



IMMUNISATION SERVICE

Immunisation Service Report 2020–22

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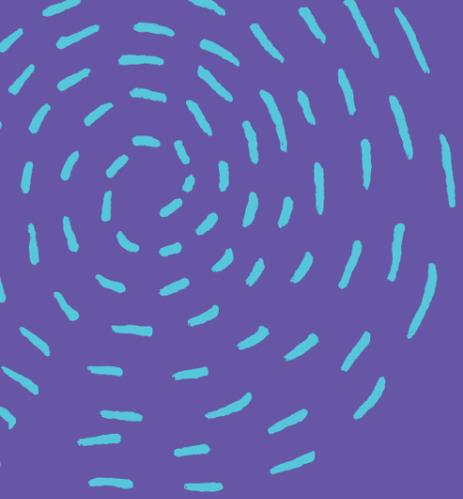
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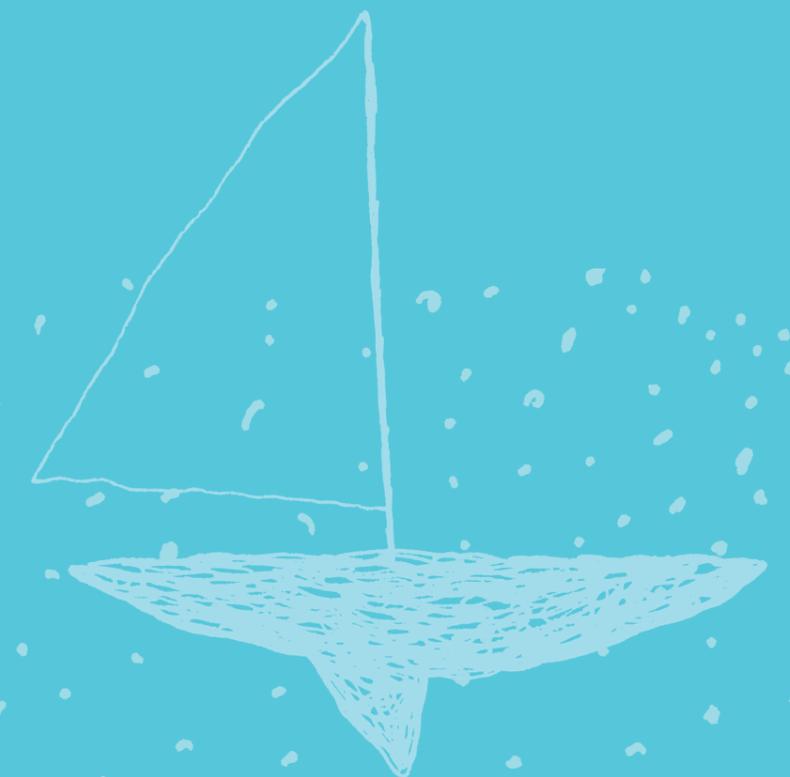
Abbreviations

AEFI	Adverse Event Following Immunisation
AEFI-CAN	Adverse Event Following Immunisation- Clinical Assessment Network
AESI	Adverse Event of Special Interest
AIR	Australian Immunisation Register
BCG	Bacille Calmette-Guerin
CVU	Clinical Vaccinology Update
DH	Department of Health (Immunisation section)
EMR	Electronic Medical Record
FTE	Full Time Equivalent
GP	General Practitioner
HHE	Hypotonic-Hypo-responsive Episode
HOD	Heads of Department
ID	Infectious Diseases
MCRI	Murdoch Children's Research Institute
MVEC	Melbourne Vaccine Education Centre
NCIRS	National Centre for Immunisation Research and Surveillance
NIP	National Immunisation Program
NP	Nurse Practitioner
NUM	Nurse Unit Manager
PAEDS	Paediatric Active Enhanced Disease Surveillance
PHAA	Public Health Association of Australia
PI	Principal investigator
PICU	Paediatric Intensive Care Unit
RCH	The Royal Children's Hospital
RSV	Respiratory Syncytial Virus
SAEFVIC	Surveillance of Adverse Events Following Vaccination In the Community
UR	Unit Record
VHIMS	Victorian Health Incident Monitoring System
ViCSIS	Victorian Specialist Immunisation Service
VIRGO	Vaccine and Immunisation Research Group
VR	Virtual Reality
WHO	World Health Organisation



SECTION 1

Overview



The Immunisation Service at The Royal Children's Hospital (RCH)

Our vision

To improve the health of children through the service's core business of:

- Administering opportunistic immunisations
- Operating a clinical immunisation Telephone Advice Line
- Consulting specialised patient groups in a weekly outpatient clinic

The Immunisation Service also provides:

- Education
 - Across all of the RCH campus including paediatricians, paediatric trainees, medical students, nurses and other allied health clinicians
 - External education, including through the Melbourne Vaccine Education Centre (MVEC) based at the Murdoch Children's Research Institute (MCRI), including Clinical Vaccinology Updates (CVU) and workshops
- Research
 - A strong clinical research team including special-risk groups, vaccine safety, vaccine-preventable disease surveillance, vaccine uptake and clinical trials
 - Epidemiological and clinical trial studies in current and potentially new vaccine-preventable diseases

Our purpose

We deliver the highest-quality immunisation care to children and their families. The Immunisation Service plays a vital role in increasing vaccine awareness, understanding and knowledge by assisting the community and health professionals through education, teaching and training. We collectively do this by:

- Supporting development of evidence-based immunisation guidelines via MVEC (www.mvec.mcricri.edu.au)
- Upholding a commitment to training and development of paediatricians with a special interest in immunisation, paediatric trainees (including an immunisation fellow), nurse practitioners, clinical nurse consultants, nurse immuniser trainees and graduate nurse program participants
- Delivering community education programs and resources
- Shaping clinical practice by actively participating in national and international immunisation conferences
- Leading internationally recognised research
- Collaborating with the community, government and professional stakeholders
- Being involved in immunisation policy at a state and national level
- Recruiting and retaining a team of passionate and dedicated professionals committed to our shared purpose

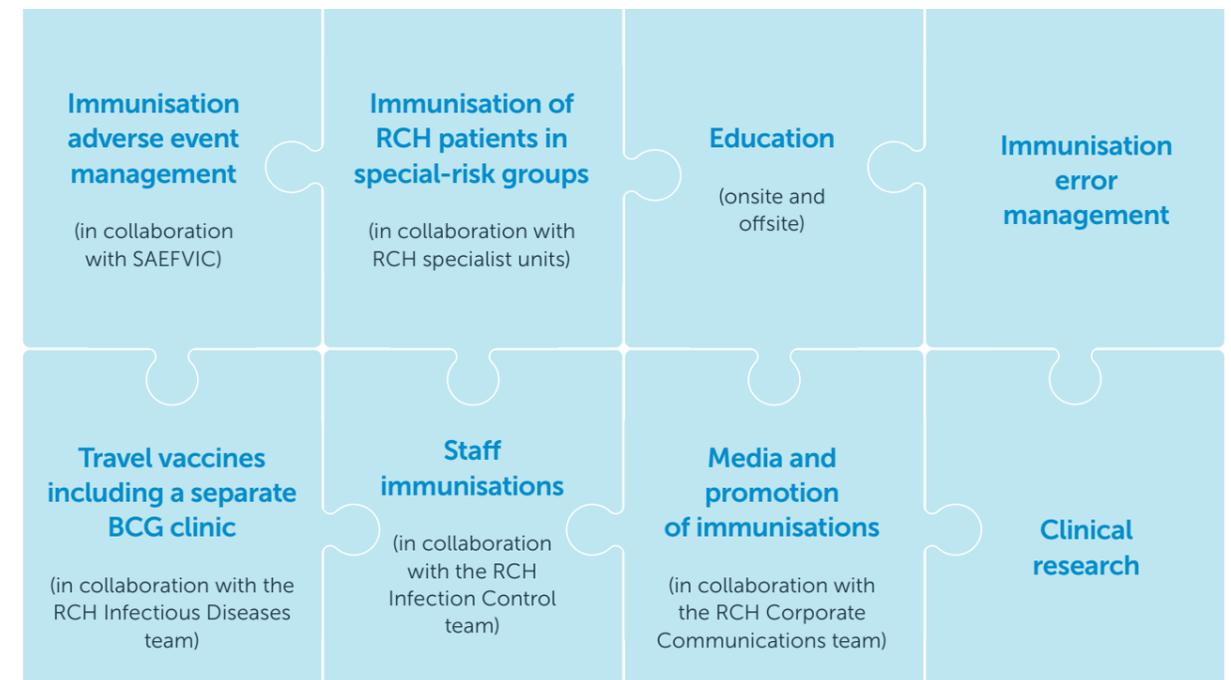
Links and partnerships

Whilst based within the RCH, the Immunisation Service has a broad reach within the Melbourne Children's Campus including a clinical role across multiple RCH departments, research teams within the Murdoch Children's Research Institute (MCRI) and affiliations with the University of Melbourne. The Immunisation Service at RCH has core funding through a partnership with the Victorian Department of Health, Immunisation section. Throughout the COVID-19 pandemic, the COVID-19 division of the Victorian Department of Health have also supported an RCH Paediatric Victorian Specialist Immunisation Services (VicSIS) clinic. The Immunisation Service also has affiliations with Surveillance of Adverse Events Following Vaccination In the Community (SAEFVIC), based at MCRI/RCH and the Melbourne Children's Center for Health Informatics.

This report provides a detailed account of the Immunisation Service's performance over two financial years (1 July 2020 – 30 June 2022) and is designed to demonstrate the activities undertaken by the team of dedicated staff involved in immunisation at RCH. The strong relationships we have built with our patients, families, stakeholders and community are important to us and are vital to our continued success.

This report highlights the Immunisation Service's core service activities, as well as additional immunisation programs undertaken by Immunisation Service staff and the paediatric VicSIS team.

Additional services provided by the Immunisation Service



In August 2020, the Immunisation Service launched a new drive-through immunisation clinic to help make it easier for families to access important vaccinations during COVID-19 restrictions.

Key highlights

COVID-19

This report covers a period where the COVID-19 pandemic was a major public health emergency, with the World Health Organization (WHO) estimating a cumulative total of more than 550 million cases and 6.3 million deaths worldwide from COVID-19 as of July 2022. A range of public health directives were implemented over this period across Australia, and in Victoria more specifically, including lockdowns, travel restrictions, school and business closures and mask mandates. This impacted the Immunisation Service's ability to provide care to families, including the ability to conduct drop-in immunisations, provide opportunistic immunisations to patients on the ward and to see clinic patients in the traditional face-to-face format.

The Immunisation Service saw an overall decrease in presentations with almost two-thirds of families delaying or cancelling their appointment during the pandemic. In response, the Immunisation Service launched a new drive-through immunisation clinic to help make it easier for families to access important vaccinations. The drive-through immunisation clinic was open on Tuesdays and Wednesdays 9am – 1pm and was available to all members of the public for all vaccinations. From 25 August to 23 September 2020, 156 patients attended the drive-through vaccination clinic. A significant proportion of attendees were overdue for immunisation. The responses from families were extremely positive and there were no adverse events reported.

The 2020-22 period also saw the development and roll-out of COVID-19 vaccines. The COVID-19 vaccine program at the RCH began with the staff with vaccine delivery to healthcare workers at the Melbourne Children's campus supported by the RCH Drop-in Centre. Supporting a population-based immunisation program placed additional strains on the Immunisation Service, including managing the demand for COVID-19 vaccination appointments and an increase in telephone calls requesting advice. These additional activities were supported by the Department of Health through Victorian Specialist Immunisation Service (VicSIS) funding for Immunisation Pediatricians, Immunisation Fellows, plus nursing and administrative staff. Despite these challenges, the Immunisation Service was able to rise to the occasion through switching outpatient appointments to Telehealth and increasing staffing levels to manage demand.

There was also a pandemic 30-fold increase in queries and reports to SAEFVIC regarding possible adverse events following immunisation (AEFI) following COVID-19 vaccines. Having a centralised database through VicSIS at MCRI allowed coordinated investigation and referral of paediatric AEFI cases to the RCH clinic. This included the serious adverse event of special interest (AESI) myocarditis/pericarditis following COVID-19 vaccines, with a peak in adolescent males, as detailed in the ATAGI clinical guidance ([see www.health.gov.au/resources/publications/covid-19-vaccination-guidance-on-myocarditis-and-pericarditis-after-covid-19-vaccines](http://www.health.gov.au/resources/publications/covid-19-vaccination-guidance-on-myocarditis-and-pericarditis-after-covid-19-vaccines)). The RCH team collated clinical and follow-up information regarding these myocarditis cases in Victoria (see publications section).

Nitrous oxide delivery in the RCH Immunisation Service Drop-in Centre

Sedation for immunisation continues to be particularly important for patients with anxiety disorders and/or needle phobia. Patients with needle phobia previously required a Paediatrician referral and admission to the Day Medical Unit (DMU). Following the installation of nitrous oxide circuits in the Drop-in Centre in August 2018, patients and families are now able to access the unique immunisation-under-sedation service offered in the Drop-in Centre.

The nurse practitioner and nurse practitioner candidate in the Drop-in Centre, are now able to meet the demands of patients requiring immunisations under nitrous oxide sedation on a regular basis. The installation of nitrous gases in two treatment rooms has enabled two patients to be immunised under sedation at the same time, consequently increasing the capacity of the valuable service offered in the Drop-in Centre.

