



2017-2018 Annual Report

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Director's report

I am pleased to present the 2017/2018 Annual Report of the WHO Collaborating Centre for Viral Hepatitis (the Centre), Victorian Infectious Diseases Reference Laboratory (VIDRL) at The Peter Doherty Institute for Infection and Immunity (Doherty Institute). This year has seen a diverse range of work undertaken by the cross-disciplinary experts from across the Centre in support of WHO and member states in their efforts to combat hepatitis, in line with Sustainable Development Goal 3.3.

One exciting development has been our own website – www.doherty.edu.au/whoccvh. This is a great way of keeping up to date with our work, together with latest viral hepatitis news and event updates. It also allows visitors to the site to contact us, and to make tax-deductible donations to support our work. I would like to offer our sincere thanks to those who have contributed financially and in other ways to helping us achieve our mission in the last year. We would also like to acknowledge the members of our Epidemiology and Public Health Research Advisory Committee, who review and guide our activities and share their expertise with us with generosity.

A particular focus of our work in support of the Western Pacific Regional Office of WHO has been involvement in a range of country missions to support development of integrated laboratory diagnostic capacity and surveillance and monitoring systems. Invited by member states, these missions have included travel to Cambodia, China, Mongolia, and the Philippines. Other support for WHO has included technical review and input into the first Global Hepatitis Report, contribution to discussions regarding the development of viral hepatitis indicator reporting systems by member states, and participation in consultations around elimination of mother to child transmission of hepatitis B at meetings in Kuala Lumpur, Malaysia and at WHO HQ in Geneva.

An exciting development, in partnership with the Asian Liver Centre at Stanford University, has been our support for dedicated viral hepatitis staff time within the WHO Country Office in Mongolia. Viral hepatitis has a profound impact in Mongolia, however through the dedication of health care workers and public health staff, together with strong commitment by policy makers and community organisations, very

impressive progress is being made towards addressing viral hepatitis as a public health concern.

Other global engagement has included participation in exciting meetings, including in Hong Kong by regional clinical leaders regarding optimising care delivery in Asia, and in Ho Chi Minh City by the Institute Pasteur in their peak scientific meeting. In November 2017, the Centre was well represented at the 2nd World Hepatitis Summit in São Paulo, Brazil, including oral and poster presentations, with Centre staff also contributing to the Summit by serving on the submissions subcommittee.

In addition, preliminary work with partners has included providing reference diagnostic testing for hepatitis B and D in Kiribati, in support of broader treatment and care initiatives. As the global community grapples with the need to urgently scale up access to treatment for hepatitis B and C, such demonstration projects are vital to test feasibility and engage local experts in workforce development and training.

Domestically, we released our first ever Hepatitis C Mapping Report, which together with our fourth Hepatitis B Mapping Report provides stakeholders with the ability to assess the burden of viral hepatitis and current care and treatment responses down to quite small geographic areas within Australia. We continue to produce estimates for the Australian Government relating to hepatitis B burden of disease and the cascade of care and the impact of treatment; support the Victorian Government regarding enhanced surveillance data for notifications of chronic viral hepatitis; and are completing a large scale linkage project regarding viral hepatitis and liver cancer in Victoria, including the impact of monitoring and treatment, over more than 20 years.

A focus of our international work in recent years has been to support the Western Pacific Regional Office of WHO in the establishment of a Regional Laboratory Network for Viral Hepatitis. This key priority in the Regional Action Plan for Viral Hepatitis has seen significant progress in the last year, but has not yet been realised. This focus of work must continue to ensure that our Region has integrated, high quality laboratory diagnostic capacity which will be essential for any elimination agenda.

This year I had the opportunity to spend significant time with the Division of Viral Hepatitis at the US Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia - the very first WHO Collaborating Centre for Reference and Research on Viral Hepatitis, so designated in 1976 - and the HIV, STI and Viral Hepatitis Disease Programme of the European Centre for Disease Prevention and Control (ECDC) in Stockholm, Sweden. The aim of these visits was to examine the use of public health surveillance systems to support linkage to care for people living with viral hepatitis, and review best practice in this regard in the USA and the European Union. The expertise and commitment of the teams in both Centres was genuinely impressive, and collectively these groups are contributing much to the control of viral hepatitis in their own populations and beyond. I am grateful for the generosity of all staff with their time during my time visiting their Centres, and especially acknowledge John Ward at the CDC, and Erika Duffell at ECDC for so graciously organising my visits.

Finally, I wish to acknowledge all staff within the Collaborating Centre for their achievements in the last year, which were recognised in the Melbourne Health Celebrating Excellence Awards 2017 by being highly commended in the Chief Executive's Leadership Award. This acknowledged the whole Centre team for *Developing viral hepatitis laboratory and surveillance capacity in the Western Pacific Region – building partnerships and supporting the workforce to address an emerging public health concern*. We trust the next year will bring yet more opportunities to collaborate, build partnerships and contribute to the global response to viral hepatitis.



Associate Professor Benjamin Cowie

Director

About the Centre

The WHO Collaborating Centre for Viral Hepatitis (the Centre), Victorian Infectious Diseases Reference Laboratory (VIDRL), Royal Melbourne Hospital at The Peter Doherty Institute for Infection and Immunity (Doherty Institute) was designated in June 2015 as one of only five Collaborating Centres for Viral Hepatitis around the world. The Centre works across a range of activities including surveillance, treatment and prevention initiatives, and training and regional capacity building activities. In addition, it also develops policy and assists the WHO to implement the WHO Global Health Sector Strategy on Viral Hepatitis.

In conjunction with the designation as a WHO Regional Reference Laboratory for Viral Hepatitis in 2010, the Centre assists the WHO and Western Pacific Regional Office for the WHO (WPRO) with advice and support for approaches to the prevention and management of viral hepatitis, and provides reference testing for samples collected as part of national sero-surveys conducted across the Western Pacific Region. The Centre also enables VIDRL and the Doherty Institute to extend the scope and geographic reach of their research, training and regional capacity building activities related to viral hepatitis in collaboration with the WHO, other WHO Collaborating Centres and research partners to support the global agenda for viral hepatitis control.

About VIDRL

VIDRL is a leading Australian infectious diseases and public health reference laboratory located in Melbourne, Victoria. VIDRL is a department of Royal Melbourne Hospital at the Doherty Institute. VIDRL provides the Victorian Department of Health and Human Services with virology, mycobacterial and other public health reference laboratory services, including support for surveillance, outbreak investigations, reference testing and research. VIDRL also performs diagnostic testing, mainly in virology, for Victorian hospitals. VIDRL has National Reference Laboratory designations to the Australian Commonwealth Department of Health for polio and enteroviruses, measles, viral haemorrhagic fevers and smallpox. In addition to the Collaborating Centre for Viral Hepatitis, VIDRL has WHO Collaborating Centre designations for Reference and Research on Influenza, Mycobacterium ulcerans, and

Biosafety together with WHO Regional Reference Laboratory designations for poliovirus, measles and hepatitis B. VIDRL is also designated as a WHO National Influenza Centre.

About the Doherty Institute

The Doherty Institute is a world-class institute combining research, teaching, public health and reference laboratory services, diagnostic services and clinical care into infectious diseases and immunity. It was officially opened in September 2014 and is a joint venture between the University of Melbourne and The Royal Melbourne Hospital. The Doherty Institute has a major focus on diseases that pose serious public and global health threats such as HIV, viral hepatitis, influenza, tuberculosis, and drug resistant bacteria. The Doherty's activities are multi-disciplinary and cross-sectoral, placing great emphasis on translational research and improving clinical outcomes. Teams of interdisciplinary scientists, clinicians and epidemiologists collaborate on a wide spectrum of activities - from basic immunology and discovery research, to the development of new vaccines and new preventative and treatment methods, to surveillance and investigation of disease outbreaks.

The Doherty Institute also hosts the secretariat for the International Coalition to Eliminate HBV (ICE-HBV) since its creation in September 2016. ICE-HBV brings together researchers and research stakeholders to support the discovery of a safe, affordable, scalable and effective cure, available to all persons living with chronic hepatitis B including children. ICE-HBV is an international, independent, research-based and patient-centred forum, aiming to coordinate, promote and foster collaborative partnerships working towards a cure for HBV. A number of Centre staff are on the Governing Board, Stakeholders' Consulting Group, and the Virology Scientific Working Group of ICE-HBV. More information can be found here: www.ice-hbv.org

Terms of reference

Under its designation as a WHO Collaborating Centre for Viral Hepatitis, the Centre's Terms of Reference (for 2015-2019) are:

1. To support WHO in the implementation of the Framework for Global Action for the Prevention and Control of Viral Hepatitis;
2. To assist WHO in providing technical consultation, support, advice and training in the field of viral hepatitis diagnostics and characterisation;
3. To assist WHO in generating and analysing epidemiological data on viral hepatitis and related complications including liver cancer to guide public health policy and practice; and
4. To support WHO in providing guidance for screening, care and treatment of viral hepatitis, including strategies for minimizing the emergence of antiviral drug resistance.

Governance

The Doherty Institute has created a governance structure that supports integration and fosters collaboration, strong leadership and management, creating a unified organisation. The Centre is based in VIDRL, a unit of the Doherty Institute, which is a joint venture between the University of Melbourne and the Royal Melbourne Hospital. The Centre reports directly through existing Doherty governance structures as well as to the WHO.

