



YEAR
ANNIVERSARY

1997 – 2017

ABOUT THE NCIRS

Our Vision

To be a world leader in translational research optimising the population health benefits of immunisation

Our Purpose

To lead and support collaborative research, advancing immunisation policy and practice

Our Scope

Our role includes research translation, identifying and synthesising best evidence, clinical, social and epidemiologic research that focuses on important evidence gaps, and strengthening disease surveillance and vaccine safety monitoring

The National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases (NCIRS) was established in August 1997.

Core funding is provided by the Australian Government Department of Health, supplemented by an annual grant from New South Wales Health.

Governance and infrastructure support is through the Kids Research Institute within the Sydney Children's Hospitals Network. The centre is affiliated with the Discipline of Child and Adolescent Health and the School of Public Health, the University of Sydney. Other stakeholders include our research partners, advisory committees, and the broader community of immunisation providers.

A WORD FROM SIR GUSTAV NOSSAL



The 20th Anniversary of the National Centre for Immunisation Research and Surveillance is indeed an event worth celebrating.

Established by the Australian Government Department of Health and Ageing in August 1997, NCIRS is a research organisation and a think tank of supreme importance.

It is essentially a one-stop-shop furnishing independent advice on all aspects of immunisation in Australia.

Its work covers both technical and social issues and informs policy and planning for the nation's vaccination effort.

Among other things, NCIRS provides surveillance of vaccine-preventable diseases in Australia; measures vaccine coverage at various age groups; monitors and records adverse events; constantly surveys vaccine safety and efficacy; and provides technical support to ATAGI, the Australian Technical Advisory Group on Immunisation, which determines vaccine schedules and similar matters.

As a result of NCIRS's ongoing work, Australia is widely regarded as having one of the most robust and comprehensive immunisation systems in the world.

Fortunately located within the orbit of the brilliant Children's Hospital at Westmead in Sydney, it lives within the real world as a very practical body.

As a custodian of history's most cost-effective public health tools NCIRS makes a vital contribution to the health of all Australians. May its next 20 years prove as stellar and productive as the 20 years we are celebrating.

SIR GUSTAV NOSSAL AC, CBE, FRS
PROFESSOR EMERITUS
THE UNIVERSITY OF MELBOURNE



OUR JOURNEY

Twenty years ago, when Australia invested in a National Centre for Immunisation Research and Vaccine Preventable Disease (VPD) Surveillance (NCIRS), the capacity to monitor disease incidence, vaccine coverage or trends in parental attitudes to vaccines nationwide was lacking, as was a national technical advisory committee.

In 1997, a widespread pertussis outbreak causing infant deaths was in full swing, a measles epidemic was predicted, and a national measles control campaign (MCC) was planned for 1998.

Parents and GPs were concerned about reactions to the whole cell pertussis vaccine, and in 1998 a *Lancet* paper asserting the measles-mumps-rubella (MMR) vaccine was linked to autism appeared.

The world-first Australian Childhood Immunisation Register (ACIR) had just been launched in 1996, using the Medicare database. Preceding national surveys had found only 85 per cent of one-year-olds had received three doses of pertussis vaccine.

THE FIRST 10 YEARS

By 2007, the NCIRS had grown from a core staff of less than 10 to more than 50 and could boast many accomplishments.

Four national reports on notifications, hospitalisations and deaths due to VPDs were produced along with a suite of vaccine coverage documents. Mapping using

the ACIR coverage data had been set up, studies validating the ACIR's figures reported, and a MMR decision tool for parents developed.

The NCIRS provided the technical secretariat for the Australian Technical Advisory Group on Immunisation (ATAGI) and its steadily expanding working parties, and had an end-to-end support role for both the Australian Immunisation Handbook and vaccine advice to the Pharmaceutical Benefits Advisory Committee (PBAC).

The national serosurveillance program was supporting the evaluation of vaccine campaigns and modelling of VPDs, with the NCIRS leading a grant to develop Australia's capacity in modelling.

In Indigenous immunisation, the NCIRS reports were highly valued, as was an international workshop on immunisation for Indigenous peoples in Alice Springs in 2006.

THE PAST 10 YEARS

The past decade has seen many further achievements.

Technical support for the ATAGI and the PBAC has steadily increased, with many new vaccines considered for the National Immunisation Program (NIP).

Vaccine trials funded by the NHMRC at both ends of the age spectrum where led by the NCIRS – influenza and pneumococcal vaccines

in the elderly, and a national collaborative trial of pertussis vaccine in newborns.

