>Health behaviours</i></p> <ol style="list-style-type: none"> <li>7. Maintain and improve population health survey infrastructure and capacity</li> </ol> <p><i>Health inequities</i></p> <ol style="list-style-type: none"> <li>8. Ensure that surveillance of priority areas includes surveillance of health inequities</li> </ol> <p><i>Other priority areas described in state and national plans</i></p>
1.3 Participate in research	<ol style="list-style-type: none"> <li>1. Carry out research into current and emerging threats to health and measuring the impact of population health interventions</li> <li>2. Use latest research findings to continually improve surveillance practices</li> </ol>
1.4 Assess new priorities for surveillance	<ol style="list-style-type: none"> <li>1. Identify information gaps</li> <li>2. Apply criteria for assessing and prioritising areas for new surveillance</li> </ol>
<b>2. Strengthen surveillance capacity</b>	
2.1 Sustain a highly skilled workforce	<ol style="list-style-type: none"> <li>1. Manage and continually improve the Public Health Officer Training and Biostatistical Officer Training Programmes</li> <li>2. Provide in-service epidemiology and biostatistics training for population health professionals</li> <li>3. Support professional networks, such as the Public Health Network (PHN), Public Health Informatics and Epidemiology Network (PHIEN)</li> </ol>
2.2 Use leading-edge technologies	<ol style="list-style-type: none"> <li>1. Invest in systems for data collection, analysis and reporting, taking advantage of technological advancements</li> <li>2. Increase human resource capacity to develop, maintain and use surveillance infrastructure</li> <li>3. Use automated processes, where possible</li> </ol>
2.3 Develop and maintain partnerships	<ol style="list-style-type: none"> <li>1. Collaborative arrangements with government agencies</li> <li>2. Develop and maintain partnerships with Academic Institutions</li> <li>3. Maintain partnerships with the Aboriginal Health and Medical Research Council</li> <li>4. Strengthen effective communication channels with relevant organisations (eg Australian Bureau of Statistics, Cancer Institute NSW)</li> </ol>



Strategies	What we will do
<b>3. Transform data into high quality information and knowledge</b>	
3.1 Data governance	<ol style="list-style-type: none"> <li>1. Metadata are complete, accurate and up-to-date</li> <li>2. Data are securely stored and access controls in place</li> <li>3. Clear policies and procedures for collection, use and disclosure of data are available and followed</li> </ol>
3.2 Improve access to data	<ol style="list-style-type: none"> <li>1. Access new sources of routinely collected data that are relevant to population health surveillance</li> <li>2. Develop systems that enable close to 'real-time' access to routinely collected health and health-related data, with improved integration</li> </ol>
3.3 Improve quality of data used for surveillance	<ol style="list-style-type: none"> <li>1. Improve the quality of reporting of Aboriginal people on NSW Health data collections</li> <li>2. Improve accuracy and completeness of routinely collected population health data</li> </ol>
3.4 Maintain a central repository of population health datasets whilst deriving better value from surveillance data	<ol style="list-style-type: none"> <li>1. Ensure that datasets held on the central repository are up-to-date and accurately reflect the source information</li> <li>2. Automate geo-coding of population health datasets</li> <li>3. Establish automatic assignment of SEIFA and ARIA indexes to population health datasets</li> <li>4. Adding value to surveillance information through increased use of data linkage</li> <li>5. Integrate surveillance systems and reduce surveillance silos, and create a common look and feel</li> </ol>
3.5 Analysis and interpretation	<ol style="list-style-type: none"> <li>1. Maximise automated production of surveillance reports</li> <li>2. Increase the skills and capacity of the public health workforce to carry out analyses and reliably interpret surveillance data for specific purposes</li> <li>3. Develop capacity for geospatial analysis and ensure availability of training to key users</li> </ol>
3.6 Communication and reporting	<ol style="list-style-type: none"> <li>1. Develop Health Statistics NSW as the primary site for reporting of surveillance information to health professionals and the public</li> <li>2. Make small area information available, where possible</li> <li>3. Produce regular reports on priority areas of population health</li> <li>4. Ensure rapid dissemination of surveillance information to stakeholders and operational personnel</li> <li>5. Communicate the results of surveillance activities through publication in scientific journals</li> <li>6. Report on population health performance indicators, as required</li> <li>7. Continue to develop standardised formats for reporting of surveillance information, including temporal and spatial information</li> <li>8. Incorporate quality assurance processes into reporting and data interpretation warnings where appropriate</li> </ol>
<b>4. Be ready to monitor new and emerging threats to health</b>	
4.1 Build capacity to be responsive to new threats to health	<ol style="list-style-type: none"> <li>1. Build flexibility into surveillance infrastructure</li> <li>2. Foster a culture of innovation</li> <li>3. Continue to meet the requirements of the WHO International Health Regulations</li> <li>4. Further develop capacity for situational awareness analysis</li> </ol>
4.2 Identify and evaluate potential threats	<ol style="list-style-type: none"> <li>1. Play an active role in strengthening global health security through participation in state-wide, national and international surveillance communication networks</li> <li>2. Maintain alerts in existing surveillance systems and incorporate new alerts as threats are identified</li> <li>3. Log, assess and manage the surveillance aspects of potential threats</li> <li>4. Establish new links and work closely with professional colleagues in agricultural and veterinary disease surveillance</li> </ol>

# Being responsive to population health needs: Establishing new population health surveillance systems

As new health issues arise or technologies are developed the requirement for new or enhanced surveillance systems arises. In a resource constrained environment, decisions that result in resource implications will be considered and assessed using the following criteria:

- The health issue can be accurately measured or estimated
- The potential impact on the health of the population is significant; the assessment of impact will take into account: number of cases, individuals at risk, transmissibility, severity of disease/condition, pandemic potential, and indirect economic and social costs to the community
- Evidence of that the surveillance activity will lead to an effective response or intervention that controls/prevents the disease or condition
- The cost of data collection, processing and storage is manageable and affordable
- Analysis and reporting requirements
- Relevance to national and state population health priorities
- Provides information that cannot be derived from elsewhere
- Level of integration with existing surveillance systems

Proponents of new or enhanced surveillance systems will address the above criteria in a business case submitted to the NSW Chief Health Officer. The Chief Health Officer will convene an Expert Panel to consider the business, implications and identify potential funding sources.

# Governance and Implementation

The Strategy will be implemented through Population Health Surveillance Plans that will have measurable targets and will be revised over the 10-year period of the Strategy to ensure that surveillance activities are relevant and meeting NSW Health's strategic objectives. There will be a review of the Strategy after 5 years.

The NSW Population Health Executive Council will oversee the progress of Surveillance Plans in meeting the objectives described in this Strategy. The Centre for Epidemiology and Research will coordinate reporting of progress against the Strategy and the Surveillance Plans.