In addition, the Centre is guided by an Advisory Group made up of representatives from affected communities, members of peak-community organisations, State and Federal Government, the research community and the health sector. Advisory group representatives have expertise in: Community engagement and advocacy, communicable disease surveillance, lived experience of viral hepatitis, clinical care of people living with viral hepatitis, Aboriginal and Torres Strait Islander health, data linkage, public health, social, and epidemiological research, policy development, programmatic/policy responses to cancer, government policy response, education and workforce development, infectious disease modelling, and delivery of health support services to people from culturally and linguistically diverse backgrounds, people who inject drugs and Aboriginal and Torres Strait Islander people.

The Advisory Group is guided by its own Terms of Reference (for 2016-2019), to:

1. Inform, advise and support the Centre at the Doherty Institute regarding the conduct of projects relating to viral hepatitis epidemiology;
2. Suggest approaches for translation and dissemination of findings to appropriate stakeholders, including those living with chronic viral hepatitis;
3. Provide guidance regarding how best to measure progress toward the objectives of Victorian, National and WHO Strategies for viral hepatitis; and
4. Provide recommendations around emerging priorities relating to viral hepatitis epidemiology, surveillance and research.

Contact information

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WHO reporting requirements

The World Health Organisation (WHO) outlines that Collaborating Centres are required to provide an Annual Progress Review (or Annual Report) on the annual anniversary of delegation as a Collaborating Centre. The Centre was delegated as a Collaborating Centre, effective 1 June 2015. Reporting requirements state that there are four key criteria that must be satisfied in an Annual Report:

- A. A brief description for each activity included in the work plan about progress made during the reporting period; any outputs delivered and results achieved; and any difficulties encountered (if applicable);
- B. A brief description of the collaboration with WHO (e.g. means of communication, frequency of contact, visits) in the context of the work plan activities; and any difficulties encountered (if applicable);
- C. A brief description of any interactions or collaborations with other WHO CCs in the context of the work plan activities (if applicable), including any involvement in a network of WHO CCs (if applicable);
- D. A brief description of any technical, programmatic, advisory or other support received from WHO (if applicable) during the reporting period in the context of the work plan activities.

A. Work plan activities

At the designation of the Centre, the Doherty committed to undertake six proposed work plan activities in order to satisfy the terms of reference of the Centre. These six activities are listed below, as well as a short description of the progress made over the past year since designation, and the outputs thus far delivered and results achieved.

1. In consultation with WHO, to play a leading role in the characterisation and classification of hepatitis viruses (A-E)

Professor Stephen Locarnini and Professor Scott Bowden led this activity with the aim of identifying and characterising hepatitis virus isolates, with a focus on defining sources of outbreaks, mutations associated with vaccine escape, and antiviral drug

resistance. The expected outcomes of this project were to identify, characterise and genotype samples of hepatitis viruses (A-E) referred to VIDRL for further analysis. This aimed to include the identification and characterisation of HBV and HCV antiviral drug resistance and potential vaccine escape strains for HBV and, in addition, evaluate any polymorphisms associated with increased pathogenesis and specifically liver cancer. A further aim was, where applicable, to investigate the transmission and traceability of putative sources of hepatitis viruses (A-E). This activity builds upon VIDRL's Regional Reference Laboratory (RRL) for Hepatitis B by extending the scope outside the Region, but also including HCV antiviral drug resistance in particular, increasingly relevant as access to Direct Acting Antivirals (DAAs) becomes more common.

Over the past year, the Centre has provided assistance and technical expertise on a number of projects by identifying, characterising and genotyping samples referred to VIDRL for analysis. These main projects include:

- Stephen Locarnini, Kathy Jackson, Margaret Littlejohn, Laura Thomas, Suellen Nicholson, and Scott Bowden, in collaboration with WHO/WPRO and the Kiribati Ministry of Health and Medical Service initiated a two-part project. The project consists of a sero-prevalence survey to determine the current sero-prevalence of hepatitis delta in HBsAg positive patients, and of a pilot study to identify patients mono-infected with HBV who qualify for treatment and to begin the implementation of HBV treatment in Kiribati. Both stages of this collaboration have been completed. In stage one, the Regional Reference Laboratory at VIDRL received samples and undertook the testing phase of the survey. In January and February 2018, Kathy Jackson travelled to Kiribati to implement stage two of the project, to implement HBV treatment programs in Kiribati.
- Margaret Littlejohn, Kathy Jackson and Scott Bowden have published and presented a range of projects that have assisted with identifying, characterising and genotyping samples that have been referred to VIDRL for analysis, including on, hepatitis delta virus in Australia, hepatitis delta virus in Kiribati,

hepatitis virus in Papua New Guinea, molecular epidemiology of hepatitis delta in Oceania, and a number of large scale hepatitis A outbreaks in Australia.

This progress, and other related activities undertaken by the Centre, has also been documented and disseminated in a number of scientific journals, as listed in the **Communications and Advisory Section** of this report.

2. To work with WHO to provide technical consultation, support, advice and (where required) reagents to strengthen viral hepatitis diagnostic capacity in resource constrained settings, with special reference to rapid and molecular-based diagnostics

Activity 2 was headed by Professor Stephen Locarnini, and sought to provide technical support for sero-surveys and provide laboratory technical support for countries sero-prevalence surveys. This built on VIDRL's existing designation as a Regional Reference Laboratory for Hepatitis B, to include HCV infection where needed, but also to other WHO Regions as appropriate. The expected outcomes of this project were to provide the best selection and acquisition of the most appropriate test kits, training, sample collection and handling, reporting and management of data and quality assurance for hepatitis research. Furthermore, the Centre aimed to participate in WHO meetings and consultations, with provision of expert advice on laboratory diagnostics in low resource settings.

Over the past year the Centre has successfully provided technical consultation, support and advice on a number of projects, namely:

- Stephen Locarnini, Kathy Jackson, Margaret Littlejohn, Benjamin Cowie, Laura Thomas, Suellen Nicholson, Scott Bowden and Nicole Romero regularly participated in teleconference meetings with WHO (WPRO) and our partner Collaborating Centre, the Australian National Reference Laboratory to scope, design and plan the implementation/creation of a Regional Laboratory Network for Viral Hepatitis for the Western Pacific Region. Terms of Reference have been formalised and National Workshops have been planned and delivered as

an aim of this. This network is ongoing and will include further delivery of National Workshops as well as the identification of National Reference Laboratories in the region.

- A two day meeting has been scheduled for 25-26 June 2018 that will be held in Manilla to serve as an informal consultation on the establishment of the Western Pacific Region Viral Hepatitis Laboratory Network, with representatives from The Centre, as well as focal points for viral hepatitis and staff from reference laboratories from 7 high-burden countries in the region (Cambodia, Lao PDR, Malaysia, Mongolia, Papua New Guinea, Philippines and Viet Nam) and laboratory staff from China, Japan, Korea and other Collaborating Centres that work in viral hepatitis (from Japan, Australia and the US Centers for Disease Control). The meeting, an Informal Consultation on the Quality Improvement of Laboratory Services for Viral Hepatitis in the Western Pacific Region, will present the needs and concepts of a viral hepatitis regional laboratory network and will facilitate discussion on the roles and responsibilities of regional, national reference laboratories.

This progress has been documented and disseminated in a number of scientific journals, as listed in the **Communications and Advisory Section** of this report. Furthermore, the Centre has participated in a number of WHO meetings, consultation and country-missions in order to provide expert advice on laboratory diagnostics in low resource settings. These attendances are also listed in the **Communications and Advisory Section** of this report, with details regarding Centre participation.

3. [To train laboratory and public health personnel on behalf of WHO, to enhance the diagnostic capabilities of laboratories involved in the management of people living with viral hepatitis](#)

Director of the Centre, A/Prof Benjamin Cowie and Professor Scott Bowden were responsible for this work plan which, where requested by WHO HQ or WPRO, provided technical support and training for laboratory and public health personnel within Member States. The Centre aimed to provide training, technical support and advice in the area of viral hepatitis diagnostics, through participation in development

of guidelines or delivery of specific training courses. The target audiences were laboratory/public health personnel in resource constrained settings, identified by member states and WHO, with the training required and timing of training also determined in concert with the WHO. Over the past year:

- Nicole Allard, Jennifer MacLachlan and Benjamin Cowie have taught and facilitated a number of Healthcare Worker education programs on viral hepatitis testing, management and epidemiology around Australia (including in rural and remote communities).
- Stephen Locarnini, Kathy Jackson, Margaret Littlejohn, Benjamin Cowie, Laura Thomas, Suellen Nicholson, Scott Bowden and Nicole Romero regularly participated in teleconference meetings with WHO (WPRO) and the NRL to scope, design and plan the implementation/creation of a Regional Laboratory Network for Viral Hepatitis for the Western Pacific Region. As of reporting, Terms of Reference have been formalised and National Workshops have been planned and delivered as an aim of this. This network is ongoing and will include delivery of National Workshops as well as the identification of National Reference Laboratories in each country in the region.
- Benjamin Cowie and Nicole Romero in collaboration with Australian National Reference Laboratory, assisted WHO (WPRO and HQ) in the organisation and delivery of a series of National Workshops in Philippines to assist in developing a national Strategic Information Plan and Action Plan for viral hepatitis. The first workshop was held 16-17th August 2017 in Manila and the second was held in Tagaytay, Philippines on 6-8th September 2017. They also assisted in undertaking a preliminary needs assessment the fortnight before the delivery of the first National Workshop.
- A number of follow up workshops and missions were undertaken by Centre staff, including Margaret Littlejohn, Suellen Nicholson, Laura Thomas, and Theo Karapanagiotidis, in Mongolia as a result of the successful workshop for strengthening and linking viral hepatitis laboratory, surveillance and patient monitoring systems, which was held in Ulaanbaatar, Mongolia in April 2017. Staff went of subsequent missions in June 2017, August 2017 and September 2017 to assist WPRO, WHO Country Office for Mongolia and the Ministry of

Health to undertake a range of laboratory assessments and designing of monitoring and evaluation frameworks for Mongolia's Healthy Liver Program.