During the reporting period, the Immunisation Service carried out sedation on 192 patients with nitrous oxide sedation alone in the Drop-in Centre. Of these patients 162 (84%) were successfully vaccinated with one or more vaccines. 30 patients (16%) were unsuccessful and referred onto the Day medical unit where they received oral midazolam prior to the nitrous oxide. This high success rate shows that the option of a stand-alone service offering immunisations under sedation with nitrous oxide is valuable to the ambulatory setting, due to its ability to take pressure off both the DMU and specialist clinics services.

Nursing scholarships and awards

Each year, many children with needle phobia and subsequent failure of standard immunisation procedures in the school setting or in primary care by a GP or an immunisation nurse, are referred to the RCH Specialist Immunisation Clinic. The Immunisation Service offers a specialist service for administration of routine immunisations using distraction techniques or conscious sedation. One alternative technique for children is virtual reality (VR) which is being harnessed as a new and emerging form of medical distraction therapy designed for various procedural practices in paediatric medicine, including for immunisation. Following successful completion of her Masters in Advanced Nursing Practice, Immunisation nurse Narelle Jenkins worked alongside Margie Danchin to conduct a mixed-methods pilot study investigating whether VR is a feasible and acceptable method for managing needle phobia for immunisation in neurotypical children and children with developmental disabilities aged 4-14 years. This has been submitted for presentation at the PHAA Communicable Diseases Immunisation Conference in 2023.

In 2021, Immunisation Nurse Practitioner and Manager and Professional Nursing Lead in Ambulatory Services, Sonja Elia was recognised as The Royal Children's Hospital 2021 Chairman's Medal recipient. The Chairman's Medal is the most prestigious award that can be bestowed by the RCH upon a member of staff and is peer-nominated. Sonja is described by her colleagues as a committed leader and a respected expert in her field. She has been a member of the RCH team for over 20 years now, working across many roles

in that time. Throughout the COVID-19 pandemic, Sonja's expertise became even more vital to the RCH and to the wider community. Her role in the COVID-response has been crucial – she worked with the Austin Hospital to set up their COVID-19 vaccination clinic and also established the RCH COVID-19 vaccination clinic. Her pivotal role in these projects included sharing her knowledge in demonstrating vaccine drawing-up procedures, anaphylaxis management, cubicle layouts and the training and mentoring of the nursing staff, many of whom were new to vaccinating. These programs of work were in no way a simple accomplishment, but Sonja made it seamless. On receiving her Chairman's Medal Sonja said: *'This year has been a challenge, rolling out an immunisation service at the RCH was not an easy feat. The nursing team have been so supportive – there is no "I" in team, and I am really grateful for all the people who I get to work with every single day. It has taken many people at the RCH to shape me into the nurse practitioner that I am today.'* Sonja has also received a special message from Premier Daniel Andrews on her Chairman's Medal, congratulating her and her team on all they have contributed to the state. *'The vaccination centres you have helped establish, in the midst of crisis, are the very reason Victorians are able to safely get back doing the things they love and miss. And the pioneering work you have performed across our hospitals has, without a doubt, saved Victorian lives,'* the Premier said. Sonja is the first endorsed nurse practitioner in immunisation in Victoria and was truly humbled by the award and the Premier's message. Congratulations Sonja on this outstanding achievement!



Virtual reality (VR) is being harnessed as a new and emerging form of medical distraction therapy

Staff

Medical



Professor Nigel Crawford (Medical Lead)

Nigel is a consultant paediatrician and Head of the Immunisation Service at The Royal Children's Hospital, as well as the Director of SAEFVIC. In 2021 he was appointed as Chair of the Australian

Therapeutic Advisory Group on Immunisation (ATAGI). In 2020-21, Nigel was seconded to the Victorian Department of Health COVID-19 Vaccine Response Team. His research interests include vaccination of special-risk groups, adverse events following immunisation and strengthening of immunisation policy via national and international networks.



Dr Teresa Lazzaro

Teresa is a consultant paediatrician with extensive experience in the fields of immunisation and travel medicine. Throughout 2021 she was Acting Medical Lead of the Immunisation Service. Teresa has particular interests in adverse

events following immunisation and vaccine hesitancy.



Professor Margie Danchin

Margie is a consultant paediatrician with positions in both the RCH Immunisation Service and MCRI, where she is lead of the Vaccine Uptake group. In 2021-22, Margie was seconded to the Victorian Department of Health COVID-19

Vaccine Engagements and Partnerships Team. She has a wealth of experience in vaccine research and clinical work and a particular interest in vaccine demand and uptake, risk communication and immunisation strengthening.



Associate Professor Kirsten Perrett

Kirsten is a consultant paediatrician with extensive experience in vaccinology and allergy. She holds positions in the Immunisation Service, the RCH Allergy and Immunology department and MCRI. Kirsten's interests in this

field are in vaccine allergy, clinical trials and vaccine safety research.



Associate Professor Shidan Tosif

Shidan is a consultant paediatrician with positions in both the Immunisation Service and MCRI. He has particular interests in adverse events following immunisation, travel medicine, immigrant health and COVID-19

infection in children and their families.



Dr Wonie Uahwatanasakul

Wonie is a consultant paediatrician with extensive clinical experience in paediatrics and child health. She holds positions within the Immunisation Service and the University of Melbourne and is interested in adverse events

following vaccination and special-risk vaccination.

Immunisation fellows

The role of the immunisation fellow involves attending the weekly immunisation clinic, supporting the activities of the Drop-n Centre, and discussing and reviewing patients receiving vaccines as required. There was also a requirement to support vaccine administration under supervision in the Day Medical Unit and inpatient wards as required. The fellow also reviewed internal immunisation-related referrals, which were discussed with the on-call immunisation paediatrician. They assisted with coordinating the weekly education meeting as well as undertaking a clinical research project, attending research and statistic training courses as required. In addition, there was also close collaboration with the state-wide immunisation safety service, SAEFVIC.

The position has been filled by the following trainees:

- Daniela Say, August 2020 – February 2021
- Davina Buntsma, February 2021 – August 2021
- Priya Shenton, August 2021 – February 2022
- Rachael Purcell and Julia Smith, February 2022 – August 2022

Pharmacist



Dee Verma

Dee took on the role of the Immunisation Service Pharmacist in December 2021. She verifies, supplies and administers vaccines throughout the RCH, including the paediatric COVID-19 vaccines. Her particular interests are

vaccine access and equity.



The 2022 staff vaccination program achieved 94.5% staff vaccination and delivered 6,165 vaccines to staff of the RCH and its campus partners.

Medical (VicSIS)

Dr Daryl Cheng

Daryl is a consultant paediatrician and clinical informatician with a special interest in immunisation and travel medicine. He also has clinical research and educational appointments at SAEFVIC, MVEC and the University of Melbourne. Daryl led the SAEFVIC research into myocarditis following COVID-19 vaccines.

Dr Raffaella Armiento

Raffaella is a consultant paediatrician whose interests include immunisation medicine as well as medical education and quality improvement.

Dr Laine Hosking

Laine is a consultant at the RCH with the department of Allergy and Immunology whose interests include vaccine allergy.

Nursing



Sonja Elia (Nurse Practitioner and Manager)

Sonja is the Nurse Practitioner and Manager of the Immunisation Service and has a particular interest in vaccine hesitancy, special-risk groups, needle phobia and immunisation education.



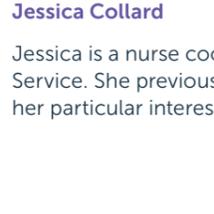
Narelle Jenkins

Narelle is a nurse coordinator within the Immunisation Service. Her particular interests include improving patient experience during immunisation, particularly in relation to minimising pain and anxiety. She has led two large randomised control trials in this area.



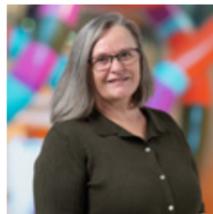
Lynne Addlem

Lynne is a Nurse Practitioner candidate within the Immunisation Service. She holds particular interests in vaccine hesitancy, improving at-risk inpatient vaccine coverage and immunisation education.



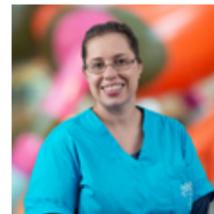
Jessica Collard

Jessica is a nurse coordinator within the Immunisation Service. She previously worked in Day Cancer Centre and her particular interests include oncology.



Nikki Marriner

Nikki is a nurse coordinator within the Immunisation Service. She has previously worked in Intensive care; her particular interests include vaccination of special-risk groups.



Phillippa Van Der Linden

Phillippa is a nurse coordinator within the Immunisation Service. Her particular interests include vaccination of special-risk groups.

Administration



Jessica Elia



Jo Gleeson

Past Immunisation Service staff:

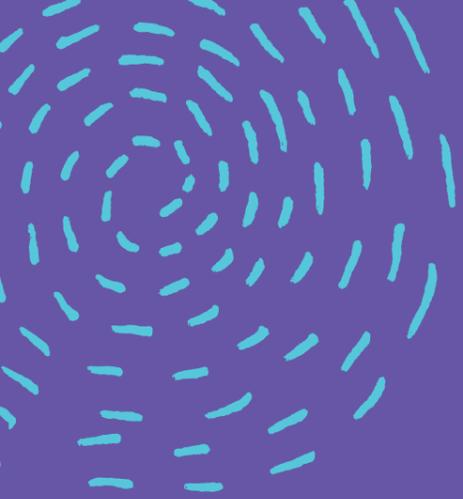
Nadine Henare
Skye Miller
Annie Cobbledick
Will Harris (VicSIS)

VicSIS staff

Michelle Ryan
Katie Butler
Michelle Ferguson
Abigail Fernando
Melissa Humann
Tash Beattie



In 2021-22, 8,266 patients, siblings and parents were opportunistically vaccinated at the RCH Immunisation Service Drop-in Centre.



SECTION 2

Report on performance



Core service activity

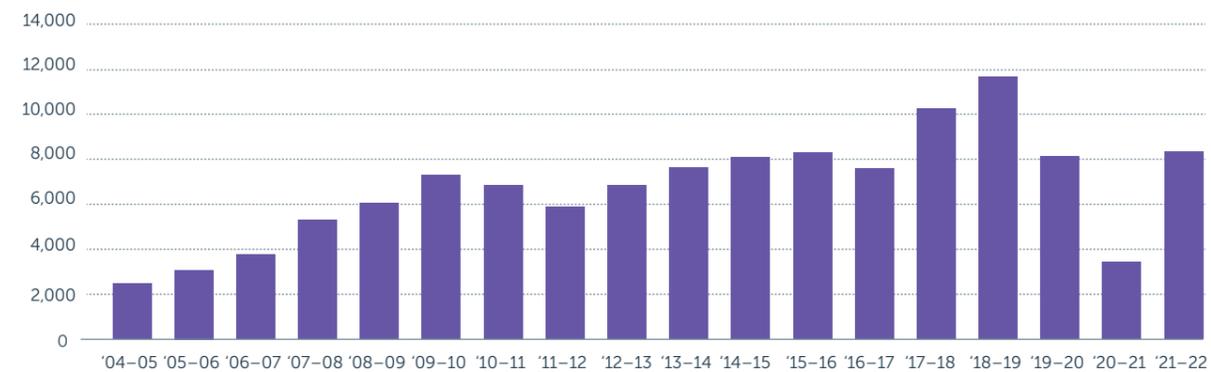
The RCH Immunisation Service Drop-in Centre

The opportunistic immunisation of patients whilst attending hospital is central to optimising immunisation of high (special) risk patients and their families, and the Drop-in Centre at the RCH is the leader in this field nationally and internationally. The growth in activity continues each year, as shown below, with an incredibly high number of patients immunised. The Drop-in Centre is easily accessible, on the Main Street of the hospital and is open from Monday to Friday, 9am to 4.30pm. As well as providing vaccines, the Drop-in Centre staff address vaccine concerns and hesitancy, and reinforces the importance and safety of vaccination to be able to close immunisation gaps, particularly of children in special-risk groups.

The VicSIS network was established in 2021 to support the COVID-19 vaccine rollout in Victoria. The VicSIS team at the RCH included allergists, nurse practitioners, immunisation paediatricians, and immunisation fellows, as well as nursing and administrative staff. The Immunisation Service provided specialist immunisation services for children who had experienced an adverse event following immunisation (AEFI) with a COVID-19 vaccine, or for those who have been identified as at-risk of experiencing an AEFI. We also provided consultations and individualised advice, both pre- and post- vaccination either face-to-face or via telehealth.

Figure 1: Patients immunised at the Drop-in Centre by 12-month period

Immunisation Service activity



Patients immunised

In 2021-22, 8,266 patients, siblings and parents were opportunistically vaccinated at the Drop-in Centre. This compares to 3,374 in 2020-21. Figure 1 illustrates the service activity over the last few years.

The activity demonstrated above, is a reflection of the number of drop-in patients, siblings and/or parents of the patient as well as outpatients directed to the centre. The actual number of vaccinations administered was significantly higher than this. In the 2020-21 reporting period, 6,743 vaccines were administered and in 2021-22, 13,665 vaccines were given.

The Immunisation Service nursing staff also attended the various wards throughout the hospital and provided the required immunisations. Figure 2 demonstrates an overview of the source of patients receiving immunisations at the Drop-in Centre.