Communication through the NCIRS website www.ncirs.edu.au, factsheets and national workshops have been greatly enhanced.

Several highly collaborative initiatives have strengthened our capacity at a national level.

The Paediatric Active Enhanced Disease Surveillance (PAEDS) hospital network has continued to expand, identifying a world-first intussusception safety signal from the new rotavirus vaccines in 2011.

Vaccine safety has been a long-term focus for the NCIRS, with our central role in the investigation of the 2010 influenza vaccine febrile convulsion incident. This led to the AusVaxSafety national active surveillance collaboration in 2014.

The NCIRS has led and supported competitive grants with various partners such as:

- Safety studies around febrile convulsions and the Q fever vaccine
- Influenza and pertussis vaccine effectiveness with the PAEDS network; and the
- Centre of Research Excellence (CRE) with the University of NSW focussing on immunisation in disadvantaged and special risk populations. The CRE supported proof of concept linkage of VPD data from two states (NSW and WA) to the ACIR and strengthened research relevant to Aboriginal and Torres Strait Islander communities.

The Sharing Knowledge about Immunisation (SKAI) project is another signature development. SKAI is a partnership between the NCIRS and the University of Sydney to improve communication about vaccines between parents and providers. In 2017, a new collaboration with the National Prescribing Service (NPS) to deliver the Primary Health Network immunisation support project added to a decade of strong achievement.

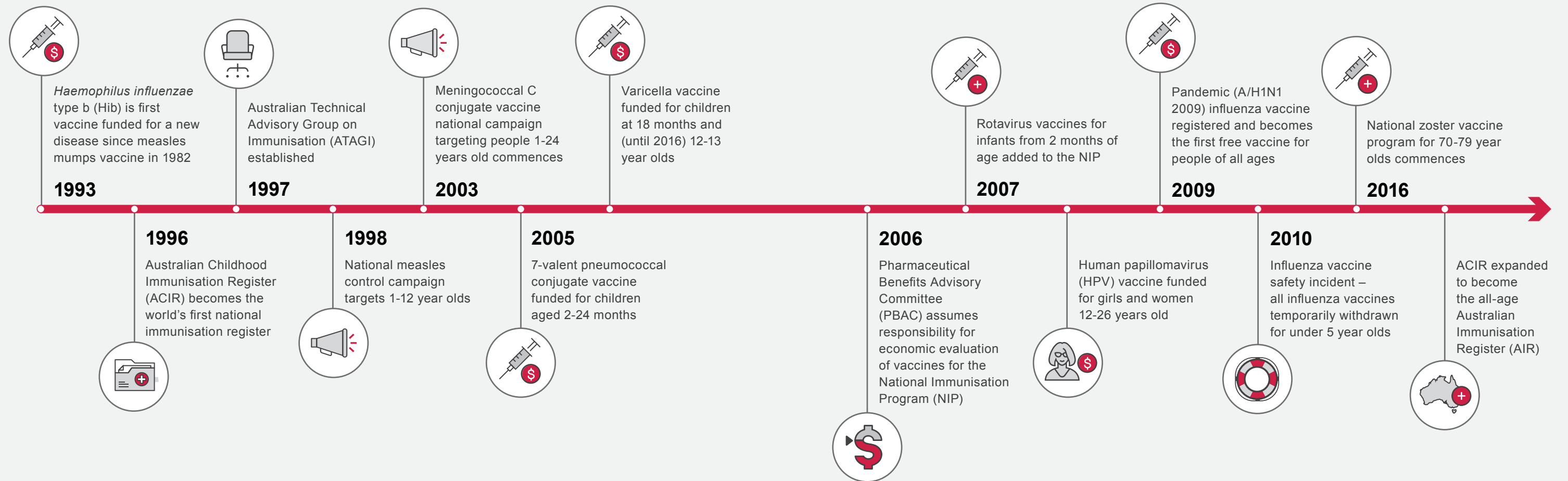
As it enters its next 10 years, the NCIRS is recognised nationally and internationally for its work in advancing immunisation policy and practice.

We look forward to our continuing role in leadership and collaborative research, which contributes to delivering the best possible health outcomes for the people of Australia from its world-class National Immunisation Program (NIP).