- Margaret Littlejohn undertook a mission in China for WHO and WPRO in collaboration with the WHO Country Office for China in Beijing in July 2017. This mission was an assessment of Viral hepatitis strategic information in China as well as a rapid review. The objectives of this assessment were to understand the current strategic information systems in place for hepatitis laboratory diagnosis, surveillance and reporting in order to propose options for an improved strategic information system that could better guide the goal of elimination of viral hepatitis as a public health threat by 2030.
- Nicole Allard was invited by WPRO to join a mission to Cambodia in October 2017 as a clinical expert technical consultant to undertake a rapid situational analysis of viral hepatitis services in Cambodia. A further mission to Laos has been planned as a result of the preliminary work undertaken on this mission and the replicability of the work in the Laos context.
- Kathy Jackson, in collaboration with WHO/WPRO and the Kiribati Ministry of Health and Medical Service, travelled to Kiribati to implement stage two of a sero-prevalence project. She undertook a sero-survey to determine the current sero-prevalence of hepatitis delta in HBsAg positive patients, and implement a pilot study to identify patients mono-infected with HBV who qualify for treatment and to begin the implementation of HBV treatment in Kiribati. She assisted with clinicians in training and educating local health care workers and laboratory staff in the necessary techniques to ensure that this pilot program was sustainable.

This progress, and other related activities undertaken by the Centre, has been listed in the **Communications and Advisory Section** of this report.

4. To assist WHO in generating and analyzing epidemiological data to guide public health policy and practice related to viral hepatitis and related complications including liver cancer, and as required to support Member States in the development of surveillance and monitoring systems relating to viral hepatitis control

Director of the Centre, A/Prof Benjamin Cowie, manages this work plan, which has four specific aims. These are: (1) to assist WHO in the development of tools and strategies to strengthen the capacity of health systems to implement and/or improve epidemiological surveillance in order to generate reliable information for guiding prevention and control measures; (2) to help WHO and other collaborating organisations establish the necessary guidelines, strategies, goals and tools for surveillance programs for viral hepatitis; (3) to contribute to improving the assessment of the global and regional burden of viral hepatitis, including the use of modelling for burden of chronic viral hepatitis and attribution of the causes of liver cancer (and trends over time) in key nations within the Western Pacific Region; and (4) to support the development and implementation of monitoring and evaluation tools in order to assess progress towards reducing the burden of viral hepatitis and guide evidence-based strategy for policy decisions related to preventive, diagnostic and treatment activities.

The expected outcomes of this project were to develop more reliable epidemiological information to guide prevention and control strategies; assist WHO in the production of resources to support the development and extension of surveillance and monitoring programs in member countries where these are lacking; develop tools to assess progress in control of viral hepatitis and related outcomes; and together with WHO and other relevant collaborators and institutions, to develop modelling of the burden and outcomes of chronic viral hepatitis infection (particularly liver cancer).

Over the past year, the Centre has successfully implemented and managed the aims of this work plan in a number of capacities:

- Benjamin Cowie was invited by WHO and the Philippines Department of Health to be a Partner and Technical Consultant for the development of a National Action Plan for the Establishment and Linkage of Viral Hepatitis

Laboratory, Surveillance and Patient Monitoring Systems, Tagaytay, Philippines, 6-8 September 2017.

- Benjamin Cowie attended the National HIV, Hepatitis and STI Programme Managers Meeting for Selected Asian and Pacific Island Countries as a participant in Manilla, Philippines, 27-30 June 2017.
- Benjamin Cowie attended two meetings on the Informal Consultation of the Elimination of Mother to Child Transmission of Hepatitis B in Kuala Lumpur in February 2018.
- Benjamin Cowie was also invited to be an Expert reviewer and provide input into 1st Global Hepatitis Report and for the monitoring of viral hepatitis responses in member states for WHO.
- Jennifer MacLachlan, Nicole Romero, Laura Thomas and Benjamin Cowie are working closely with WPRO staff from the Viral Hepatitis Office within the HIV/AIDS and Sexually Transmitted Infection Units in the Division of Communicable Diseases to develop a manual for regional cascade development.
- Laura Thomas travelled to Mongolia in August 2017 as a technical consultant for WHO with the Ministry of Health Mongolia and WHO Western Pacific Regional Office to provide support and assistance for the development of Hepatitis Surveillance Guidelines, and a Monitoring and Evaluation Framework for the Mongolian Healthy Liver Program.
- Nicole Romero travelled to the Philippines in 16-17 August as a technical consultant for WPRO to assist in the delivery of a national workshop to adapt WHO guidelines for Surveillance and Programme Monitoring to develop a draft national M&E framework for the elimination of HBV and HCV
- Benjamin Cowie, Suellen Nicholson and Laura Thomas have been invited to attend the WHO Collaborating Centre's Forum in HCMC, Viet Nam in November 2018 and will hopefully engage in further meetings with WPRO about ongoing epidemiological support that the Centre can provide for WHO in the region relating to viral hepatitis.
- Centre staff have been invited to provide input for the midterm report on achievements & progress towards the Regional Action Plan 2017 milestones and 2020 targets. Centre staff will provide reviews of the outline and

recommend work to report, indicators or best practices that should be highlighted, and other information that may assist in the review and further implementation of the Regional Action Plan 2017.

This progress has been documented and disseminated in a number of scientific journals, as listed in the **Communications and Advisory Section** of this report.

5. To support WHO in providing guidance for screening, care and treatment of viral hepatitis

Director of the Centre, A/Prof Benjamin Cowie and Professor Stephen Locarnini are responsible for the work plan that aims (1) to provide expert guidance in the areas related to clinical management of viral hepatitis including testing, monitoring and antiviral treatment to WHO HQ, regional office, and member states; (2) to contribute to WHO guideline development in the management of chronic viral hepatitis infection at a global and regional level; and (3) to support evidence-based approaches to the prevention of liver cancer mortality in people living with chronic viral hepatitis. The activity expects to enhance patient management in chronic viral hepatitis; and to develop global and regional guidelines for hepatitis screening and treatment to improve the delivery of appropriate clinical care for people living with viral hepatitis.

Over the past year, the Centre's progress has been documented and disseminated through the Centre participating in a number of WHO meetings, consultation and country-missions in order to provide expert advice on laboratory diagnostics in low resource settings. These attendances are listed in the **Communications and Advisory Section** of this report, with details regarding Centre participation. This includes:

- Stephen Locarnini, Kathy Jackson, Margaret Littlejohn, Benjamin Cowie, Laura Thomas, Suellen Nicholson, Scott Bowden and Nicole Romero regularly participated in teleconference meetings with WHO (WPRO) and the Australian National Reference Laboratory to scope, design and plan the implementation/creation of a Regional Laboratory Network for Viral Hepatitis for the Western Pacific Region. Terms of Reference have been formalised and

National Workshops have been planned and delivered as an aim of this. This network is ongoing and will include further delivery of National Workshops as well as the identification of National Reference Laboratories in the region.

- A two day meeting has been schedule for 25-26 June 2018 that will be held in Manilla to serve as an informal consultation on the establishment of the Western Pacific Region Viral Hepatitis Laboratory Network, with representatives from The Centre, as well as focal points for viral hepatitis and staff from reference laboratories from 7 high-burden countries in the region (Cambodia, Lao PDR, Malaysia, Mongolia, Papua New Guinea, Philippines and Viet Nam) and laboratory staff from China, Japan, Korea and other Collaborating Centres that work in viral hepatitis (from Japan, Australia and US CDC). The meeting, an Informal Consultation on the Quality Improvement of Laboratory Services for Viral Hepatitis in the Western Pacific Region, will present the needs and concepts of a viral hepatitis regional laboratory network and will facilitate discussion on the roles and responsibilities of regional, national reference laboratories.
- Stephen Locarnini, Kathy Jackson, Margaret Littlejohn, Laura Thomas, Suellen Nicholson, and Scott Bowden, in collaboration with WHO/WPRO and the Kiribati Ministry of Health and Medical Service initiated a two-part project. The project consists of a sero-prevalence survey to determine the current sero-prevalence of hepatitis delta in HBsAg positive patients, and of a pilot study to identify patients mono-infected with HBV who qualify for treatment and to begin the implementation of HBV treatment in Kiribati. Both stages of this collaboration have been completed. In stage one, the Regional Reference Laboratory at VIDRL received samples and undertook the testing phase of the survey. In January and February 2018, Kathy Jackson travelled to Kiribati to implement stage two of the project, to implement HBV treatment programs in Kiribati.