Outpatient clinics

The weekly Specialist Immunisation Clinic (SIC) provides a service to children with complex medical health problems and specialist immunisation needs. This Tuesday morning clinic combines SAEFVIC and the Drop-in Centre and has six paediatricians: Nigel Crawford, Teresa Lazzaro, Wonie Jahwatanasakul, Kirsten Perrett, Shidan Tosif and Margie Danchin as well as the nurse practitioners (NP) Sonja Elia and Lynne Addlem. The clinic is also attended by the immunisation fellows and medical students.

Figure 2: Patients immunised at the Drop-in Centre by 12-month period: non-outpatient drop-in patients vs. outpatients

Immunisation Service activity



The patients who should be referred to this clinic are:

- those who have previously experienced an adverse event following immunisation
- are at risk of an adverse event following immunisation
- children with underlying complex medical health problems (including oncology, transplant and immune suppression)
- special-risk group patients with questions around vaccine recommendations related to their underlying diagnosis and/or treatment
- patients with significant needle phobia who require deeper sedation than nitrous oxide alone
- children who require supervision following immunisation
- families with immunisation needs unable to be met within a community setting
- families requesting medical or special exemptions in the context of the No Jab, No Pay (national) and No Jab, No Play (state) policies
- evaluation of patients <12 months old requesting Bacillus Calmette–Guérin (BCG) vaccination and relevant travel medicine advice

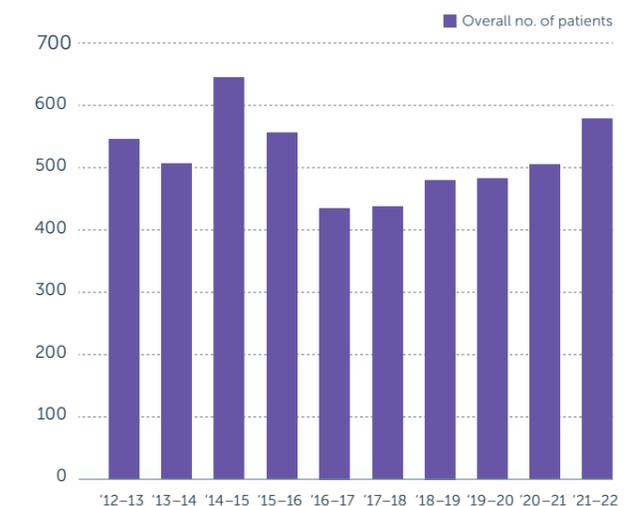
The clinic continues to be an important resource for internal and external healthcare professionals, with the number of appointments remaining consistent over the reporting period. The overall number of patients seen in the Specialist Immunisation Clinic is detailed in Figure 3.

The lead role of the Specialist Immunisation Clinic has been highlighted by them being the lead site for the

Adverse Event Following Immunisation – Clinical Assessment Network (AEFI-CAN). Funded by the Commonwealth via AusVaxSafety through the National Centre for Immunisation Research and Surveillance (NCIRS) (www.ncirs.edu.au/vaccine-safety/ausvaxsafety/), this collaboration facilitates clinical immunisation cases from around the country being discussed by national experts and the most up-to-date advice and vaccine plans are given to families who attend our clinics.

Figure 3: Number of clinic patients* by year *excludes BCG clinic patients (see separate summary)

Specialist Immunisation Clinic activity



Telehealth

Telehealth appointments have been available for a number of years through our service, but were expanded rapidly in March 2020 in response to the COVID-19 pandemic. Since this time, there has been a large increase in the number of telehealth consultations and currently most consultations are still undertaken via this platform.

In 2020-21 there were 423 telehealth immunisation consultations, and in 2021-22 there were 511 (see Figure 4).

Figure 4: Number of telehealth consultations by year

Telehealth 2018-22



Additional immunisation consultations

In addition to the fact that nursing staff are busy answering telephone enquiries and vaccinating patients and family members, there is often much more activity that is difficult to capture. The Immunisation Service nurses provide expert advice on a range of topics, including:

- vaccine hesitancy consultations, including individually tailored immunisation schedules
- overseas immunisation records requiring translation and reporting to the Australian Immunisation Register (AIR)
- individualised immunisation plans, including serology for patients with complex medical problems/special-risk patients
- enquiries about new vaccines (e.g. Meningococcal B and ACWY vaccines)
- enquiries about non-scheduled vaccines (e.g. influenza vaccine, parent pertussis vaccine, BCG vaccine)
- enquiries about medical and special immunisation exemptions
- parents, medical students and nursing staff seeking immunisation resources
- immunisation-adverse event advice and reporting
- incomplete AIR records requiring updating

The RCH Immunisation Service Telephone Advice Line

RCH Drop-in Centre (03) 9345 6599 or 1300 882 924 (option 2)

In many healthcare settings, telephone services are providing innovative approaches to delivering services and providing advice. For parents and immunisation providers in particular, the Telephone Advice Line at Immunisation Service is invaluable, because nurses provide immediate expert advice to assist decision making.

Over the reporting period calls to the Telephone Advice Line has decreased compared to the previous reporting period. In the past 2 years, calls have decreased by 12%, which compares to a rise in 3% reported over the previous 2-year reporting period. The majority of calls received were from parents, followed by immunisation providers, RCH staff as well as other community-based organisations. There were 13,423 telephone advice calls documented at the Drop-in Centre in 2021-22, compared to 6,931 received in 2020-21, which was a 94% increase.

The Telephone Advice Line is managed by nursing staff, however when there is a particularly complex enquiry, they can refer the call to the medical staff to support the decision making and help facilitate a clinic appointment if required. The advice line is available during business hours, between 9am – 4.30pm on working weekdays of the year.

Figure 5 reflects the Telephone Advice Line activity. In this reporting period, information was collected on caller type to the Telephone Advice Line (Figure 6).

Figure 5: Immunisation advice calls at the Drop-in Centre by 12-month period (2004-22)

Immunisation telephone advice

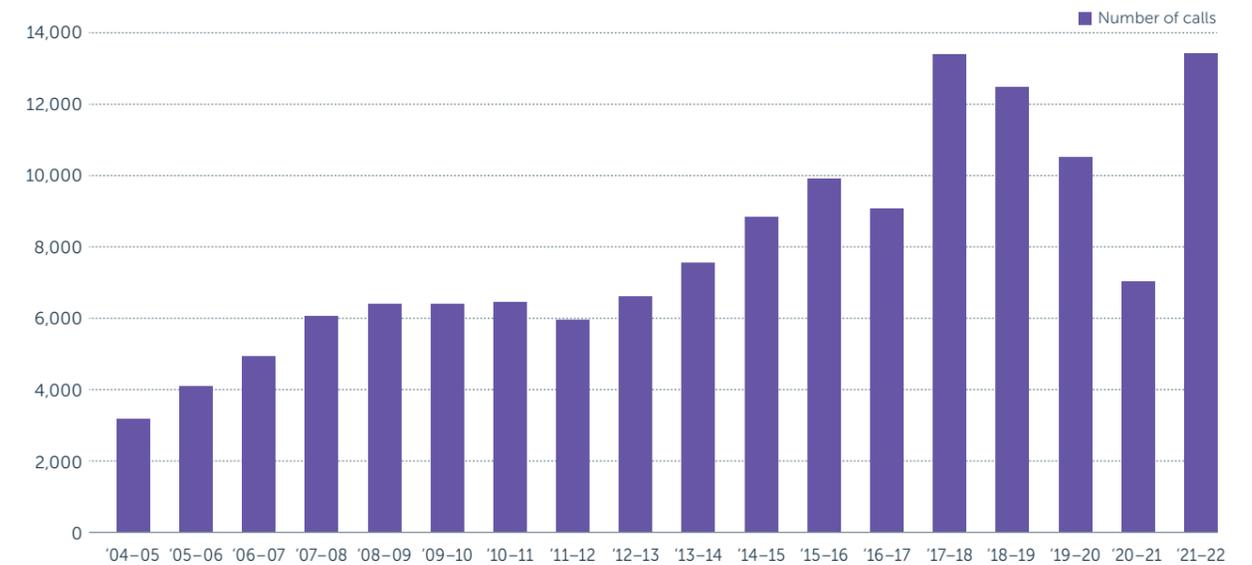
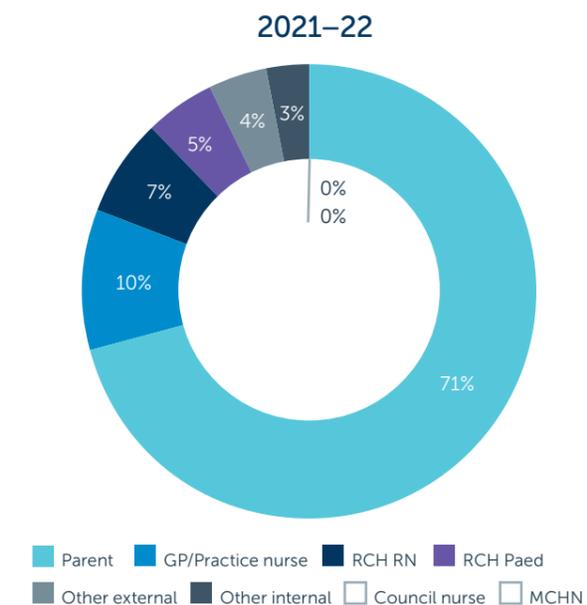


Figure 6: Telephone Advice Line calls at the Drop-in Centre by caller 1 July 2021 – 30 June 2022



Inpatient immunisations

Children who are hospitalised have been shown to have lower immunisation rates compared to the general population and hospitalisation presents a potential setting to opportunistically improve vaccine uptake. For a number of years, the Immunisation Service team have been checking the immunisation status of all ward inpatients 6 weeks and older using the AIR. This includes identifying whether special-risk vaccines are clinically indicated. Inpatients are considered 'overdue' for immunisations if they are 30 days or more overdue for the age-appropriate vaccines at the date of admission to hospital and 'due' for immunisations if the immunisation due date is less than 30 days prior. Due to the No Jab, No Pay legislation, this work is even more important, as families of inpatients may be financially disadvantaged.

The Immunisation Service nurses flag patients as due or overdue in the Electronic Medical Record (EMR). As well, the ward-based nurse coordinators are emailed a list of identified patients and liaise with the service to either facilitate administration of vaccines whilst an inpatient or make a plan for vaccination post discharge. The immunisation status of these patients is rechecked one month later to determine whether the child's immunisation status is now up to date. Approximately 35 patients per month have been immunised at the RCH whilst an inpatient, noting the significant impact of COVID-19 restrictions. The vaccines administered have included overdue HPV doses, Year 10 Men ACWY as well as vaccines for special-risk categories. We continue to monitor the success of this program.

Figure 7 and Figure 8 below demonstrate the month-by-month success of the program for children aged 6 weeks to 7 years.

Figure 7: Inpatients identified as due/overdue for immunisation and vaccinated 1 July 2021 – 30 June 2022

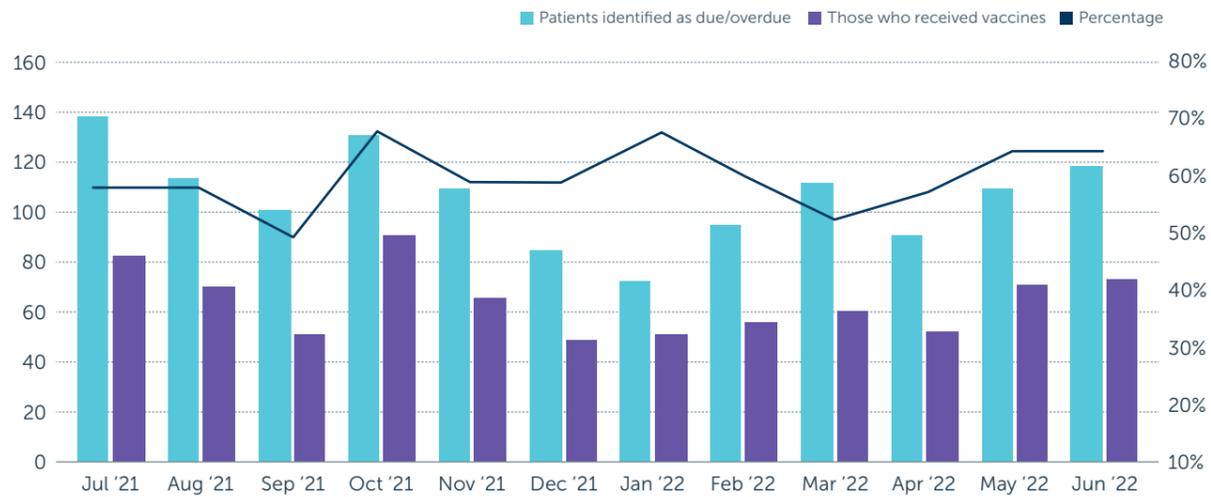
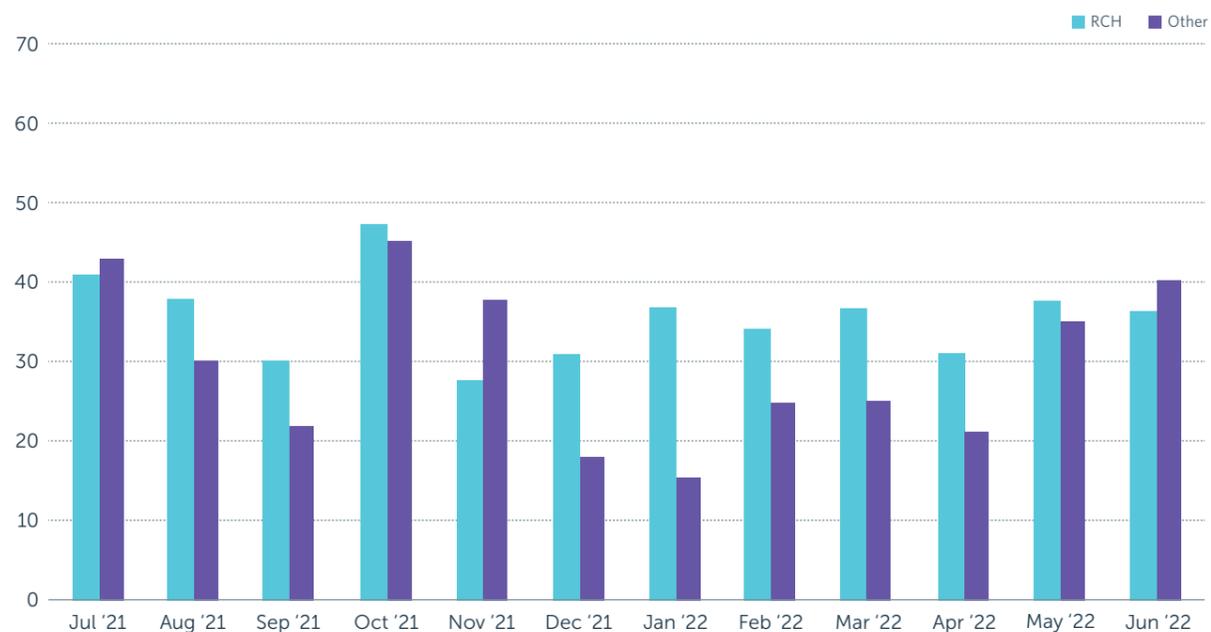