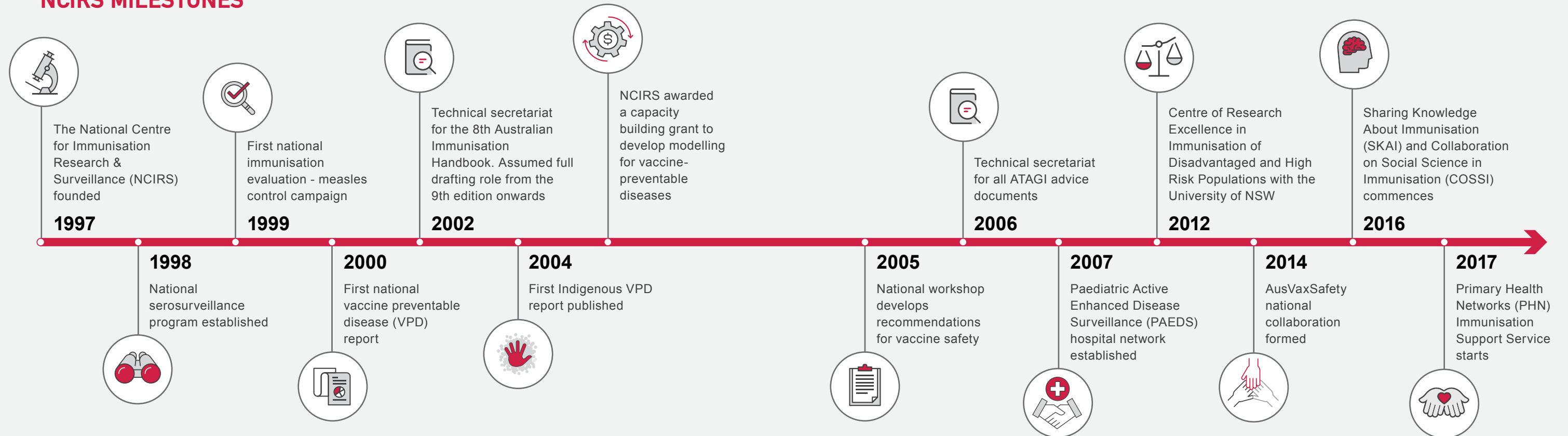
Vaccine safety has been a long-term focus for the NCIRS

PROFESSOR PETER MCINTYRE MBBS, PHD, FRACP, FAFPHM
DIRECTOR 2004 – 2017

IMMUNISATION MILESTONES



NCIRS MILESTONES



MAKING A DIFFERENCE

The NCIRS works across government, clinical and academic sectors, providing a focal point for national collaboration to foster the creation and translation of the evidence needed to inform best practice in the control of vaccine preventable diseases in Australia.

Over the past 20 years the NCIRS has:



GROWN
from a team of
7 to **70**
dedicated individuals



Produced
1000
peer-reviewed
PUBLICATIONS



EDUCATED
>150
post-graduate students
& trainees



Been awarded
>100
RESEARCH GRANTS



ATAGI

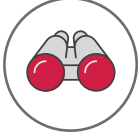
The NCIRS is the technical engine room for ATAGI having developed more than 100 high-level reports and recommendations, including submissions to the PBAC. We manage all content for the Australian Immunisation Handbook which provides clinical advice for health professionals on the safest and most effective use of vaccines in their practice. The tenth edition is now hosted online at www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/Handbook10-home

We manage all technical content for the Australian Immunisation Handbook, and have a leading role in reporting VPDs



IMMUNISATION PROGRAM EVALUATIONS

The NCIRS with its national partners coordinates evaluation of the implementation, impact and safety of new vaccines added to the NIP. There have been 16 NIP evaluation reports since 1998 including the MCC, meningococcal C campaigns 2003–2006, and national rotavirus, varicella and HPV vaccination programs.



SURVEILLANCE OF VPD

We have a leading role in analysing vaccine preventable disease epidemiology with more than 20 VPD burden reports produced. VPD baseline and trend measurement is essential for immunisation policy development and program performance.

Our approach to surveillance integrates analysis of VPD notifications, hospitalisations and deaths. The NCIRS pioneered use of coded hospitalisations for VPDs, particularly when notification data are problematic, such as for varicella and rotavirus.

Our surveillance reports serve as a national resource for supporting and informing control of diseases for which there are national immunisation programs.

We are a member of the Communicable Diseases Network of Australia (CDNA).