This progress, and other related activities undertaken by the Centre, has been listed in the **Communications and Advisory Section** of this report.

6. To provide technical consultation and advice to WHO on strategies for minimizing the emergence of antiviral drug resistance and guide evidence-based strategies for policy decisions related to treatment activities

Professor Stephen Locarnini heads up this activity with the aim to provide access to appropriate training materials and other resources on antiviral drug resistance. The activity expects to develop guidelines for preventing, monitoring, and responding to antiviral drug resistance in hepatitis treatment. Over the past year, the Centre has successfully documented and disseminated the progress of this work plan activity in a number of scientific journals, as listed in the **Communications and Advisory Section** of this report. Furthermore, the Centre has participated in a number of WHO meetings, consultation and country-missions in order to provide expert advice on laboratory diagnostics in low resource settings. These attendances are listed in the **Communications and Advisory Section** of this report, with details regarding Centre participation.

B. Collaboration with WHO

Over the past 12 months, the Centre has been asked to provide support and expertise to the WHO in a number of capacities. The majority of our collaborative work with the WHO has been coordinated with the Regional Office for the Western Pacific (WPRO), with the Viral Hepatitis Office within the HIV/AIDS and Sexually Transmitted Infection Units in the Division of Communicable Diseases.

As well as assisting WHO (WPRO and HQ) with the organisation, facilitation, delivery and rapporteuring of the First National workshop for strengthening and linking viral hepatitis laboratory, surveillance and patient monitoring systems, which was held in Ulaanbaatar, Mongolia a number of follow up workshops and missions were undertaken by Centre staff, including Margaret Littlejohn, Suellen Nicholson, Laura Thomas, and Theo Karapanagiotidis, in Mongolia as a result of the successful workshop for strengthening and linking viral hepatitis laboratory, surveillance and patient monitoring systems, which was held in Ulaanbaatar, Mongolia in April 2017. Staff went of subsequent missions in June 2017, August 2017 and September 2017 to assist WPRO, WHO Country Office for Mongolia and the Ministry of Health to undertake a

range of laboratory assessments and designing of monitoring and evaluation frameworks for Mongolia's Healthy Liver Program. Centre staff have provided extensive assistance to WPRO in the drafting, compiling and editing of the Executive Summary and the Review Report for the missions to Mongolia that were undertaken in 2017. Furthermore, Centre staff have been invited to attend a (to be finalised) mission to Mongolia to undertake a review of the Healthy Liver Program in late 2018. This work was recently profiled on WPRO's Collaborating Centre Forum website (http://www.wpro.who.int/whocc_forum/highlights/news/20180517-mng-action-on-hepatitis/en/)

The Centre has also undertaken discussions with WPRO to provide ongoing priority support in the establishment of a Regional Network of Viral Hepatitis Reference Laboratories for the Western Pacific Region and the ongoing role out of WHO surveillance guidelines, activities of the national laboratory hepatitis work including validation of testing algorithms, and the design of hepatitis pilot projects (screening, diagnosis and treatment linked to prevention).

Further, a number of Centre staff have been contracted by the WHO (Head office and WPRO) to provide information and support for a number of requests, specifically for epidemiological research and modelling the centre has undertaken, as well as requests for Australian prevalence statistics relating to HBV, HCV, cirrhosis, data linkage projects relating to HBV and HCV, and care and treatment cascades for both HBV and HCV.

As outlined previously and in the **Communications and Advisory Section** of this report, Centre staff have also been invited to consult and present at a number of WHO meetings and workshops to support the ongoing work and growth of the Global Health Sector Strategy on Viral Hepatitis, 2016-2021.

C. Collaboration with other WHO Collaborating Centres

There are currently five designated Collaborating Centres for Viral Hepatitis around the world: WHO Collaborating Centre for Chronic Hepatitis and Liver Cancer at the

Department of Gastroenterology, Kanazawa University Hospital in Japan; The WHO Collaborating Centre for Reference & Research on Viral Hepatitis at the Centres for Disease Control and Prevention (CDC) in Atlanta, USA; The WHO Collaborating Centre on Viral Hepatitis and Liver Diseases at The Institute of Liver and Biliary Sciences in New Delhi, India; and The WHO Collaborating Centre on HIV and viral hepatitis at the Institute of International Health, Immunology and Microbiology, University of Copenhagen in Copenhagen, Denmark.

On top of these distinct Collaborating Centres for Viral Hepatitis, there are a further four Collaborating Centres globally that also have research foci and activities associated with viral hepatitis and the WHO determined outputs for viral hepatitis. These centres are: The WHO Collaborating Centre for Diagnostics and Laboratory Support for HIV/AIDS and Other Blood-borne Infections at St Vincent's Institute of Medical Research in Melbourne, Australia; The WHO Collaborating Centre for Harm Reduction at Vilnius University in Vilnius, Lithuania; The WHO Collaborating Centre for Laboratory and Diagnostic Support at Public Health England (PHE) in London, England; and the WHO Collaborating Centre for Training and Research in Blood Transfusion at the Sharjah Blood Transfusion and Research Centre in Sharjah, United Arab Emirates.

The Centre has directly engaged in collaborative work with the WHO Collaborating Centre for Diagnostics and Laboratory Support for HIV/AIDS and Other Blood-borne Infections at St Vincent's Institute of Medical Research in Melbourne, Australia and the WHO Collaborating Centre for Reference & Research on Viral Hepatitis at the Centres for Disease Control and Prevention (CDC) in Atlanta, USA with the assistance and facilitation of WHO and WPRO. Furthermore, the Centre has established professional relationships with staff at WHO Collaborating Centre for Reference & Research on Viral Hepatitis at the Centres for Disease Control and Prevention (CDC) in Atlanta, USA, the WHO Collaborating Centre on Viral Hepatitis and Liver Diseases at The Institute of Liver and Biliary Sciences in New Delhi, India, and the WHO Collaborating Centre for Diagnostics and Laboratory Support for HIV/AIDS and Other Blood-borne Infections at St Vincent's Institute of Medical Research in Melbourne, Australia. The Centre also has a professional relationship with the WHO Collaborating Centre for

Reference and Research on Influenza at the Victorian Infectious Diseases Reference Laboratory (VIDRL), which is also located within the Doherty Institute.

The WHO Executive Board has encouraged all WHO Collaborating Centres to “develop working relations with other centres and national institutions recognized by WHO, by creating or joining collaborative networks.”¹ The WHO has also encouraged that instead of WHO Collaborating Centres collaboration one on one, WHO Collaborating Centres are encouraged to establish networks of WHO Collaborating Centres. Although no such thematic network of WHO Collaborating Centres exists in the field of viral hepatitis, over the past year the Centre has collaborated with a number of the other WHO Collaborating Centres that work in the context of viral hepatitis, including WHO Collaborating Centre for Chronic Hepatitis and Liver Cancer at the Department of Gastroenterology, Kanazawa University Hospital in Japan; The WHO Collaborating Centre for Reference & Research on Viral Hepatitis at the Centres for Disease Control and Prevention (CDC) in Atlanta, USA; The WHO Collaborating Centre on Viral Hepatitis and Liver Diseases at The Institute of Liver and Biliary Sciences in New Delhi, India; and the WHO Collaborating Centre for Diagnostics and Laboratory Support for HIV/AIDS and Other Blood-borne Infections at St Vincent's Institute of Medical Research in Melbourne, Australia. In order to further satisfy the implementation of the agreed work plan, the Centre will continue to interact and collaborate with other WHO Collaborating Centres in the context of viral hepatitis and the Terms of References, as well as work towards the development of a network of WHO Collaborating Centres for the thematic field of viral hepatitis.

Over the past year, Centre staff have been working closely with WHO/WPRO and the WHO Collaborating Centre for Diagnostics and Laboratory Support for HIV/AIDS and Other Blood-borne Infections at St Vincent's Institute of Medical Research in Melbourne, Australia to develop and implement a Regional Network of Viral Hepatitis Reference Laboratories for the Western Pacific Region. The aim of this Network of laboratories is to provide quality assurance and quality management programmes to increase and monitor quality of testing in the region, provide advice to implementing

¹ World Health Organisation, *Guide for WHO Collaborating Centres*, WHO Document Production Services, Geneva, 2016, p. 28.

partners, surveillance data to monitor intervention and the ability to rapidly respond to outbreaks and emergencies. Establishing a Viral Hepatitis Laboratory Network will also facilitate enhanced surveillance activities by providing guidance and support for sero-prevalence surveys and data management systems to collect WHO recommended viral hepatitis diagnosis and treatment monitoring indicators.