Figure 8: Inpatients vaccinated by site 1 July 2021 – 30 June 2022



Elective admissions

The sedation of patients at the Drop-in Centre using nitrous oxide commenced in August 2018 and has proved to be an extremely positive service for needle-phobic patients, having been expanded during the COVID-19 pandemic with VicSIS funding support. Over the reporting period, 192 patients utilised this service, and 92% of patients were successfully vaccinated. As one of the strategic priorities of the RCH, an evaluation of this service was arranged. A sedation survey was developed based on a satisfaction questionnaire previously used following paediatric anaesthesia (Lacobucci T, 2005). Over 8 months, 26 families completed the survey. The median age of patients was 12 years, 17 female and 9 males. Respondents scored 8.9 out of 10 for the environment being comfortable, with suggestions for improvement being ceiling decorations or wall hangings, and the treatment room being separate to the consultation room. The sedation nurse's gentleness and care scored 9.8 out of 10. The overall judgment of the child's experience for the procedure scored 8.7 out of 10, where 0 was a very bad experience and 10 was excellent. Overall, excellent feedback was received from families, with some slight adjustments to be made to the physical setting of the procedure room.

There are still patients who will require other adjunctive therapies including oral midazolam (0.3–0.5 mg/kg per dose, maximum of 20 mg) and play or distraction therapy. These patients are booked into the Immunisation NP clinic on Tuesdays with a planned admission to the Day Medical Unit immediately following the appointment.

Over the reporting period, 192 patients received vaccines under some form of sedation. Other than the Drop-in Centre, the main admission site for sedation was the DMU, where children were referred if they required midazolam sedation in addition to nitrous. Many of these children also required input from Comfort Kids and Code Grey teams to facilitate their admission. Another site utilised for sedation for vaccination was the nurse-led clinic in specialist clinics. Many of these children had bloods completed under the sedation at the same time. Children undergoing cancer treatment were opportunistically vaccinated on Day Oncology Unit whilst under sedation for procedures. The remainder were opportunistically immunised under general anaesthetic in other settings such as the operating theatre and medical imaging in conjunction with other procedures. Many of the patients requiring sedation had significant needle phobia, as well as patients with development disabilities who have anxiety related to medical procedures.

However, the release of the COVID-19 vaccine and subsequent mandating saw an increase in patients presenting for sedation who were diagnosed with significant neuro-developmental disabilities such as children on the autism spectrum. These children required significant time and planning by a number of teams within the RCH to ensure a safe and successful visit.

Immunisations for newly arrived immigrants

Victoria continues to support asylum seeker children with significant health needs. The RCH has been working proactively, and thinking outside the square, to manage and promote the health of refugee children and families.

The RCH Immigrant Health Service consultants and fellows see children from over 30 countries, speaking over 30 languages, and interpreters assisted for over two thirds of clinic consultations. Attendance rate has been documented previously at 87%, which is a testament to the care and work of the team.

In addition to hospital-based initiatives, the RCH has made valuable contributions to state and national efforts to improve refugee child health and is working closely with other sectors to maximise outcomes for these children. With a focus on providing education, clinical care and mentoring, the team also continues to be involved in research, advocacy and policy development at a state level, working closely with the Victorian Department of Health and the Victorian Refugee Health Network.

The Immunisation Service assists with any catch-up immunisations and/or Mantoux testing of patients attending the Immigrant Health service. Prior to the patient's clinic appointment, the Immunisation Service nurses perform an AIR check on all immigrant health patients to assist with further catch-up vaccines required and to reduce immunisation errors at the time of the appointment. The Immunisation Service collaborates with the Immigrant Health Service team in the regular updating of catch-up guidelines www.rch.org.au/immigranthealth/clinical/Catchup_immunisation_in_refugees/

The Immunisation Service nurses have provided Mantoux tests and subsequent reading for many of these patients and other patients requiring testing for tuberculosis. Table 1 outlines the total number of Mantoux tests performed by Immunisation Service nurses, noting there was a significant reduction in overseas travel due to COVID-19 restrictions over this reporting period (2021-22).

Table 1: Mantoux tests performed by the Immunisation Service by 12-month period

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Mantoux tests	207	269	332	243	165	92	121	99	62	38

COVID-19 vaccines

Australia's vaccine program commenced on 22 February 2021. Initially, vaccines were rolled out to high-risk groups and those aged over 70, then later made available to other age groups: 16 years and older (from 19 August 2021), 12 to 15 years of age (from 13 September 2021), 5 to 11 years of age (from 10 January 2022) and 6 months to 5 years of age (from 29 September 2022) for certain groups. The vaccine roll-out is summarised below in **Figure 9**.

The Drop-in Centre delivered 3,570 COVID-19 vaccines to medically at-risk patients over the reporting period 2021-22.

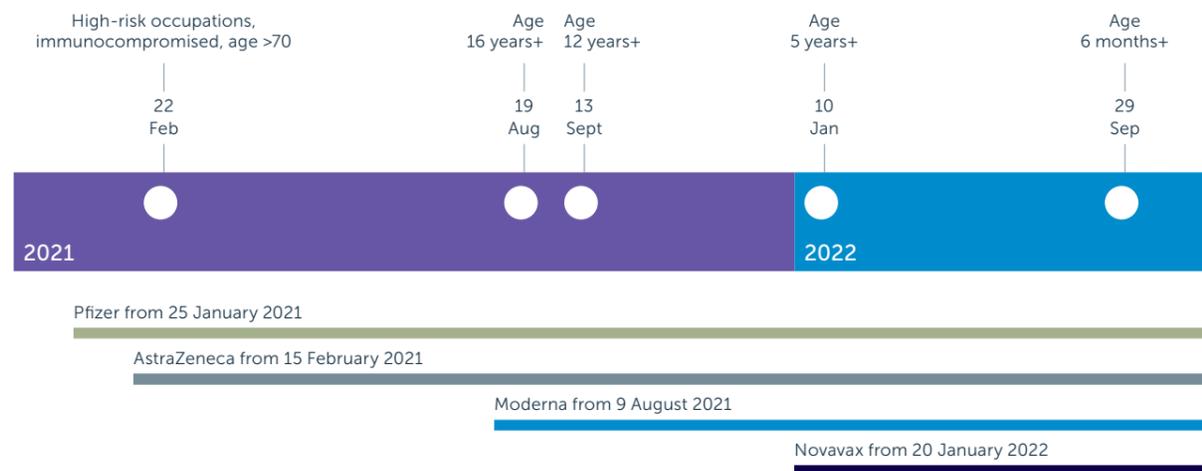
Following the rollout of the COVID-19 vaccine for people 16 years and older and then the 5 to 11 year age group (in early 2022), the Drop-in Centre saw a significant increase in the number of referrals for immunisations under nitrous sedation. In September 2021 the number of referrals had doubled, and by November the centre was receiving six

and half times the number of referrals seen prior to August 2021.

Over the reporting period, a total of 3 patients were requested through the electronic medical record (EMR) to have a general anaesthetic for the sole purpose of vaccination. The 3 patients in question failed numerous attempts with varying forms of sedation in the DMU. Of these 3 patients, 1 was successfully vaccinated fully with COVID-19 and high school vaccines over 3 visits, 1 completed 1 dose of a COVID-19 vaccine and all high school vaccines, the third patient and the second appointment for patient 2 were unable to be scheduled due to demand in the theatres from more urgent cases.

This was the first time that RCH has offered a general anaesthetic for the sole purpose of vaccination and resulted from the mandating of COVID-19 vaccines for the adolescent population from under 12 years of age.

Figure 9: Summary of Australia's COVID-19 vaccine roll-out



Influenza vaccines

In 2020 and 2021, Australia and countries across the globe saw historically low levels of influenza circulation. This was attributed to international border closures and social distancing measures due to the COVID-19 pandemic. Over these years there was also lower levels of seasonal influenza vaccine uptake.

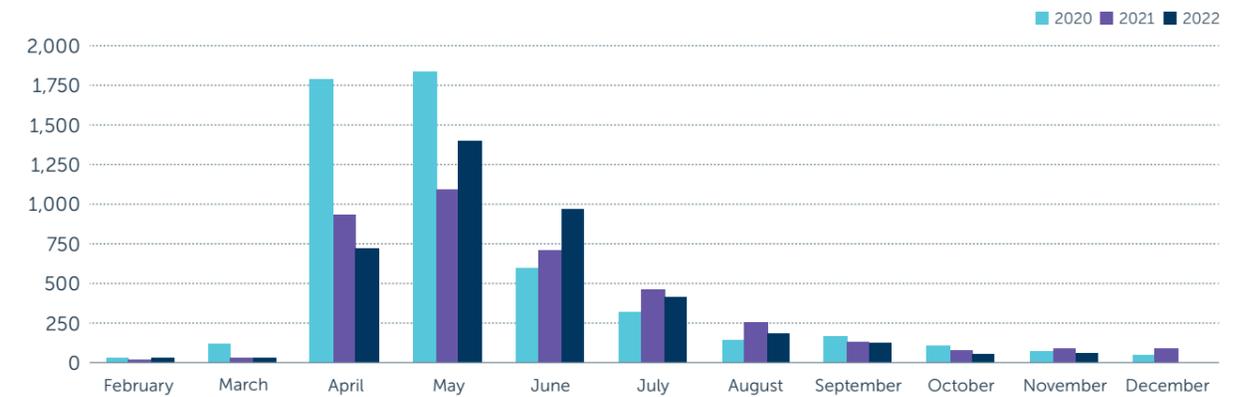
In 2022, however, there was a resurgence of influenza cases. This occurred much earlier in the season than usual, with a peak of cases in May 2022 where there were the highest levels of influenza ever recorded. This surge in cases was likely multifactorial, including the relaxation of many pandemic-related public health measures, low levels of influenza vaccine in the preceding years thereby creating a relatively vulnerable population, as well as a trend towards increased lab-based testing in general.

The vaccine uptake by age is detailed in the NCIRS national influenza vaccine uptake dashboard (see www.ncirs.org.au/influenza-vaccination-coverage-data). The highest notification levels were seen in ages 5 to 9 years old, leading to the seasonal influenza vaccine being made free for all ages between 1 June – 10 July 2022.

In 2021, 3,887 vaccines were administered to patients at RCH and in 2022, there were 4,092 vaccines administered, representing a 5% increase. Uptake in Aboriginal and Torres Strait Islander patients was 10%.

The Immunisation Service again worked with the Paediatric Intensive Care Unit (PICU) in 2021, to ensure that extremely vulnerable children were immunised with influenza vaccine. The Immunisation team published its experience of vaccinating children in PICU (see Publications section).

Figure 10: Influenza immunisations at the Drop-in Centre by month and year



The Hospital in the Home team continued to provide influenza vaccines to those patients receiving care at home and the Day Medical Unit and Day Oncology department were provided influenza vaccines on imprest, so that opportunistic ward-based immunisations could occur. Paediatrician and clinical informatician Daryl Cheng previously developed a best practice advisory model in the EMR, requiring all clinical staff to acknowledge whether a patient has received an influenza vaccine in 2020.

The Immunisation Service recommends the influenza vaccine for all parents and siblings of eligible patients, however they are required to purchase the vaccine and have it administered at the Drop-in Centre. The data presented in **Figure 10** includes patients, parents and siblings who were provided influenza vaccines at the Drop-in Centre.

Staff influenza vaccine program

Vaccination is important for the healthcare workforce in order to protect patients and staff. On 8 April 2022, it was announced by the Department of Health that influenza vaccination would be a mandatory requirement for certain healthcare workers (see www.health.vic.gov.au/immunisation/vaccination-for-healthcare-workers).