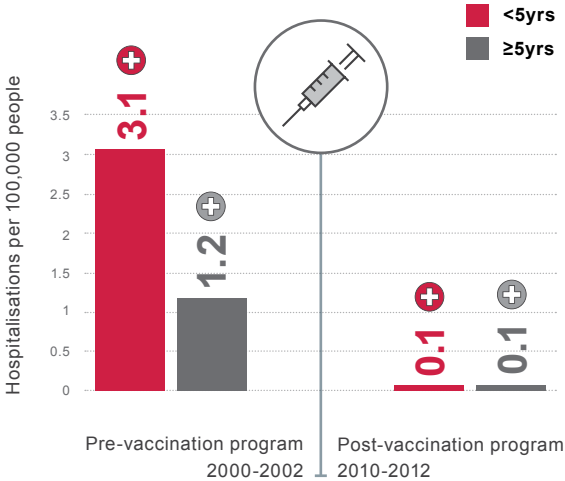
VACCINE COVERAGE

The NCIRS is the acknowledged expert in the use and interpretation of vaccine registry data. There have been nine annual national coverage reports since 2007 detailing the level of immunisation in Australia, highlighting trends and significant issues.

Many more focussed studies have addressed policy and practice questions.

Universal Infant Meningococcal C Vaccination Program January 2003

Meningococcal C disease in Australia by age group before and after vaccination program



Meningococcal C cases in 2010-2012 compared with 2000-2002:
<5 years 132 fewer cases
≥5 years 699 fewer cases

Annual meningococcal C deaths declined from



29 deaths in 2002 to ~one death per year 2008–2012

Lawrence GL, Wang H, Lahra M, Booy R, McIntyre P. Meningococcal disease epidemiology in Australia 10 years after implementation of a national conjugate meningococcal C immunisation program. Epidemiology and Infection. 2016;144(11):2382-2391.



MONITORING POPULATION IMMUNITY AND VACCINE EFFECTIVENESS (VE)

A national serosurveillance program measured population immunity to VPDs in 1998, 2002, 2007 and 2012. This important tool for VPD modelling is available in few other countries.

The NCIRS pioneered the use of the ACIR for case-control studies, which identified waning VE for pertussis and pneumococcal immunisation programs.

We provide VE for seasonal influenza through our partnership with the Influenza Complications Alert Network (FluCAN), a sentinel hospital-based surveillance program that operates at sites in all states and territories in Australia.



SENTINEL NETWORKS FOR ACTIVE SURVEILLANCE

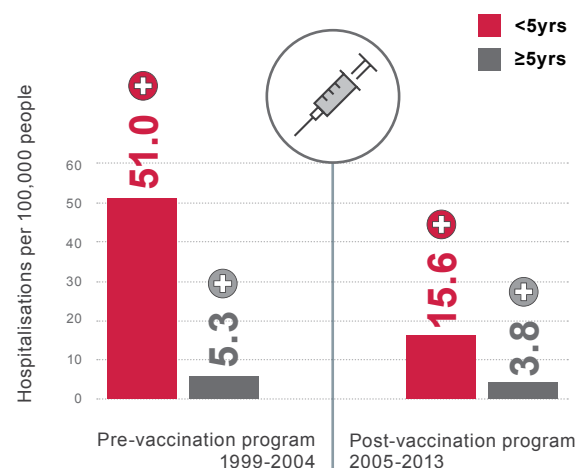
The PAEDS multi-hospital national network was established in 2007 to study serious conditions in childhood around VPDs and adverse events following immunisation.

Our key achievements include:

- The rapid response during the influenza pandemic in 2009; and the
- First publications on specific adverse event risks post rotavirus and MMRV.

UNIVERSAL INFANT VARICELLA VACCINATION PROGRAM NOVEMBER 2005

Varicella hospitalisations in Australia by age group before and after vaccine program



~7300

HOSPITALISATIONS PREVENTED

across all ages between 2005-2013

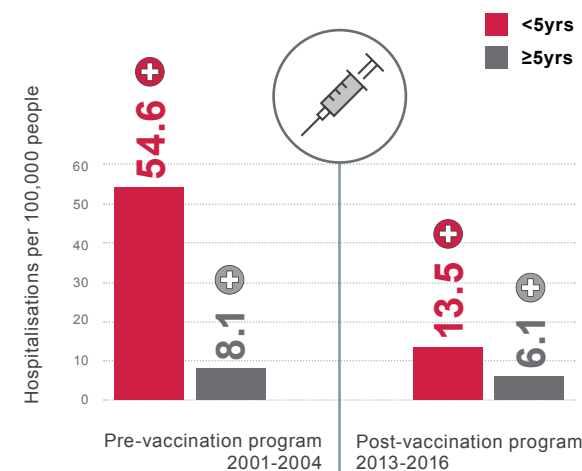
<5 year olds = **4485**

≥5 year olds = **2822**

Heywood AE et al. Bulletin WHO 2014; 92:593-604. Updated with data from AIHW National Hospital Morbidity Database.