Currently, no such network exists at the global or regional level within the WHO. WPRO will be the first region to develop a Regional Hepatitis Reference Laboratory Network. However, over the past year (in collaboration with the PRO and the Collaborating Centre at St Vincent's) a Concept Note for the Western Pacific Region Viral Hepatitis Laboratory Network, and Terms of Reference for a Western Pacific Region Viral Hepatitis Laboratory Network have been developed. A two day meeting has been scheduled for 25-26 June 2018 that will be held in Manila to serve as an informal consultation on the establishment of the Western Pacific Region Viral Hepatitis Laboratory Network, with representatives from The Centre, as well as focal points for viral hepatitis and staff from reference laboratories from 7 high-burden countries in the region (Cambodia, Lao PDR, Malaysia, Mongolia, Papua New Guinea, Philippines and Viet Nam) and laboratory staff from China, Japan, Korea and other Collaborating Centres that work in viral hepatitis (from Japan, Australia and US CDC). The meeting, an Informal Consultation on the Quality Improvement of Laboratory Services for Viral Hepatitis in the Western Pacific Region, will present the needs and concepts of a viral hepatitis regional laboratory network and will facilitate discussion on the roles and responsibilities of regional, national reference laboratories.

D. WHO support

The Centre has been fortunate enough to have received support from the WHO, and more specifically WPRO, in a number of capacities. During the reporting period, WPRO staff from the Viral Hepatitis Office within the HIV/AIDS and Sexually Transmitted Infection Units in the Division of Communicable Diseases have provided the Centre with guidance on the priorities the WHO would like the Centre to focus their efforts on. These include that the Centre will provide support for the establishment of a Regional Network of Viral Hepatitis Reference Laboratories for the Western Pacific Region and the ongoing role out of WHO surveillance guidelines, activities of the

national laboratory hepatitis work including validation of testing algorithms and design of hepatitis pilot projects (screening, diagnosis and treatment linked to prevention), and development of a manual for the development for treatment cascades for both HBV and HCV in the region.

Communications and advisory activities

The Centre, and its staff, actively contributes to the knowledge and understanding of viral hepatitis in both the scientific and public health domains through a number of forums. Centre staffs publish in a wide range of scientific journals, draft reports for the Australian Government and local and international health organisations, and also participate in WHO meetings and workshops to support the ongoing work and growth of the Framework for Global Action for the Prevention and Control of Viral Hepatitis and WHO Global Health Sector Strategy for Viral Hepatitis. Centre staff also presented numerous presentations at domestic and international conferences, educational lectures and seminars to wide audiences, served on a number of governing boards, committees and advisory groups, and were often approached by the media to provide expert opinions on viral hepatitis for the general public.

Publications and reports

The Centre built its research, surveillance and innovation profile with a number of publications, including original research papers published in peer-reviewed journals, reviews, reports and book chapters in 2017-2018. Below is a list of all publications by staff relating to the Centre's Terms of Reference in the annual reporting period:

1. Lazarus JV, Block T, Bréchet C, Kramvis A, Miller V, Ninburg M, Pénicaud C, Protzer U, Razavi H, **Thomas LA**, Wallace J, **Cowie BC**. The hepatitis B epidemic and the urgent need for cure preparedness. *Nature Reviews Gastroenterology & Hepatology*; submitted
2. Howell J, Pedrana A, **Cowie BC**, Doyle J, Getahun A, Ward J, Gane E, Cunningham C, Wallace J, Lee A, Tonganiebeia A, Malani J, Thompson A, Hellard M. Aiming for the elimination of viral hepatitis in Australia, New Zealand and Pacific Islands and Territories – where are we now and barriers to

- meeting WHO targets by 2030. *Journal of Gastroenterology and Hepatology*; accepted
3. Hellard ME, Howell J, Pedrana A, **Cowie BC**, Doyle J, Getahun A, Ward J, Dore G, Cunningham C, Wallace J, Lee A, Tonganiebeia A, Malani J, Thompson A. Lancet Viral Hepatitis Commission – Pacific Island Countries and Territories. *Lancet Gastroenterology & Hepatology*; accepted
 4. Razavi-Shearer D, Gamkrelidze I, Ngyuen MH, ..., **Cowie BC**, et al. Global prevalence, treatment, and prevention of hepatitis B virus infection in 2016: a modelling study. *Lancet Gastroenterology & Hepatology*; 3 (6): 383-403
 5. Adama Melaku Y, Appleton SL, Gill TK, Ogbo FA, Buckley E, Shi Z, Driscoll T, Adams R, **Cowie BC**, Fitzmaurice C. Incidence, prevalence, mortality, disability-adjusted life years and risk factors of cancer in Australia and comparison with OECD countries, 1990-2015: findings from the Global Burden of Disease Study 2015. *Cancer Epidemiology* 2018; 52: 43-52
 6. Riches, L., **Cowie, B.**, Nanver, Z., and **Thomas, L.** (2018) Hepatitis B and Immigration. Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine. Sydney, Australia.
 7. **MacLachlan JH, Cowie BC.** Chapter 1: Prevalence and epidemiology of hepatitis B. In *B Positive - everything you wanted to know about hepatitis B: a guide for primary care providers*. 3rd edition. Gail Matthews, Monica Robotin and Nicole Allard, Editors. Darlinghurst: Australasian Society for HIV Medicine; in press.
 8. **Allard N, Cowie BC.** Chapter 11: Complex situations: co-infection and immunosuppression. In *B Positive - everything you wanted to know about hepatitis B: a guide for primary care providers*. 3rd edition. Gail Matthews, Monica Robotin and Nicole Allard, Editors. Darlinghurst: Australasian Society for HIV Medicine; in press.
 9. **Cowie BC, MacLachlan JH.** Chapter 10: Managing hepatitis B virus infection in complex situations. In *B Positive - everything you wanted to know about hepatitis B: a guide for primary care providers*. Nicole Allard, Gail Matthews and Monica Robotin, Editors. Darlinghurst; Australasian Society for HIV Medicine; 2018 (awaiting publication).

10. **MacLachlan JH, Thomas L, Cowie BC, Allard N.** Hepatitis C Mapping Project: Estimates of geographic diversity in hepatitis C prevalence, diagnosis, monitoring and treatment. National Report 2016. The Doherty Institute & ASHM; March 2018.
11. **MacLachlan JH, Thomas L, Cowie BC, Allard N.** Hepatitis C Mapping Project: Estimates of geographic diversity in hepatitis B prevalence, diagnosis, monitoring and treatment. National Report 2016. The Doherty Institute & ASHM; March 2018.
12. Carville KS, **MacLachlan JH, Cowie BC.** Hepatocellular carcinoma over three decades in Victoria, Australia: epidemiology, diagnosis, and trends, 1984-2013. *Intern Med J* 2018 (online); doi: 10.1111/imj.13823.
13. **Jackson K, MacLachlan JH, Cowie BC, Locarnini S, Bowden S, Higgins N, Karapanagiotidis T, Nicholson S, Littlejohn M.** Epidemiology and phylogenetic analysis of hepatitis D virus infection in Australia. *Intern Med J* 2018 (under review)
14. **MacLachlan JH, Cowie BC.** Bridging the access gap: Medicare ineligibility in people living with chronic hepatitis B. *Intern Med J* 2018 (under review)
15. **MacLachlan JH, Cowie BC.** Cultural and linguistic diversity of people living with chronic hepatitis B, 2011-2016: changing migration, shifting epidemiology. *Aust NZ J Public Health* 2018 (under review).
16. Sozzi V; Shen F; Chen J; Colledge D; **Jackson K; Locarnini S;** Yuan Z; **Revell P.** In vitro studies identify a low replication phenotype for Hepatitis B virus genotype H associated with occult HBV and low incidence of liver disease. *Virology*. Accepted 20 April, 2018.
17. Wong D, **Littlejohn M,** Edwards R, **Jackson K, Revill P,** Gaggar A, Kitrinos K, Subramanian M, Marcellin P, Buti M, Janssen H, Gane E, **Locarnini S,** Thompson A. ALT flares during nucleotide analogue therapy are associated with HBsAg loss in genotype A HBeAg-positive chronic hepatitis B. *Liver Int.* 2018 Feb 10.
18. **Allard N,** Emery J, **Cowie B,** Furler J. Knowing and telling: how African-Australians living with chronic hepatitis B understand hepatocellular carcinoma risk and surveillance. *Aust J Prim Health.* 2018.

19. Cheah BC, Davies J, Singh GR, Wood N, **Jackson K, Littlejohn M**, Davison B, McIntyre P, **Locarnini S**, Davis JS, Tong SYC. Sub-optimal protection against past hepatitis B virus infection where subtype mismatch exists between vaccine and circulating viral genotype in northern Australia. *Vaccine* 2018 May 4 doi: 10.1016/j.vaccine.2018.01.062. [Epub ahead of print]
20. **Allard N**, Cabrie T, Wheeler E, Richmond J, **MacLachlan JH**, Emery J, Furler J, **Cowie BC**. The challenge of liver cancer surveillance in general practice: Do recall and reminder systems hold the answer? *Australian Family Physician* 2017; 46 (11) 859-864.
21. **Allard N**, Dev A, Dwyer J, Srivatsa G, Thompson A, **Cowie BC**. Factors associated with poor adherence to antiviral treatment for hepatitis B. *Journal of Viral Hepatitis* 2017; 24: 53-58
22. Naghavi M, Abajobir AA, Abbafati C, ..., **Cowie BC**, et al. Global, regional, and national age-sex specific mortality for 264 causes of death, 1980-2016: a systematic analysis for the Global Burden of Disease Study 2016. *The Lancet* 2017; 390 (10100): 1151-1210
23. Fitzmaurice C, Allen C, Barber RM, ..., **Cowie BC**, et al. Global, regional, and national cancer incidence, mortality, years of life lost, years lived with disability and disability adjusted life years for 32 cancer groups, 1990 to 2015 - a systematic analysis for the Global Burden of Disease Study 2015. *JAMA Oncology* 2017; 3 (4): 524-548
24. **MacLachlan JH**, **Allard NL**, Carville K, Haynes K, **Cowie BC**. Mapping progress in chronic hepatitis B: geographic variation in prevalence, diagnosis, monitoring and treatment, 2013-15. *Australian and New Zealand Journal of Public Health* 2017.
25. **Brown CR**, **MacLachlan JH**, **Cowie BC**. Addressing the increasing global burden of viral hepatitis. *Hepatobiliary Surgery and Nutrition* 2017;6(4):274-276.
26. **Brown CR**, **Allard, N**, **MacLachlan JH**, **Cowie BC**. Deaths from liver cancer continue to rise in Australia: is elimination by 2030 possible? *Hepatitis Victoria's Good Liver Magazine*, 2017; November
27. Shen F, Li Y, Yang Wang, Sozzi V, **Revill PA**, Liu J, Gao L, Yang G, Lu M, Sutter K, Dittmer U, Chen J, Yuan Z. Hepatitis B Virus Sensitivity to