The staff influenza vaccination program is typically overseen by the Infection Prevention and Control team. Appointments in 2021 and 2022 were made available to staff by booking online, and walk-in appointments were also made available. The staff influenza vaccination campaign ran for 20 weeks, between March 30 and August 14 2022. The 2022 program achieved 94.5% staff vaccinated and delivered 6,165 vaccines to campus partners and RCH staff.



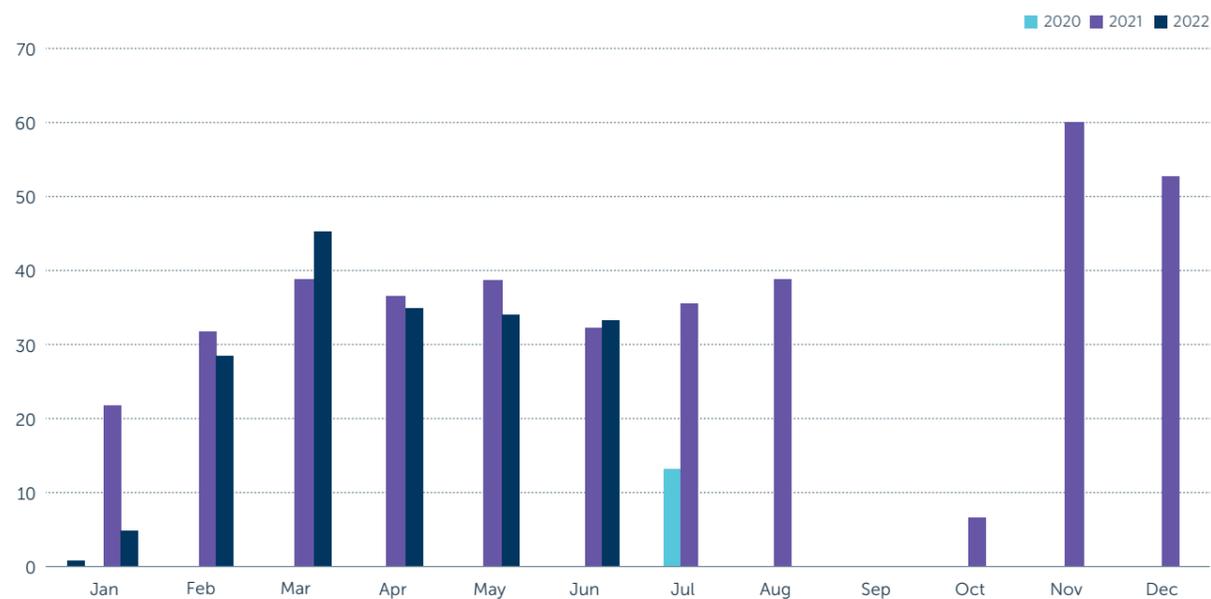
Additional Immunisation Service programs

Bacille Calmette Guerin (BCG) vaccine for children less than 12 months of age

In Victoria, the Immunisation Services at RCH and Monash Health have been the major providers of BCG vaccine since 2013. The BCG clinic runs weekly, for infants less than 12 months of age and is undertaken by the Immunisation Service medical team. The clinic was interrupted over 2020 and 2021 given the ongoing pandemic and travel restrictions. Clinics were not held from mid-July 2020 until

January 2021 and were paused again briefly in September and October 2021. Patients were still seen via telehealth throughout November and December 2021. Patients have to be seen initially for a medical evaluation and then if deemed safe to do so will proceed to have BCG vaccination at the Drop-in Centre.

Figure 11: Monthly RCH BCG clinic attendees



Respiratory syncytial virus (RSV) vaccine and monoclonal antibody (mAb)

Background

Each year the RCH treats babies and young children infected with Respiratory Syncytial Virus (RSV). RSV is the most common cause of respiratory infections and can lead to serious illness in premature infants, as well as cardiac and chronic lung disease patients. For at-risk infants, an admission to intensive care is more likely. To prevent serious RSV-related complications, high-risk infants can receive monthly Palivizumab, which provides passive immunity against RSV infections. This has been shown to decrease the incidence of RCH RSV hospitalisations and the number of hospital days.

In 2022, the program commenced on the 4 March. In total, 103 patients were placed on the list of eligible patients, which is a slight increase compared to the previous year. However, 2 parents declined to receive the product,

2 families from Geelong elected to complete the program with Barwon Health, thus resulting in 99 patients. 61 of these patients were Cardiology, whilst the remainder patients were under other risk categories: Pre-term infants under Neonatology (27), Respiratory (5), General Medicine (5) and Immunology (1). Patients were immunised at the Drop-In Centre or on the ward if a current RCH inpatient.

The Immunisation Service nursing and pharmacy staff educated families about RSV disease and how the Palivizumab program works. This group of eligible patients are at increased risk of vaccine-preventable diseases, and therefore the importance of routine scheduled immunisations (2, 4, 6, and 12 months) and giving these on time is reinforced with the families.

In addition to the National Immunisation Program list of vaccines, these patients require extra vaccines (i.e. two doses of influenza vaccine and an extra conjugate pneumococcal vaccine at 6 months of age). Parents are also recommended to receive influenza as well as pertussis booster vaccines. The patients and their families were provided immunisation advice and catch-up vaccines during RSV visits as well as the Palivizumab doses.

Inpatients RSV mAb

Patients due a Palivizumab dose who were current inpatients were given the preparation on the various wards as outlined below in Table 2.

Other doses were given on outlying wards: Platypus (1), Dolphin (1), Day Cancer Centre (1). 13 doses were given by outside hospitals: Monash (4), Sunshine (2), Albury (2), Mercy (1) and interstate (2).

Outpatients

Outpatients were booked to attend the Drop-in Centre, limiting the days to Wednesday, Thursday and Friday to minimise wastage of the RSV product. All appointments were arranged by the Immunisation Service pharmacist and the Drop-in Centre staff with the family phoning through a recent weight prior to the next appointment. The pharmacist would verify the orders each month and dispense the product efficiently prior to the patient's appointment.

Table 2: The number of doses (n=123) given to inpatients on the wards

	Butterfly (Neonatal unit)	Koala (Cardiac)	Rosella (PICU)	Sugarglider (General Medicine)
No. of patients	19	62	23	3

Results of 2022 Palivizumab program

A total of 325 doses of Palivizumab were administered, with 202 doses given at the Drop-in Centre. Table 3 indicates the number of patients receiving each of the total number of doses, which highlights that some patients did not receive all of the recommended doses. This is explained in detail in Table 3.

Table 3: The number of patients who received each of the RSV doses

	1st dose	2nd dose	3rd dose	4th dose	5th dose
No. of patients	99	77	58	49	42

Second dose: Of the 22 patients who did not receive a second dose:

- 9 patients moved back interstate
- 5 patients received their first dose at the end of the program
- 5 patients transferred to other hospitals
- 1 patient moved overseas
- 1 patient taken off the eligibility list
- 1 patient deceased

Third dose: Of the additional 19 patients who did not receive a third dose:

- 9 patients received their previous dose at the end of the program
- 1 patient deceased
- 4 patients transferred to another hospital
- 1 parent declined further doses
- 2 patients were taken off the eligibility list
- 2 patients moved interstate

Fourth dose: Of the additional 9 patients who did not receive a fourth dose:

- 1 patient deceased
- 2 patients transferred to another hospital
- 1 patient moved interstate
- 5 patients received the previous dose at the end of the program

Fifth dose: Of the additional 7 patients who did not receive a fifth dose:

- 5 patients received the previous dose at the end of the program
- 2 patients moved interstate

RSV admissions to the RCH

From 4 May to 30 September 2022, of the eligible patients who received Palivizumab, there were 6 patients who returned positive laboratory results for RSV infection (compared with 4 in 2021). Of the 6 patients:

- 1 patient developed RSV 15 days after the first dose. The patient was admitted for 48 hours.
- 1 patient developed RSV 19 days after the first dose, tested positive on the day of discharge after 44 days spent in hospital. Did not require re-admission.
- 1 patient developed RSV 23 days post third dose of Palivizumab, was admitted to hospital, general ward for 4 days.
- 1 patient developed RSV infection 4 weeks and 4 days after the fourth dose of Palivizumab. This highlights the importance of receiving the product on time. They did not require admission.
- 1 patient was taken off the program by cardiologist at Monash. Developed RSV infection 3 months after second dose of Palivizumab. Transferred to HITH day 2 of admission, discharged day 4 of admission.
- 1 patient developed RSV infection prior to commencing on the RSV program

Opportunistic immunisations provided during RSV visits

A total of 42 of the 99 (42%) patients were provided with vaccines at the time of the visit for Palivizumab. The total number of vaccines provided was higher, given that the same patient will have received vaccines at multiple appointments during the season.

Table 4: Opportunistic immunisations provided during RSV visits

Immunisations	No. of vaccine encounters	No. of immunisations administered to patients
6 week*	11	32
4 month*	14	42
6 month •	12	12
12 month^	8	23
18 month †	3	9
Extra conjugate pneumococcal vaccine	14	14
Patient influenza vaccine	53	53
Meningococcal B and ACWY	7	7
Other (Hep B booster, varicella)	3	3
Moderna (COVID-19)	1	1
Total	126	196

* DTPa-IPV-Hib-HepB vaccine, conjugate pneumococcal vaccine, rotavirus vaccine

• DTPa-IPV-Hib-HepB vaccine

^ Measles, Mumps, Rubella vaccine, Prevenar 13 vaccine, Men ACWY vaccine

† Measles, Mumps, Rubella and varicella vaccine, Haemophilus influenzae type B vaccine, DTPa vaccine



Cost savings by grouping patient visits

The 50 mg vials cost about \$800 each and the 100mg vials cost about \$1,500 each. This year the Immunisation Service saved 29 of the 100mg vials of RSV product and used 72 fewer vials of the 50mg. The total cost savings was estimated to be \$101,100 (see Table 5). This was a significant increase in savings compared to 2021.

Table 5: RSV vials saved from grouping patient appointments

	Vials would have used	Would have cost	Vials actually used	Actually cost
50mg vials	141	\$112,800	69	\$55,200
100mg vials	288	\$432,000	259	\$388,500
Totals		\$544,800		\$443,700

RSV mAb summary

In 2022, staff from the Drop-in Centre have demonstrated a successful model of providing Respiratory Syncytial Virus Immunoglobulin for at-risk patients. The Palivizumab program delivered cost savings and an important opportunity for immunisation advice and catch-up vaccines. In these at-risk infants, Palivizumab reduced the number of hospitalisations because of RSV but more importantly reduced the potential for admission to intensive care due to RSV disease.

Special-risk patients

The [Australian Immunisation Handbook](#) has a special-risk groups section, which outlines additional vaccine recommendations depending on the underlying diagnosis and/or therapy. In Victoria, some special, at-risk groups are eligible to receive some vaccines for free: vulnerable people, pre-term infants, children and adolescents in out-of-home care, medically at-risk people, Aboriginal and Torres Strait Islander people and refugees and asylum seekers. In addition, the Drug Usage Committee (DUC) also funds additional vaccines for special at-risk groups, as determined by the Immunisation Service. It is therefore a responsibility to determine if individuals presenting for immunisation are eligible to receive additional vaccines. With a nurse practitioner in the Drop-in Centre, these vaccines, i.e., meningococcal B and hepatitis A and B, can be prescribed and then dispensed by RCH Pharmacy.

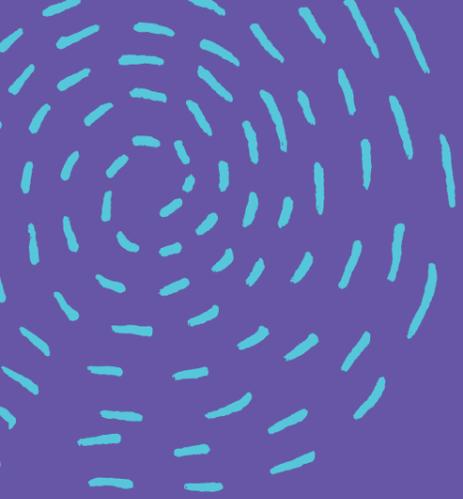
Clinical guidelines for these at-risk patients have been developed by affiliated immunisation staff and endorsed at the RCH monthly Immunisation meeting. These guidelines are based on the latest available evidence and may be different to the recommendations in the latest edition of the Australian Immunisation Handbook. Some of the

recommendations in these guidelines are outside the scope of the National Immunisation Program (NIP).

The special-risk guidelines have included updates for the following;

- Aboriginal and Torres Strait Islander
- Solid organ transplant recipient
- Rituximab patients
- Chemotherapy and post haematopoietic stem cell transplant
- Asplenia/hyposplenia
- Children with cardiac disease
- Pre-term infants
- Inflammatory bowel disease patients
- Cystic fibrosis patients
- Rheumatology patients

These guidelines are available internally or on the Melbourne Vaccine Education Centre [website](#).



SECTION 3

Communication and accountability



Melbourne Vaccine Education Centre



MVEC mvec.mcri.edu.au is a digital education hub which sits at the centre of vaccine safety in Victoria. It was developed in 2013 with the aim of providing up-to-date immunisation information for both healthcare professionals and members of the public.

In January 2021 MVEC launched a dedicated learning management system (LMS) in conjunction with an update of its website. This allowed for an increased capacity to expand the types of education offered. The content of MVEC reflects a collaboration of information prepared by immunisation paediatricians and adult physicians, immunisation nurses, infectious disease specialists and allergy specialists.