UNIVERSAL INFANT CONJUGATE PNEUMOCOCCAL VACCINATION PROGRAM JANUARY 2005

Invasive pneumococcal disease (IPD) hospitalisations in Australia by age group before and after conjugate vaccine program



IPD-RELATED MORTALITY PREVENTED

Between 2005-2010, the 7-valent pneumococcal vaccination program was estimated to have prevented

~160 deaths from invasive pneumococcal disease.



IPD-RELATED HOSPITALISATIONS PREVENTED

Between 2005-2010, the 7-valent pneumococcal vaccination program was estimated to have prevented

~5900 hospitalisations.
About half of these were prevented in adults via herd protection.



PNEUMONIA HOSPITALISATIONS PREVENTED

Between 2005-2010, the 7-valent pneumococcal vaccination program was estimated to prevent

~15,200 community-acquired pneumonia hospitalisations in those aged <5.

Newall AT, Reyes JF, McIntyre P, Menzies R, Beutels P, Wood JG. Retrospective economic evaluation of childhood 7-valent pneumococcal conjugate vaccination in Australia: Uncertain herd impact on pneumonia critical. Vaccine. 2016;34(3):320-327.



VACCINE SAFETY

The NCIRS is a member of the national Advisory Committee on Vaccines (ACV), and leads AusVaxSafety, the national collaborative active vaccine safety surveillance initiative funded by the Australian Department of Health. AusVaxSafety monitors post-licensure vaccine safety in near real-time. It has collected data from about 200,000 vaccine recipients since 2014 and produced 20 post-licensure vaccine safety reports.



VACCINE TRIALS AND CLINICAL RESEARCH

Landmark trials led by NCIRS have included pneumococcal conjugate and influenza vaccines in elderly adults and acellular pertussis vaccine in babies soon after birth. Internationally ground-breaking epidemiologic studies focus on the Q fever vaccine, as well as febrile convulsions, and intussusception post vaccination.

NCIRS is an internationally recognised hub for research on immunisation knowledge, attitudes and practice



ABORIGINAL AND TORRES STRAIT ISLANDER IMMUNISATION

Aboriginal and Torres Strait Islander populations have patterns of VPD burden and challenges in vaccine uptake requiring specific vaccine programs. The national Indigenous immunisation coordinator for the National Immunisation Committee is based at NCIRS. We also lead the National Aboriginal and Torres Strait Islander Immunisation Network. Three reports on VPDs in Indigenous people have been produced.



SOCIAL RESEARCH

NCIRS is an internationally recognised hub for research on immunisation knowledge, attitudes and practice, and sponsors the national Collaboration on Social Science in Immunisation (COSSI), producing more than 80 publications on social science in immunisation. Sharing Knowledge About Immunisation (SKAI) supports immunisation providers to help families.

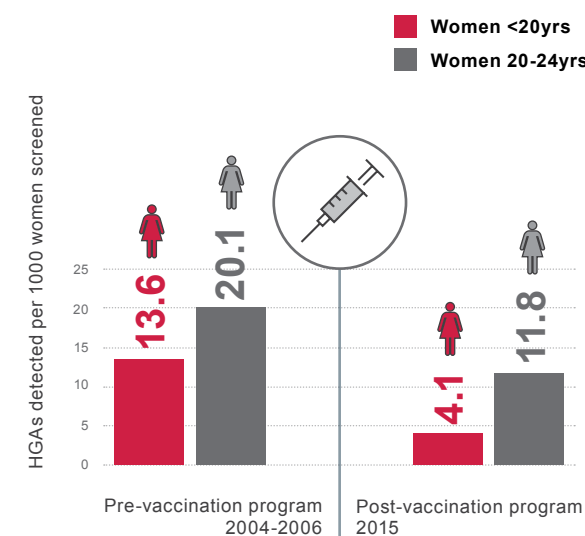


COMMUNICATION & EDUCATION

The NCIRS website now has more than 10,000 hits per month, the Australian Immunisation Providers (AIP) email network includes more than 1000 members, and there are more than 15 vaccine-related and 9 vaccine safety factsheets on the NCIRS website.