- Interferon- α in Hepatocytes is More Associated with Cellular Interferon Response than with Viral Genotype. *Hepatology*. 2017 Oct 23.
28. Wong D, **Littlejohn M**, Yuen L, **Jackson K**, Mason H, Bayliss J, Rosenberg G, Gaggar A, Kitrinis K, Subramanian M, Marcellin P, Buti M, Janssen HLA, Gane E, **Locarnini S**, Thompson A, **Revill PA**. HBeAg levels at week 24 predict response to 8 years of tenofovir in HBeAg-positive chronic hepatitis B patients. *Aliment. Pharmacol. Ther.* 2017 Oct 11.
 29. Schulz TR, Edwards R, Thurnheer MC, Yuen L, **Littlejohn M**, **Revill P**, Chu M, Tanyeri F, Wade A, Biggs BA, Sasadeusz J. Hepatitis B among immigrants from Myanmar: Genotypes and their clinical relevance. *J Med Virol.* 2017 Sep 8.
 30. Alter H, Block T, Brown N, Brownstein A, Brosgart C, Chang KM, Chen PJ, Chisari FV, Cohen C, El-Serag H, Feld J, Gish R, Glenn J, Greten T, Guo H, Guo JT, Hoshida Y, Hu J, Kowdley KV, Li W, Liang J, **Locarnini S**, Lok AS, Mason W, McMahon B, Mehta A, Perrillo R, **Revill P**, Rice CM, Rinaudo J, Schinazi R, Seeger C, Shetty K, Tavis J, Zoulim F. A Research Agenda for Curing Chronic Hepatitis B Virus Infection. *Hepatology*. 2017 Sep 6
 31. Thurnheer MC, Edwards R, Schulz TR, Yuen L, **Littlejohn M**, **Revill P**, Bannister L, Chu M, Tanyeri F, Wade A, Biggs BA, Sasadeusz J. Genotypic profiles of Hepatitis B in African immigrants and their clinical relevance. *J Med Virol.* 2017 . 89(6):1000-1007.
 32. **Littlejohn M**. Antiviral drug resistance and hepatitis B: a continuing public health problem. *Antiviral Therapy*, 2017, May 15. 10.3851/IMP3176 (epub ahead of print)
 33. Akinyemiju T, Abera S, Ahmed M, ..., **Cowie BC**, et al. The burden of primary liver cancer and underlying etiologies from 1990 to 2015 at the global, regional, and national level: results from the Global Burden of Disease Study 2015. *JAMA Oncology* 2017; 3 (12): 1683-1691
 34. **Allard N**, Cabrie T, Wheeler E, Richmond J, **MacLachlan J**, Emery J, Furler J, **Cowie B**. The challenge of liver cancer surveillance in general practice: Do recall and reminder systems hold the answer? *Australian Family Physician* 2017; 46 (11): 859-864

35. Davies J, Li SQ, Tong SY, Baird RW, Beaman M, Higgins G, **Cowie BC**, Condon JR, Davis JS. Establishing contemporary trends in hepatitis B sero-epidemiology in an Indigenous population. PLoS ONE 2017; 12(9):e0184082. <https://doi.org/10.1371/journal.pone.0184082>
36. van Gemert C, Howell J, Wang J, Stoove M, **Cowie BC**, **Allard N**, Enright C, Dunn E, Towell V, Hellard M. Knowledge and practices of chronic hepatitis B virus testing by general practitioners in Victoria, Australia, 2014–15. Australian Family Physician 2017; 46 (9): 683-689
37. **MacLachlan JH**, **Cowie BC**. Uptake and trends in ordering of funded hepatitis B immunisation for priority populations in Victoria, 2013-2014. Sexual Health 2017; 14 (2): 188-192

Oral presentations

Centre staff members presented talks at numerous events during the reporting year 2016-2017, including national and international conferences, and educational lectures and research seminars.

Event; location, date	Centre Staff, Title
CDC Public Health Grand Rounds, Atlanta, USA, April 2018	Benjamin Cowie, <i>Progress towards hepatitis B and C elimination in Australia; and Beyond the Data – Working together to eliminate the threat of hepatitis B and C</i>
19th Scientific Conference of the Pasteur Institute, Ho Chi Minh City, Vietnam, December 2017	Benjamin Cowie, <i>Hepatitis B in the Western Pacific Region: Public Health and Research Priorities on the road to Elimination</i>
Hepatology in Asia 2017, Hong Kong, China, December 2017	Benjamin Cowie, <i>State-of-the-art lecture: How can opportunities for cure be extended to more viral hepatitis patients across Asia?</i>

24th National Hepatitis Symposium, St Vincent's Hospital, Melbourne, Victoria, November 2017	Benjamin Cowie, <i>HBV: Mind the Gaps</i>
2nd World Hepatitis Summit, São Paulo, Brazil, November 2017	Benjamin Cowie, <i>Hepatitis interventions as part of prisons health programmes</i>
34th Annual NRL Workshop on Infectious Diseases, Hobart, Tasmania, October 2017	Benjamin Cowie, <i>Addressing viral hepatitis in the Western Pacific: transforming the cascade of care</i>
1st Australasian Viral Hepatitis Elimination Conference, Cairns, Queensland, August 2017	Benjamin Cowie, <i>Hepatitis B: Australian Progress and Challenges</i>
AASLD; Washington DC, USA,	Kathy Jackson, <i>Molecular Epidemiology of Hepatitis D Virus in the Pacific Islands of Micronesia</i>
Melbourne Liver Group Annual Meeting, Lancemore Hill, Macedon Ranges, 18 March 2018	Margaret Littlejohn, <i>Splice Variants of Hepatitis B virus are strongly associated with liver cancer</i>
Molecular Research and Development Laboratory Meeting; Melbourne, Australia, 1- April 2018.	Margaret Littlejohn, <i>Applied Biosystems SeqStudio Genetic Analyzer at VIDRL</i>
Australasian Viral Hepatitis Elimination Conference, Cairns, Australia, August 2017.	Capucine Penicaud, <i>The International Coalition to Eliminate Hepatitis B</i>
World Hepatitis Day Symposium, Melbourne, Australia, 28 July 2017	Margaret Littlejohn and Suellen Nicholson, <i>Viral Hepatitis - Laboratory Networks and Capacity in Mongolia</i>
Australia China Research Accelerator Stakeholders Tour - Melbourne Biomedical Precinct Office	Margaret Littlejohn, <i>Viral Hepatitis at the Doherty</i>

MDU-VIDRL Seminar at PDI; Melbourne, Australia, 20 September 2017	Suellen Nicholson, <i>Viral Hepatitis - Laboratory Networks and Capacity in Mongolia'</i>
5th ANRS HBV Cure Workshop; Paris, France 1 April 2018	Peter Revill, <i>ICE-HBV Roadmap for HBV cure. Plenary speaker.</i>
Annual International Meeting of the Institute of Human Virology; Baltimore, USA, October 2017	Peter Revill, <i>Approaches to eliminate Hepatitis B virus. Invited speaker.</i>
The first international symposium of infectiology and application; Fudan, Shanghai, China, 2017	Peter Revill, <i>HBV splice variants are strongly associated with liver cancer. Invited speaker.</i>
HepDAART; Hawaii, USA, 1 December 2017	Peter Revill, <i>HBV splice variants are strongly associated with liver cancer. Invited speaker.</i>
HepDAART; Hawaii, USA, 1 December 2017	Peter Revill, <i>ICE-HBV Position paper. Invited speaker.</i>
International HBV meeting, Washington DC, USA, December 2017	Peter Revill, <i>HBV splice variants are strongly associated with liver cancer.</i>
International HBV meeting, Washington DC, USA, December 2017	Peter Revill, <i>ICE-HBV, an update.</i>
Global Virology Network Conference; Melbourne, Australia, September 2017	Peter Revill, <i>ICE-HBV Roadmap for HBV cure. Keynote speaker.</i>
Government of South Australia, Public Health and Clinical Systems Division, Viral Hepatitis Model of Care Reference Group Meeting; Adelaide, South Australia, 5 April 2018	Jennifer MacLachlan and Laura Thomas, <i>Hepatitis B and C Mapping Reports</i>
Hepatitis SA Road Show; Adelaide, South Australia, 4 April 2018	Jennifer MacLachlan and Laura Thomas, <i>1st National Hepatitis C Mapping Report and the 3rd National Hepatitis Mapping Report on the prevalence, diagnosis, monitoring and</i>