MVEC is a proud member of the World Health Organization's Vaccine Safety Net. All Vaccine Safety Net

members are verified by the World Health Organization as a source of reliable and credible vaccine safety information.

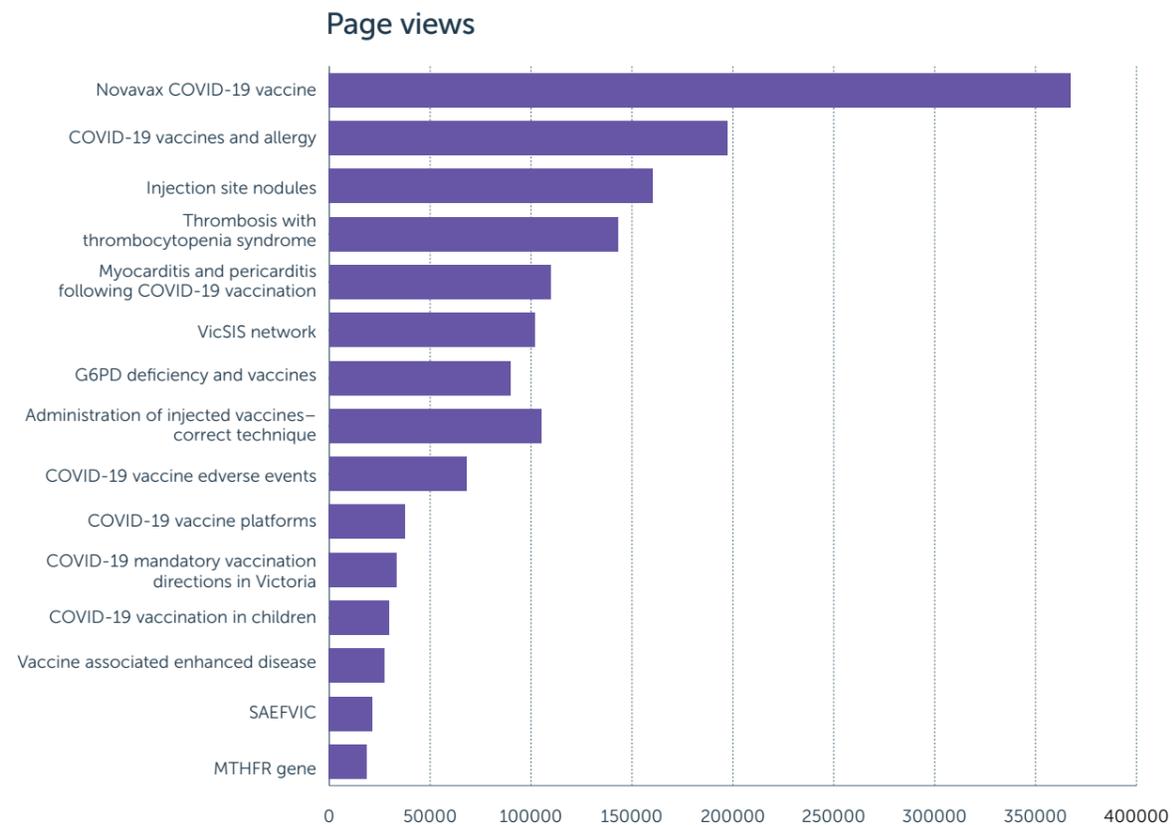
Education is provided by MVEC through the following formats:

- Events for immunisation providers including an annual Clinical Vaccinology Update (CVU), regular online webinars and face-to-face skills workshops
- Immunisation resources including an A-Z listing of reference pages, eLearning packages for immunisation providers, podcasts, social media content and a dedicated online hub of information for consumers.

The top 15 references across 2020-22 are detailed in **Figure 12**.

Throughout the rollout of the COVID-19 vaccine in Victoria, MVEC was instrumental in providing education to the emergency authorised immunisation workforce. This included creating and hosting e-Learning courses, providing practical skills training through metropolitan council immunisation services as well as online webinars discussing various topics.

Figure 12: MVEC reference page views (2020-22)



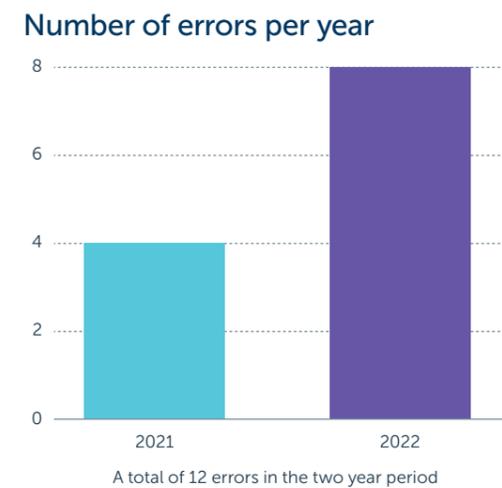
Immunisation errors

The Immunisation Service rigorously follows correct vaccine storage, handling and preparation procedures to ensure that vaccines are administered safely. On occasion, errors can occur and causes concern for the patient/parent/guardian as well as the immuniser. The effective management of errors is imperative to ensure patient safety as well as maintain public confidence in vaccine programs. The Immunisation Service reports all errors recorded at RCH to the Victorian Health Incident Management System (VHIMS). Incident reporting is important to help drive improvements in quality and safety, by identifying the cause and corrective actions to eliminate the risks involved and prevent similar future occurrences. There are 4 types of incidents that should be reported:

1. **Sentinel events** – result in serious physical or psychological injury or death
2. **Near misses** – no injury but could have been potentially harmed by the risk detected
3. **Adverse events** – act of commission or omission harmed a patient rather than from the existing disease or condition
4. **No harm events** – incidents communicated across an organization to raise awareness of any harm that may happen

The majority of incidents reported by the Immunisation Service over this reporting period were incident types 3 and 4 – adverse events and no harm events. **Figure 13** below demonstrates the actual vaccine errors in 2020-22 by type and numbers in each year.

Figure 13: Vaccine errors (total) reported by year (2021-22)



Bi-monthly meetings

Every second month, the Immunisation Service team meets to discuss various immunisation issues and exchange ideas. This group includes representatives from RCH related departments including: SAEFVIC, department of General Medicine and the Infectious Diseases paediatricians and Infection Prevention and Control. There are also representatives from external immunisation groups including: Immunisation section Department of Health, Monash Health, Sunshine Immunisation Services and more recently other specialist immunisation services (SIS) in Victoria.

On alternative months, a bi-monthly internal business and research meeting is also held to discuss topical issues and improved communication between the medical and nursing staff.

Feedback on the RCH Immunisation Service Drop-in Centre

It is important to work with healthcare consumers to improve the quality and safety of our health service. Information is collected through consumer feedback forms available in the Drop-in Centre, or via telephone to the RCH Consumer Liaison Officer. Each feedback item is entered into VHIMS and followed up. All feedback is treated with the utmost confidentiality.

Over the past two years, we have continued to receive a great deal of informal positive feedback from families. Of the formal feedback provided to the Consumer Liaison Officer, there were a total of 12 feedback items, 5 complaints, 6 compliments and 1 enquiry.

National Immunisation Teleconference

Nigel Crawford, Margie Danchin, Kirsten Perrett and Jim Buttery are members of the Adverse Events Following Immunisation – Clinical Assessment Network (AEFI-CAN). As detailed above, this group is coordinating Specialist Immunisation Clinic (SIC) activities nationally and collaborating with colleagues internationally in Canada and the United States.

The AEFI-CAN network also includes representatives from the NCIRS based at the Westmead Children's Hospital (Sydney), Women's and Children's Hospital (Adelaide), Princess Margaret Hospital (Perth) and Queensland Children's Hospital (Brisbane). Topics discussed at these teleconferences include immunisation adverse events, immunisation policies, topics of interest (e.g., vaccine allergy; seizures) as well as advice on complex individual patients seen at the adverse event clinics at each site. They are also leading the national discussion around medical and special exemptions for vaccines. The group was expanded throughout the COVID-19 pandemic, to include additional adult vaccine safety experts.

Collaboration with adjacent organisations

Australian Technical Advisory Group on Immunisation (ATAGI)

This is the peak advisory committee for the Australian Government on immunisation issues. Nigel Crawford was appointed Chair in 2021, with his areas of expertise being special-risk groups and vaccine safety. Margie Danchin is a member of the ATAGI COVID-19 subgroup on vaccine safety and communication.

Surveillance of Adverse Events Following Vaccination In the Community (SAEFVIC)

The Immunisation Service continues a close working relationship with SAEFVIC. Nigel Crawford (Director), Teresa Lazzaro, Wonie Uahwatanasakul, Kirsten Perrett, Shidan Tosif and Margie Danchin all work in the Immunisation Service which now includes SAEFVIC patient followup. It involves partnerships with the Department of Health, the RCH department of General Medicine, RCH Immunisation Service and the Murdoch Children's Research Institute. The SAEFVIC unit is based at the RCH campus with clinical services also at Monash Health. There have been approximately 65,000 immunisation adverse event reports to SAEFVIC since commencement in 2007, with a 30-fold increase associated with the early phase of the COVID-19 vaccine rollout. The SAEFVIC clinic is incorporated into the Tuesday morning Specialist Immunisation Clinic, with follow-up vaccines administered in the outpatient treatment rooms or Drop-in Centre if required. In some instances, patients are admitted to the Day Medical Unit or overnight for vaccination as required.

Victorian Specialist Immunisation Service (VicSIS)

VicSIS was developed in 2021 in response to the rollout of COVID-19 vaccines in Victoria. This specialist service received funding through the Department of Health and operated in collaboration with SAEFVIC. Any potential COVID-19 vaccine-related AEFI were reported through SAEFVIC, and the role of VicSIS was to provide clinical consultations to both adults and children regarding previous AEFI or individuals at risk of AEFI. The service was staffed by medical, nursing and vaccine specialists. Referrals were only accepted from medical personnel.

Consultations were commonly in relation to the following:

- thrombosis with thrombocytopenia syndrome
- immediate (within 4 hours) and generalised symptoms of a possible allergic reaction (e.g. hives) to a previous dose of a COVID-19 vaccine
- capillary leak syndrome
- pericarditis/myocarditis
- immune thrombocytopenia
- Guillain-Barre Syndrome.

In the paediatric population, the most common AEFI were local reactions such as pain and swelling at the injection site. One of the more serious but rare AEFIs related to COVID-19 vaccination population-wide was myocarditis and pericarditis, with a peak presentation in adolescent and young adults.

Immunisation education

With the rapidly changing immunisation recommendations and requirements in 2020-22, specifically COVID-19 vaccines, providing immunisation updates to vaccine providers was essential to ensure the safe and appropriate provision of services to patients. Empowering providers to enhance their immunisation knowledge provides an opportunity to improve vaccine communication with patients and minimise vaccine errors. In turn this can encourage a positive vaccine experience for patients and their families, promoting confidence in vaccination and acceptance of future vaccines. The funding from the Victorian Department of Health for the Immunisation Service does not currently include the provision of immunisation education, noting it remains an important and busy part of the service provided by the Immunisation Service team. The annual Clinical Vaccinology Update (CVU) has become an integral part of continuing professional development for immunisation providers (<https://mvec.mcri.edu.au/category/events/>). However, this was not enough to meet the education demands of the pandemic and additional opportunities were implemented. With few face-to-face meetings possible during the pandemic, MVEC had to adapt and move to a mixture of virtual, hybrid and face-to-face learning opportunities.