HPV VACCINATION PROGRAM APRIL 2007

High-grade cervical abnormalities (HGAs) detected in women screened in Australia before and after vaccine program



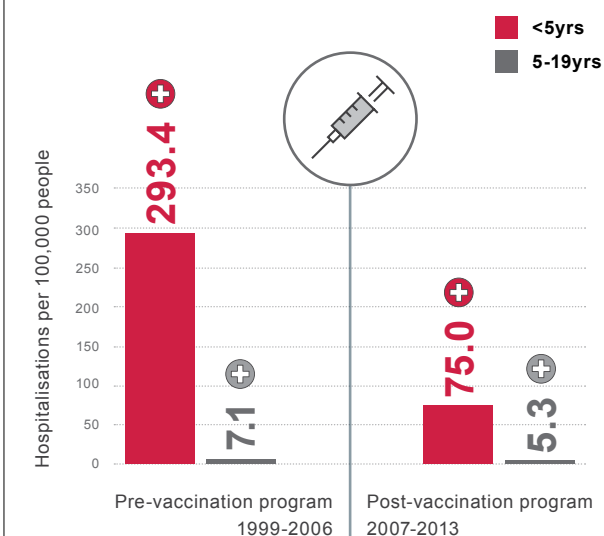
70% ↓  **<20**

41% ↓  **20-24**

Australian Institute of Health and Welfare. Cervical screening in Australia 2014–2015. Cancer series no. 105. Cat. no. CAN 104. Canberra: Australian Institute of Health and Welfare, 2017.

UNIVERSAL INFANT ROTAVIRUS VACCINATION PROGRAM JULY 2007

Rotavirus gastroenteritis hospitalisations in Australia before and after vaccine program



 **~22,000**
HOSPITALISATIONS PREVENTED for rotavirus gastroenteritis in children <5 since 2007

~500
HOSPITALISATIONS PREVENTED in those aged 5-19 years since 2007

Dey A et al. MJA 2012; 197: 453–457. Updated with data from AIHW National Hospital Morbidity Database.

OUR LEADERS



PROFESSOR MARGARET BURGESS
NCIRS FOUNDING DIRECTOR
1997 – 2004

As director, Professor Burgess established serosurveillance, a range of vaccine-related research and first highlighted the importance of vaccine safety monitoring. She was awarded the Order of Australia in 2003.



PROFESSOR PETER MCINTYRE
NCIRS DIRECTOR
2004 – 2017

Professor McIntyre has been director of the NCIRS for 13 years. He has overseen significant expansion in all areas of work, through government and research grant support. He is recognised internationally for research in vaccine prevention of pertussis and pneumococcal disease and has had multiple roles with the World Health Organisation.

The operations and research activities of the NCIRS are overseen by an Advisory Board and a Scientific Advisory Committee.

The Advisory Board monitors the governance, growth and financial sustainability of the NCIRS and provides advice on strategic direction and organisational development.

The Scientific Advisory Committee contributes to and reviews our research and surveillance strategy and monitors our scientific outcomes and the quality of the research and surveillance systems we use in our work.



DR MICHAEL BRYDON
is our current Advisory Board chair. He was appointed in 2016. Dr Brydon is the chief executive of the Sydney Children's Hospitals Network.



PROFESSOR JODIE MCVERNON became chair of the Scientific Advisory Committee in 2017. She is the director of epidemiology at the Peter Doherty Institute for Infection & Immunity, the University of Melbourne.

We acknowledge the commitment, dedication and stewardship of our past chairs:

ADVISORY BOARD CHAIRS



Professor Chris Cowell
2015 – 2016



Elizabeth Koff
2010 – 2015



Dr Tony Penna
2006 – 2010



Professor Kim Oates
2002 – 2006

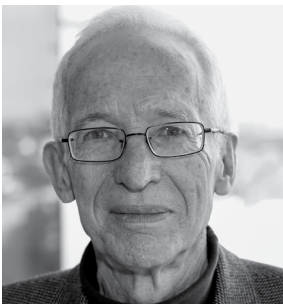
SCIENTIFIC ADVISORY COMMITTEE CHAIRS



Professor Cheryl Jones
2012 – 2016



Professor Lyn Gilbert
2007 – 2012



Professor Bruce Armstrong
2005 – 2007



Professor Andrew Wilson
2002 – 2005



Emeritus Professor Stephen Leeder
1997 – 2002

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National Centre for Immunisation Research & Surveillance

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