	<i>treatment of hepatitis B and hepatitis C in Australia, with a focus on South Australian data</i>
Hepatitis Victoria Road Show; Melbourne, Victoria, March 2018	Jennifer MacLachlan and Laura Thomas, <i>1st National Hepatitis C Mapping Report and the 3rd National Hepatitis Mapping Report on the prevalence, diagnosis, monitoring and treatment of hepatitis B and hepatitis C in Australia, with a focus on Victoria data</i>
World Hepatitis Day Symposium, Melbourne, Australia, 28 July 2017	Laura Thomas, <i>WHO Global Health Sectors Strategy for Viral Hepatitis and the WHO Collaborating Centre for Viral Hepatitis.</i>
Communicable Diseases Control Conference, Melbourne, Australia , 26-28 th June 2017	Nicole Romero, <i>Improving Surveillance of hepatitis B and C by responding to notifications</i>
Australasian Viral Hepatitis Elimination Conference, Cairns Australia, 10-11 th August 2017	Karen McCulloch, <i>Updating estimates describing the burden of hepatitis B in Australia</i>
PRISM Workshop, University of Melbourne, Melbourne, Australia, 1 August 2017	Karen McCulloch, <i>Updating estimates describing the burden of hepatitis B in Australia</i>

Poster presentations

Centre staff members presented posters at events during 2015/2016, including at national and international conferences.

Event; location, date

Authors (Centre staff in bold), Title

World Hepatitis Summit; Sao Paulo, Brazil, 1-3 November 2017.	Thomas, LA, Romero, N., Sarangua, G., Woodring, J., Jadambaa, N., Le, LV. <i>Integrated National workshops for strengthening and linking viral hepatitis laboratory, surveillance and patient monitoring systems.</i>
World Hepatitis Summit; Sao Paulo, Brazil, 1-3 November 2017.	Peter Reville, Capucine Penicaud,, ICE-HBV Governing Board members, Fabien Zoulim, <i>International Coalition to eliminate HBV- Time for a Cure.</i>
World Hepatitis Summit; Sao Paulo, Brazil, 1-3 November 2017.	M Littlejohn, S Locarnini, S Nicholson, R Tekoaua, A Tonganibeia, K Jackson, <i>Improving Access to Care and Treatment of Viral Hepatitis in Kiribati.</i>
World Hepatitis Summit; Sao Paulo, Brazil, 1-3 November 2017.	Suellen Nicholson, Margaret Littlejohn, Dr Ganbold Sarangua, Ben Cowie, Wayne Dimech, <i>Pilot of laboratory capacity survey and self-assessment tool used to support the establishment of a regional network of hepatitis reference laboratories.</i>
EASL Conference, Paris France, 1 April 2018.	Kathy Jackson, Rosemary Tekoua, Alfred Tonganeiba, Ros Edwards, Thomas Holgate, Suellen Nicholson, Margaret Littlejohn and Stephen Locarnini, <i>Hepatitis B and D in the Pacific Islands of Kiribati.</i>
EASL Conference, Paris France, 1 April 2018.	Mei-Hung Pan , Hui-Han Hu , Hugh Mason , Julianne Bayliss , Margaret Littlejohn , Yu-Ling Lin , Chien-Yu Su , Chen-Tse Chiang , Chien-Jen Chen ,

Stephen Locarnini , Hwai-I Yang ,
Peter Revill, *HBV splice variants are associated with and predictive of liver cancer.*

Australasian Viral Hepatitis Elimination Conference, Cairns, Australia, August 2017. **Jennifer MacLachlan**, *Treatment access for hepatitis C across Australia: mapping need and capacity.*

Other conference participation

On top of presentations at conferences, a number of Centre staff also attended and participated in other roles at a wide range of events/conferences.

Event; location, date	Centre staff, involvement
CDC Conference; The Pullman, Albert Park, Melbourne, 27-28 June 2017	Chelsea Brown, Presenter Nicole Romero, Presenter Benjamin Cowie, Presenter Jennifer MacLachlan, Presenter
Melbourne Liver Group Annual Meeting, Lancemore Hill, Macedon Ranges, 18 March 2018	Margaret Littlejohn, Invited Speaker Scott Bowden, Invited Speaker Stephen Locarnini, Invited Speaker Peter Revill, Invited Speaker
World Hepatitis Summit, Sao Paulo, Brazil	Benjamin Cowie, Presenter Laura Thomas, Presenter Margaret Littlejohn, Stakeholders Consultation Facilitation Capucine Penicaud, Stakeholders Consultation Facilitation
International HBV Meeting “Molecular Biology of Hepatitis B Viruses”	Capucine Penicaud, Delegate and working groups facilitation
EASL Conference, Paris France, 1 April 2018	Kathy Jackson, Invited Speaker Stephen Locarnini, Invited Speaker

	Peter Revill, Invited Speaker
Australian Centre for HIV and Hepatitis Virology Research (ACH2), 12th Annual Scientific Workshop	Margaret Littlejohn, Chairperson: Hepatitis Virus Replication Cycles and Model Systems Session. Judge: ACH2 Student and Early Career Researcher Awards
World Hepatitis Day Symposium; Doherty Institute, Melbourne, Australia, 27 July 2017	Laura Thomas, Presenter Margaret Littlejohn, Presenter Suellen Nicholson, Presenter Peter Revill, Presenter Benjamin Cowie, Presenter Nicole Romero, Delegate Chelsea Brown, Delegate
9th Annual Spotlight on Hepatitis B Victorian Hepatitis B Alliance, Cancer Council Victoria, Melbourne, Australia	Jennifer MacLachlan, Presenter Benjamin Cowie, Presenter Nicole Allard, Presenter Nicole Romero, Delegate Margaret Littlejohn, Delegate Chelsea Brown, Delegate
9th International Global Virus Network Meeting	Margaret Littlejohn, Delegate
Australasian Epidemiological Association Conference, Sydney University, 29-30 August 2017	Chelsea Brown, Delegate
Australian Viral Hepatitis Elimination Conference, Cairns, Australia	Ben Cowie, Presenter Jennifer MacLachlan, Presenter Chelsea Brown, Delegate Nicole Allard, Presenter Nicole Romero, Delegate Karen McCulloch, Presenter
World Congress on Public Health, Melbourne, Australia	Laura Thomas, Delegate

Mathematics of Biological Systems Management Workshop, University of Melbourne, Melbourne, Australia	Karen McCulloch, Presenter
2nd Hepatitis B Community Education Symposium, Melbourne, Australia	Ben Cowie, Panel Jennifer MacLachlan, Delegate Chelsea Brown, Delegate Nicole Allard, Delegate Nicole Romero, Delegate Laura Thomas, Delegate Karen McCulloch, Delegate Ashleigh Qama, Delegate

Media/Community engagement

The Director and other staff members participated in requests from media representatives for interviews and comments throughout the year. Media and community engagements are supported by the communications teams at the Doherty Institute and Royal Melbourne Hospital, as required.

Media, date	Centre staff; title	Link
1-Nov-17	Chelsea Brown, Nicole Allard, Jennifer MacLachlan, Ben Cowie, <i>Liver Cancer Deaths Continue to Rise in Australia: is elimination by 2030 possible?</i>	https://www.hepvic.org.au/page/60/good-liver-magazine
8-May-18	Margaret Littlejohn, <i>Interview with Abby Olena from "The Scientist" magazine</i>	https://www.the-scientist.com/?articles.view/articleNo/54518/title/Ancient-Humans-Had-Hepatitis-B/

9-May-18	Margaret Littlejohn, <i>Interview with Sarah Zhang from "The Atlantic" magazine</i>	https://www.theatlantic.com/science/archive/2018/05/a-7000-year-old-virus-sequenced-from-a-neolithic-mans-tooth/559862/
	Margaret Littlejohn, <i>WHO Collaborating Centre for Viral Hepatitis working with Mongolia on their world-leading Programme</i>	https://www.doherty.edu.au/hoccvh/news/P10?msEntryId=1274
18 December 2017	All Centre Staff, <i>WHO Collaborating Centre for Viral Hepatitis celebrate Highly Commended Award</i>	https://www.doherty.edu.au/hoccvh/news/P10?msEntryId=1277
10 April 2018	Nicole Romero, Benjamin Cowie, <i>What is hepatitis A and how can you get it from eating frozen fruit?</i>	https://theconversation.com/what-is-hepatitis-a-and-how-can-you-get-it-from-eating-frozen-fruit-94656
22 March 2018	Nicole Allard	https://www.youtube.com/watch?v=XrpXWmRDqcQ&feature=youtu.be
16 April 2018	Jennifer MacLachlan, <i>How Good Data Save Lives</i>	https://www.hepvic.org.au/news/2188/podcast-how-good-data-saves-lives
6 March 2018	Benjamin Cowie, Jennifer MacLachlan, Laura Thomas, <i>Media Release: First national mapping project of Hep C shows areas with highest infection & lowest treatment rates</i>	https://www.doherty.edu.au/hoccvh/news/P10?msEntryId=1442