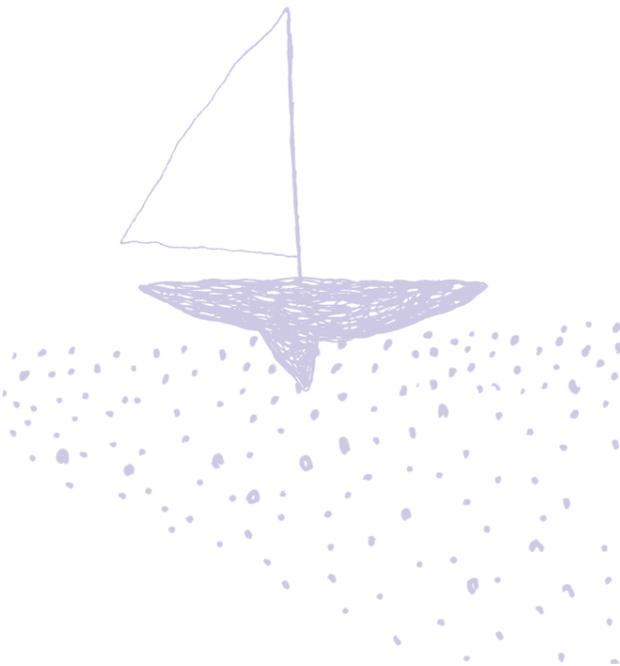
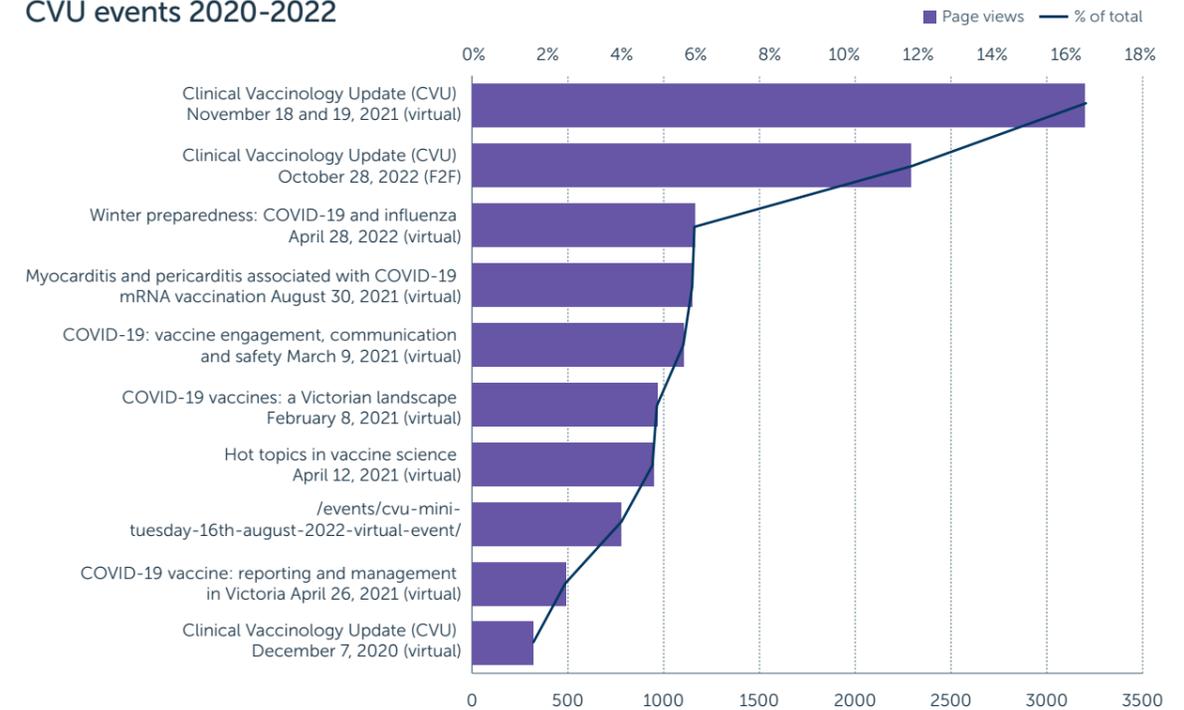


Figure 14: CVU attendance and topic 2020-22

CVU events 2020-2022



Education at RCH

Internal education

Within the Immunisation Service

The Immunisation Service has its own specialised weekly teaching meetings. These education sessions are co-ordinated by the immunisation fellow and include case presentations, discussions and research presentations delivered by members within the Immunisation Service, from other teams within RCH, as well as external experts and representatives. There is also a weekly meeting following the Tuesday Immunisation clinic (12.30 – 1.00pm), where interesting clinical cases are discussed amongst the team.

Nursing education and training

Clinical observation for medical and nursing staff (17)

Throughout the year nurses and medical staff have attended the Drop-in Centre to learn about giving vaccines and observe the techniques and communication style of the Immunisation Service nurses.

- RCH nursing staff (6)
- Sunshine immunisation nurses (2)
- Monash immunisation nurse (1)
- Nurse practitioner Alfred ED (1)

- Yarra Glen general practitioner (1)

We have also supported the clinical placement of undergraduate nursing students, in preparation of students for entry into the nursing profession, with the opportunity to experience authentic learning that enable them to consolidate knowledge. The students were from Holmesglen Institute, the University of Melbourne and Latrobe University.

- Immunisation clinical placement for undergraduate nurses (6)

RCH student immunisation teaching sessions (7)

- Paediatric Specialist Program (4, Philippa Van Der Linden, Nadine Henare, Sonja Elia)
- Immunisation Update for Graduate Nurses (2, Sonja Elia)
- Immunisation Update for Postgraduate Certificate Nursing Students (1, Sonja Elia)

Clinical mentoring of immunisation nursing students (19)

Following successful completion of an accredited nurse immuniser course some nurses complete their clinical mentorship with the Immunisation Service. The nursing staff who provided this clinical supervision over the reporting period includes Lynne Addlem, Philippa Van Der Linden, Nadine Henare, Skye Miller, Nikki Marriner and Sonja Elia.

Within the RCH

Education meetings help doctors, nurses and other healthcare professionals from different teams at the RCH keep up-to-date in important evolving areas in the immunisation area, and to improve collaboration between the specialty units and the Immunisation Service. In 2022, updates were offered to many of the specialty teams within the RCH to discuss topics including COVID-19, influenza and Japanese encephalitis. These were delivered by a combination of the immunisation fellows, paediatricians and Immunisation Service nurses.

A summary of the teams presented to in 2022 is outlined:

- Solid Organ Transplant Service 5 May 2022
- Complex Care 5 May 2022
- General Medicine 6 May 2022
- Metabolics 10 May 2022
- Immigrant Health 10 May 2022
- Rheumatology 19 May 2022
- Neurodevelopmental and Disability Service 25 May 2022
- Allergy 31 May 2022
- Neonatology 1 July 2022
- Oncology 7 July 2022
- Neurology 7 July 2022
- Adolescent Medicine 27 July 2022

Feedback was sought regarding these presentations, and of respondents who filled out the survey 100% found the presentations useful and 100% would like to have further presentations from the Immunisation Service team.

External education

General practitioners and immunisation providers

2022

COVID-19 vaccination in children, Special COVID-19 podcast: The Good GP January 2021 (Angie Berkhout)

Vaccines in vogue: accessible accurate and engaging immunisation information, Communicable Disease & Immunisation Conference, June 2022 (Daryl Cheng)

Minimising Immunisation Pain of childhood vaccines in Older Children: The MIPO Study, 2022 Communicable Diseases & Immunisation Conference, Sydney, June 2022 (Narelle Jenkins)

State-wide Immunisation Forum (Primary Health Networks), Speaker on 17 November on Catch up Immunisation (Sonja Elia)

The Australian College of Children and Young People's Nurses Webinar, Speaker on 26 October 2022 – COVID-19 Vaccination in children (Sonja Elia)

Vaccine virtual days 2022, Speaker on 30 March 2022 – Engaging the Immunisation neighbourhood – all hands on deck (Sonja Elia)

GSK Meningococcal nurse webinar, Speaker on 17 February – A focus on Meningococcal B disease; 'in-practice'. (Sonja Elia)

Aboriginal community-controlled organisations (ACCO) staff training, Speaker on 25 January 2022 – Supporting vaccine staff to create a positive experience for 5–11-year-olds during vaccination. (Sonja Elia)

Public Health Association of Australia – Communicable Diseases and Immunisation conference 2022 – Sydney, Australia. 'Evaluating a drive-through vaccination service at The Royal Children's Hospital, Melbourne'. (Sonja Elia)

Public Health Association of Australia – Communicable Diseases and Immunisation conference 2022 – Sydney, Australia. '10 years of Respiratory Syncytial Virus monoclonal antibody at the RCH, Melbourne'. (Sonja Elia)

2021

Victorian COVID-19 vaccine eLearning competency, 14 January 2021

Vaccination Procedures, 28 January 2021

Shoulder Injury Related to Vaccine Administration, 28 January 2021

Use of Multi-dose vials, 28 January 2021

Vaccines in Pregnancy, 3 June 2021

Vaccine errors: Prevention, management and open disclosure, 4 June 2021

The MVEC Conversation: vaccine confidence, 9 June 2021

COVID-19 vaccination: pregnancy and breastfeeding, Raising Children Network, June 2021 (Rachael McGuire)

Understanding the COVID-19 vaccines and their safety, Inside Aesthetics #131 July 2021 (Nigel Crawford)

The MVEC Conversation: myocarditis/pericarditis following mRNA vaccines, 23 September 2021

COVID-19 vaccination: Children and Teenagers, Raising Children Network, October 2021 (Rachael McGuire)

Vaccines, safety and women podcast Jean Hailes, November 2021 (Nigel Crawford)

Mums, kids and the vaccine podcast Jean Hailes, November 2021 (Francesca Machingaifa)

MVEC: Immunising children and infants webinar, 9 December 2021

Minimising Immunisation Pain of childhood vaccines in Younger Children: The MIPY Study, 2021 Nursing Research and Clinical Innovations Symposium, Melbourne, May 2021 (Narelle Jenkins)

MCRI Vaccine uptake symposium, Panel member on 10 November – Key strategies for key priority groups (Sonja Elia)

Statewide PHN Immunisation Forum, Speaker on 11 November 2021 – Catch up immunization (Sonja Elia)

RCH Kids Health Info Podcast, Season 3, Episode 6

Panel speaker <https://bit.ly/3pOjYS0> (Sonja Elia)

Immunisation Nurses Special Interest Group (INSIG) Conference, Panel speaker on 29 October 2021 – Nurse Practitioner Immunisation (Sonja Elia)

The Australian College of Children and Young People's Nurses Conference, Keynote Speaker on 17 September 2021 – COVID-19 Vaccination and Children (Sonja Elia)

The Australian College of Nursing, Webinar on 25 March 2021 – Vaccine hesitancy and the COVID-19 vaccines (Sonja Elia)

Australian College of Nurse Practitioners National Conference 2021, Gold Coast. 'The value of supporting the Nurse Practitioner Candidate'. (Sonja Elia)

Australian College of Nurse Practitioners National Conference 2021, Gold Coast. 'Improving immunisation for Aboriginal and Torres Strait Islander patients'. (Sonja Elia)

Australian College of Nurse Practitioners National Conference 2021, Gold Coast. 'Get the jab done: The Immunisation Nurse Practitioner'. (Sonja Elia)

2020

RSV surveillance and vaccine update, Immunisation Coalition meeting, February 2020, Melbourne (Nigel Crawford)

Long Term Social and financial Impacts of COVID-19 and Effective Risk Communication Thoracic Society of Australia and New Zealand (TSANZ), March 2020 (Margie Danchin)

Immunisation: Barriers, Evidence and Possibilities, International Women's Day (IWD) Burnet Institute, March 2020 (Margie Danchin)

Vaccines: Benefit, public opinion and ethics. Danks Seminar, May 2020 (Margie Danchin)

AEFI-CAN: an internationally recognized Australian vaccine safety clinical network, 17th National Immunisation conference, Public Health Association of Australia, Perth, June 2020 (Nigel Crawford)

What is needed for community confidence and acceptance of a new COVID vaccine? Grand Round RCH, June 2020 (Margie Danchin)

Re-immunisation for children ≥10 years old. Post oncology treatment. A prospective audit, 17th National Immunisation conference, Public Health Association of Australia, Perth, June 2020 (Nadine Henare)

The broader role of the Immunisation pharmacist, 17th National Immunisation conference, Public Health Association of Australia, Perth, June 2020 (Annie Cobbletick)

Tetanus Prone Wounds and Vaccine coverage in the Paediatric setting, 17th National Immunisation conference, Public Health Association of Australia, Perth, June 2020 (Lynne Addlem)

Establishing RSV surveillance at a tertiary children's hospital – preventative therapies are coming! 17th National Immunisation conference, Public Health Association of Australia, Perth, June 2020 (Nigel Crawford)

Using an Electronic Medical Record (EMR) to optimize seasonal influenza vaccine uptake, 17th National Immunisation conference, Public Health Association of Australia, Perth, June 2020 (Kate Gazzard)

Feasibility and acceptability pilot of the multi-component P3-MumBubVax antenatal vaccine promotion intervention, 17th National Immunisation conference, Public Health Association of Australia, Perth, June 2020 (Margie Danchin)

Influenza vaccine for Paediatric Intensive Care Unit (PICU) patients, 17th National Immunisation conference, Public Health Association of Australia, Perth, June 2020 (Sonja Elia)

Minimising Immunisation Pain of childhood vaccines in Younger children: The MIPY Study, 17th National Immunisation conference, Public Health Association of Australia, Perth, June 2020 (Narelle Jenkins)

To vaccinate or not: Immunisation disputes in the Family Law System, 17th National Immunisation conference, Public Health Association of Australia, Perth, June 2020 (Sonja Elia)

Immunisation under nitrous oxide sedation at The Royal Children's Hospital Melbourne, 17th National Immunisation conference, Public Health Association of Australia, Perth, June 2020 (Sonja Elia)

Safety of the Polish Moreau BCG-10 vaccine: a Victorian experience, 17th National Immunisation conference, Public Health Association of Australia, Perth, June 2020 (Nicole Wong)

Immunisation with vaccine hesitant parents and the impact of COVID-19? Immunisation Nursing Special Interest Group (INSIG), July 2020 (Margie Danchin)

Vaccine development: a guide for families, Raising Children Network December 2020 (Rachael McGuire)

Vaccine immunity: how vaccines prevent infectious diseases, Raising Children Network December 2020 (Rachael McGuire)

The University of Melbourne, Panel discussion December 2020 – Are we there yet? The road to vaccinate Australia against COVID-19 (Sonja Elia)

GSK Victoria Tasmania Nurse webinar meeting on 16 September 2020 on Why do we need Men B prevention in Australia (Sonja Elia)



SECTION 4

Clinical immunisation research and publications



As detailed above, the Immunisation Service has strong research links across the Melbourne Children's campus, with both the MCRI and the University of Melbourne (UoM).

We have three staff who lead research groups at the MCRI:

- Nigel Crawford – SAEFVIC Research Group
- Margie Danchin – Vaccine Uptake Research Group
- Kirsten Perrett – Population Allergy Research Group

Shidan Tosif has a clinician-scientist fellowship with the SAEFVIC group.

We also have staff with an honorary appointment at the MCRI:

- Narelle Jenkins

We have four staff with honorary appointments at the UoM:

- Nigel Crawford (Professor)
- Kirsten Perrett (Associate Professor)
- Shidan Tosif (Associate Professor)
- Sonja Elia

Two Immunisation Service staff have formal appointments at the University of Melbourne.

- Margie Danchin has an appointment with the Melbourne Medical School as Director, Clinician-Scientists pathways. In this role she has developed the MD-PhD pathway and co-developed the bespoke, mentored MACH-Track pathway to integrate pre-PhD, PhD and initial post-PhD research training with completion of vocational training. As part of these roles Margie has offered an introduction to vaccine research from clinical trial to implementation
- Wonie Uahwatanasakul also has an appointment within the UoM Department of Paediatrics, as both a senior lecturer and coordinator of the Child and Adolescent Health program

We also conduct a number of collaborative projects with universities and tertiary paediatric hospitals around the country. These are predominantly in the sphere of vaccine-preventable diseases, including epidemiological studies, vaccine safety, vaccine allergy, communication/social science research and clinical vaccine trials. A number of these specific projects are detailed below:

AusVaxSafety – A national collaboration regarding vaccine safety, led by the National Centre for Immunisation Research and Surveillance (NCIRS) – Sydney University

www.ncirs.edu.au/vaccine-safety/ausvaxsafety/

Adverse Event Following Immunisation – Clinical Assessment Network [AEFI-CAN], with Nigel Crawford, Margie Danchin and Kirsten Perrett as investigators.

www.ausvaxsafety.org.au/our-work/adverse-events-following-immunisation-clinical-assessment-network-aeafi-can

The Immunisation Service is also linked into the **International Network of Specialist Immunization Services (INSIS)**, with Nigel Crawford on the steering committee

www.insisvaccine.org/

Paediatric Active Enhanced Disease Surveillance (PAEDS) – a national collaboration of tertiary paediatric hospitals, monitoring the epidemiology and clinical outcomes of vaccine-preventable diseases (e.g. varicella and whooping cough), vaccine adverse events (e.g. intussusception (Rotavirus vaccine) and syndromic evaluation (acute flaccid paralysis; Australian Childhood Encephalitis study) – PIs Kristine Macartney and Cheryl Jones (Sydney University)

www.paeds.edu.au/

RCH Investigator – Nigel Crawford

Vaccine demand and uptake at the Melbourne Children's campus (RCH MCRI/UoM) with leadership from Margie Danchin and Jessica Kaufman to develop training and resources from providers (GPs, midwives and specialists) in collaboration with the Sharing Knowledge about Immunisation team (Maryke Steffens, Kasia Bolsewicz (NCIRS), Julie Leask (Sydney University and NCIRS)

www.ncirs.org.au/our-work/sharing-knowledge-about-immunisation

The vaccine group uptake, led by Margie Danchin and Jane Tuckerman, also supported students with a disability through collaborative projects with Cancer Council Victoria and Victorian Department Health

- Increasing HPV and routine vaccine uptake for adolescents with disabilities in Victorian special schools
- The Developing Optimised Vaccination Engagement in Specialist Schools for Human Papillomavirus (DOVES [HPV]) project aimed to improve understanding of the facilitators and barriers of HPV vaccination among adolescents with disabilities in Victorian specialist schools to inform strategies to increase vaccination acceptance and uptake.

MNSc nursing students

The Immunisation Service also works closely with Monash Children's Hospital and University, including the Monash Immunisation (paediatric and adult) service.

Advanced trainee, medical student and nursing projects

Advanced trainees

Myocarditis associated with COVID-19 vaccines: long-term follow-up and outcomes

- Fellow: Priya Shenton
- Supervisors: Daryl Cheng, Nigel Crawford, Jim Buttery

Clinical phenotype of COVID-19 vaccine-associated myocarditis in Victoria, Australia

- Fellow: Julia Smith
- Supervisors: Daryl Cheng, Nigel Crawford, Jim Buttery

Vaccine proximate PIMS-TS Case Study

- An in-depth immunology investigation of PIMS-TS proximate to COVID-19 vaccine
- Louise Rowntree, Samantha Baninister
- Supervisors: Katherine Kedzierska, Dave Burgner, Shidan Tosif, Nigel Crawford

Virtual Reality use for immunising needle-phobic children with and without developmental disability

- Advanced trainee: Allya Makhijani with Narelle Jenkins (Immunisation NUM) and Sonja Elia (Immunisation Nurse practitioner)
- Supervisors: Jessica Kaufman, Margie Danchin

Medical students

Experience of volunteer medical students assisting in the healthcare worker influenza vaccine program at a tertiary hospital during the COVID-19 pandemic

- Student: Kieran Fahey
- Supervisors: Wonie Uahwatanasakul, Nigel Crawford

Nursing

Minimising immunisation pain of vaccines in children: randomized controlled trials

- Narelle Jenkins – Master of Advanced Nursing Practice
- Supervisors Kirsten Perrett and Sonja Elia

Supporting the Victorian Department of Health's COVID-19 response

COVID-19

Vaccine safety

Nigel Crawford (SAEFVIC) and Jim Buttery (MCRI Health informatics) were seconded to the Victorian Department of Health to support the COVID-19 vaccine safety division (2020-21). They helped establish the Victorian Specialist Immunisation Services Network and the Alert Advisory Group (AAG). They also supported the detailed clinical and epidemiological review of three serious adverse events of special interest (AESI): thrombosis with thrombocytopenia syndrome (TTS); Guillain Barre syndrome (GBS) and myocarditis. Daryl Cheng has also supported the SAEFVIC myocarditis and pericarditis clinical case review and supervision of advanced trainee/immunisation fellow projects. (See further details in education/conference presentations and publications.)

Vaccine uptake

Margie Danchin and Jessica Kaufman and the Vaccine Uptake team worked closely with the Victorian Department of Health on research to inform the COVID-19 vaccine rollout:

- **January 2021 – May 2021:** COVID-19 vaccine intentions and behavioural drivers of health and aged care workers and older adults
- **March 2021 – June 2022:** Vaccine Champions training program sessions: >100 sessions delivered across diverse community, industry and healthcare worker groups and 80+ champions trained to deliver their own sessions in their communities and workplaces
- **January 2022 – June 2022:** research to inform resources and strategies to improve child COVID-19 vaccine decision making of parents from priority groups and support of the 5 to 11 year olds COVID-19 vaccine rollout
- **June 2022:** MCRI and DH partner for Stronger Together Conference – Vaccine Uptake and SAEFVIC groups co-led the conference for the Department of Health, Victoria

Summary of the conference proceedings are detailed below.

We as Victorians are facing a fundamental paradigm shift in the way that we engage, design, and deliver health and public health programs. With this transition in the COVID-19 response, it is an opportunity to understand how these new models of care and pathways can continue to move forward through localised leadership. Engagement has enabled the vaccination program and the Victorian community to develop partnerships in a fundamental way through bicultural workers, grants, working with ambassadors and champions to deeply connect with communities at the grassroots level. The Stronger Together Conference provided the critical opportunity for those working in the COVID-19 response to share the foundational building blocks that resulted in safeguarding the community from COVID-19 and Victoria becoming one of the most highly-vaccinated states in the world with the

most equitable coverage. The foundational themes that arose through the conference discussions included (in no particular order): 1. Meaningful partnerships across community and collaborative work ensuring shared vision, equity, accessibility and ownership through co-design and co-delivery. 2. Ensuring the right message with the right messenger, recognising diversity within diversity across communities. 3. Generating a culture of trust, contribution, shared learning, curiosity and respect. 4. Governance policies and incentives aligned with the inherent motivation to improve outcomes through shared vision and accountability. 5. Integrated and timely data systems that are accessible and provide meaningful insights. Through genuine partnerships, localisation, innovation and leadership, the legacy of the COVID-19 response means the true renaissance in health care has just begun.



Publications

2022

1. **Elia S**, Moore Y, Duke T, **Crawford NW**, **Tosif S**. Influenza vaccine administration in a paediatric intensive care unit. *J Paediatr Child Health*. 2022 Jun 24.
2. Villanueva P, Wadia U, **Crawford NW**, Messina NL, Kollmann TR, Lucas M, Manning L, Richmond P, Pittet LF, Curtis N. The safety of co-administration of Bacille Calmette-Guérin (BCG) and influenza vaccines. *PLoS One*. 2022 Jun 3;17(6):e0268042.
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Conference Presentations

PHAA Conference – Virtual, July 2021

The 17th Public Health Association of Australia (PHAA) National Immunisation Conference was held as a virtual conference in 2021 due to the ongoing COVID-19 pandemic. Staff from RCH and SAEFVIC had multiple abstracts accepted for presentation, including:

Title	Presenter
Serious Acute Neurological Events (SANE) following immunisation	Adele Harris
The broader role of the immunisation pharmacist	Annie Cobbletick
Potential hypersensitivity reactions following childhood immunization. How common is true vaccine allergy?	Chloe-Maryse Baxter
Shoulder Injury Related to Vaccine Administration (SIRVA): A Case Series	Daryl Cheng
PRIME - access, equity and innovation in immunisation for refugee background communities	Georgia Paxton
Re-vaccination protocol for Dravet syndrome: experience at Royal Children's Hospital 2016-2019	Georgina Lewis
Volume counts: investigating a spike in serious adverse neurological events following immunisation	Hazel Clothier
GP representation rate as a proxy-measure to monitor adverse event following vaccination	Yonatan Mesfin
2020 GSK Grant Winner The Migrant Immunisation Access (MIA) Project	Jane Tuckerman
Influenza vaccination of children medically at-risk: practice level barriers in medical practitioners	Jane Tuckerman
Global overview of barriers to childhood vaccination: Vaccine Barriers Assessment Tool project	Jessica Kaufman
Monash Health Whole of Life Hospital Based Immunisation Service	Joanne Hickman
Tetanus Prone Wounds and Vaccine Coverage in the Paediatric Setting	Lynne Addlem
Feasibility and acceptability pilot of the multi-component P3-MumBubVax antenatal vaccine promotion intervention	Margie Danchin
Re-immunisation for children ≥10 years old. Post oncology treatment. A prospective audit	Nadine Henare
Minimising Immunisation Pain of childhood vaccines in Younger children: The MIPY Study	Narelle Jenkins
Lessons learned from the COVID-19 vaccination clinic at Austin Health, Melbourne	Sonja Elia
Influenza vaccine for Paediatric Intensive Care Unit (PICU) patients	Sonja Elia
To vaccinate or not: Immunisation disputes in the Family Law System	Sonja Elia
Immunisation under nitrous oxide sedation at the Royal Children's Hospital Melbourne	Sonja Elia
Telephone helpline data utility for syndromic surveillance of adverse events following immunization	Yonatan Mesfin

CDIC Conference – Sydney, June 2022

The National Immunisation Conference and the Communicable Diseases Conference were merged in 2022 into a single annual event, the Communicable Diseases and Immunisation Conference in Sydney. Multiple oral and poster presentations were given, including:

Title	Presenter
Surveillance of adverse events following immunisation: SAEFVIC service 2021 revolution and evolution	Georgina Lewis
Guillain-Barré syndrome (GBS) following Covid19 vaccines- a Victorian experience	Adele Harris
SIRVA post COVID-19 vaccines - The SAEFVIC experience	Mel Addison
12-17yo Myocarditis-Pericarditis: VIC experience	Daryl Cheng
Case Report – Myocarditis twins	Priya Shenton
Characterising the Victorian case experience (TTS)	Linny Phuong
Paediatric inflammatory conditions temporally associated with vaccines	Alissa McMinn/Adele Harris
FFX: Virology and immune dynamics reveal high household transmission of ancestral SARS-CoV-2 strain	Jill Nguyen/Shidan Tosif
Rhinoswab: A novel anterior nasal swab to detect respiratory viruses: a prospective study of diagnostic sensitivity and specificity	Jill Nguyen/Shidan Tosif
Vaccines in vogue: the need for accessible, accurate and engaging immunisation information	Daryl Cheng
Melbourne Vaccine Education Centre (MVEC) Community Engagement Project	Daryl Cheng
The Vaccine Safety Health Link: Data linkage for improved vaccine safety signal detection	Hannah Morgan
Validation to practice: Using GP consultation rates in surveillance of vaccine safety	Aishwarya Shetty
Pillars of vaccine safety surveillance in Victoria: complementary or ornamental?	Aishwarya Shetty
A reporting pandemic: Strategies for managing a vaccine safety reporting deluge	John Mallard
Sex differences in Thrombosis and Thrombocytopenia Syndrome	Hannah Morgan
Bringing adverse events reporting to the people – Victorian COVID-19 vaccine safety report	Jesse Fryk
Vaccine error surveillance - optimising information for action	Jesse Fryk
Signal Detecting to the MAX: Piloting MaxSPRT to improve Vaccine Safety	John Mallard
Alert or inert? Escalating vaccine safety challenges using a structured Alert Advisory Group	Hazel Clothier
Calm or alarm: rapid vaccine safety signal investigation to prevent pandemic pandemonium	Hazel Clothier
Evaluating a drive-through vaccination service at Royal Children's Hospital, Melbourne	Sonja Elia
10 years of Respiratory Syncytial Virus monoclonal antibody at the RCH, Melbourne	Sonja Elia
Novel devices to Minimise Immunisation Pain in Older Children: The MIPO RCT	Narelle Jenkins



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