14 March 2018	Jennifer MacLachlan, Laura Thomas, <i>Public Health News: Measuring disparities in access to Hepatitis C treatment in Australia</i>	https://www.doherty.edu.au/w/hoccvh/news/?msEntryId=1478
20 March 2018	Benjamin Cowie, Jennifer MacLachlan, Laura Thomas	http://medicalrepublic.com.au/happy-anniversary-missed-spot/13633
2 August 2017	Benjamin Cowie, <i>Dr G. Yunupingu's legacy: it's time to get rid of chronic hepatitis B in Indigenous Australia</i>	https://theconversation.com/dr-g-yunupingu-legacy-its-time-to-get-rid-of-chronic-hepatitis-b-in-indigenous-australia-81672
8 September 2017	Benjamin Cowie <i>Silent killer: Coming to grips with an emerging epidemic of viral hepatitis</i>	https://upclose.unimelb.edu.au/episode/402-silent-killer-coming-grips-emerging-epidemic-viral-hepatitis
17 April 2018	Benjamin Cowie, <i>Working Together to Eliminate the Threat of Hepatitis B and C</i>	https://www.cdc.gov/grand-rounds/pp/2018/20180417-eliminate-hepatitis.html
8 February 2018	Kathy Jackson, <i>Public Health News: Teaching, testing and reporting on hepatitis: Kathy Jackson in Kiribati</i>	https://www.doherty.edu.au/w/hoccvh/news/P10?msEntryId=1411
10 May 2018	Benjamin Cowie, <i>'One-stop liver shop': chronic hepatitis B 'will be eliminated in NT in five years'</i>	https://www.theguardian.com/australia-news/2018/may/10/one-stop-liver-shop-chronic-hepatitis-b-will-be-eradicated-in-nt-in-five-years
31 May 2018	Laura Thomas, Margaret Littlejohn, <i>WHO Collaborating</i>	http://www.wpro.who.int/who_cc_forum/highlights/news/201

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working with Mongolia on
their world-leading
Programme*

[80517-mng-action-on-hepatitis/en/](https://www.cvh.org.au/80517-mng-action-on-hepatitis/en/)

Professional engagement

The Director and other staff members were invited to attend a number of meetings with other research institutes and organisations across the world to provide their professional expertise and comment throughout the year.

Event; location, date	Centre staff; involvement
9th Annual Victorian Hepatitis B Alliance Spotlight on Hepatitis B for Health Care Workers; Melbourne, Australia,	Nicole Allard, Invited Speaker, Hepatitis B testing and management Benjamin Cowie, Invited Speaker, Policy and Call to Action for Hepatitis Elimination Jennifer MacLachlan, Invited Speaker, Chronic Hepatitis B Epidemiology
9th Annual Victorian Hepatitis B Alliance Spotlight on Hepatitis B for Health Care Workers; Arrarat, Australia,	Nicole Allard, Invited Speaker, Hepatitis B testing and management Benjamin Cowie, Invited Speaker, Policy and Call to Action for Hepatitis Elimination Jennifer MacLachlan, Invited Speaker, Chronic Hepatitis B Epidemiology
ASHM Advanced management course for hepatitis B; Melbourne, Australia	Nicole Allard, Presenter, Facilitator, Hepatitis B testing and management Benjamin Cowie, Presenter, Facilitator,
HBV Prescriber Online Modules Revision, Melbourne, Australia	Nicole Allard, invited participant and stakeholder

<p>Revision of the Red Book for General Practice, Melbourne, Australia</p>	<p>Nicole Allard, invited participant and stakeholder Benjamin Cowie, invited participant and stakeholder</p>
<p>Teleconference consultation with Nous Group for the Development of the Australian National Hepatitis B Strategies, Department of Health and Human Services; Melbourne, 28 September 2017</p>	<p>Nicole Allard, invited participant and stakeholder Chelsea Brown, invited participant and stakeholder Benjamin Cowie, invited participant and stakeholder Jennifer MacLachlan, invited participant and stakeholder Nicole Romero, invited participant and stakeholder Laura Thomas, invited participant and stakeholder</p>
<p>National Forum on viral hepatitis data linkage studies, Doherty Institute, Melbourne, Australia, 8 November 2017</p>	<p>Nicole Allard, invited participant and presenter Chelsea Brown, Organiser, invited participant and presenter Jennifer MacLachlan, invited participant and presenter Benjamin Cowie, invited participant and presenter</p>
<p>Non-government Consultation for the Development of National BBV and STI Strategies, Department of Health and Human Services; Melbourne, Australia, 15 August 2017</p>	<p>Nicole Allard, invited participant and stakeholder Chelsea Brown, invited participant and stakeholder Benjamin Cowie, invited participant and stakeholder Jennifer MacLachlan, invited participant and stakeholder</p>

	Nicole Romero, invited participant and stakeholder
	Laura Thomas, invited participant and stakeholder
Meeting with Immunisation Coordinator at Asylum Seeker Resource Centre To discuss logistics for the ASRC hepatitis B screening, immunisation and linking to care program, Melbourne Australia, 1 October 2017	Chelsea Brown, invited participant and presenter Benjamin Cowie, invited participant and presenter
Diverse Communities and the Hepatitis Challenge - towards elimination: Hepatitis Victoria forum to raise awareness and celebrate World Hepatitis Day, Queens Hall, Parliament of Victoria, Melbourne, Australia, 24 July 2017	Chelsea Brown, Invited guest Benjamin Cowie, Invited guest Jennifer MacLachlan, Invited guest Nicole Romero, Invited guest
World Hepatitis Summit; Sao Paulo, Brazil, November 2017	Benjamin Cowie, Chair of Abstracts Sub-Committee, Invited/sponsored Delegate, Abstract Reviewer Laura Thomas, Invited/sponsored Delegate, Abstract Reviewer, Abstracts Sub-Committee member Margaret Littlejohn, Attendee
BBVs and STIs: What's all the fuss about? Shepparton Forum, Victoria, December 2017	Jennifer MacLachlan, Invited Speaker, Blood-borne viruses and sexually transmissible infections: epidemiology and local trends
Government of South Australia, Public Health and Clinical Systems Division, Viral Hepatitis Model of Care Reference Group Meeting: 'Hepatitis B and C	Jennifer MacLachlan; Invited presenter and observer Laura Thomas, Invited presenter and observer

Mapping Reports'; Adelaide, South Australia, 5 April 2018	
Hepatitis SA Road Show: '1st National Hepatitis C Mapping Report and the 3rd National Hepatitis Mapping Report on the prevalence, diagnosis, monitoring and treatment of hepatitis B and hepatitis C in Australia', with a focus on South Australian data; Adelaide, South Australia, 4 April 2018	Jennifer MacLachlan, Invited presenter Laura Thomas, Invited presenter
Hepatitis Victoria Road Show: '1st National Hepatitis C Mapping Report and the 3rd National Hepatitis Mapping Report on the prevalence, diagnosis, monitoring and treatment of hepatitis B and hepatitis C in Australia', with a focus on Victorian data; Melbourne, Victoria, March 2018	Jennifer MacLachlan, Invited presenter Laura Thomas, Invited presenter
HBV Cure and ICE HBV Presentation, Watt-Geyer Foundation at RMH, Melbourne, Australia April 2018	Peter Revill, Invited Presenter
World Hepatitis Day Symposium, Melbourne, Australia, 28 July 2017	Peter Revill, Invited Presenter , Organising Committee Benjamin Cowie, Invited Presenter Margaret Littlejohn, Invited Presenter Jennifer MacLachlan, Invited presenter Suellen Nicholson, Invited Presenter Laura Thomas, Invited Presenter and Organising Committee
Development of Doherty Public Health Laboratory Newsletter, Public Health	Nicole Romero, Invited participant Benjamin Cowie, Co-head

Cross-Cutting Discipline, Melbourne, Australia	
Hepatitis A communications and laboratory liaison with Victorian Department of Health and Human Services	Nicole Romero, coordinator
Justice Health Forum: Aboriginal healthcare in Victorian Prisons Melbourne Australia, 28 July 2017	Nicole Romero, invited speaker, <i>Early outcomes of a project to improve surveillance of Hepatitis B and C in Victoria in the Aboriginal population: The importance of data collection</i>
'National and population-specific experience with national scale up' World Hepatitis Summit; Sao Paulo, Brazil, 2 November 2017	Laura Thomas, Session Chair,
WHO Collaborating Centres Directors Coordination Meeting, Deakin University Centre for Population Health; Melbourne 18 October 2017	Laura Thomas, Invited Centre Representative
Ministry of Health Mongolia and WHO Western Pacific Regional Office. Development of Hepatitis Surveillance Guidelines, Monitoring and Evaluation Framework; Ulaanbaatar, Mongolia, 1-12 August 2017	Laura Thomas, WHO Technical Consultant (invited/sponsored)

Engagement in WHO activities and meetings

The Director and other Centre Staff were invited to attend and engage in a variety of WHO activities and meetings around the world throughout the reporting period on matters relating to viral hepatitis and the global agenda for viral hepatitis control.

Event; location, date

Centre staff; involvement

Development of a National Action Plan for the Establishment and Linkage of Viral Hepatitis Laboratory, Surveillance and Patient Monitoring Systems, Tagaytay, Philippines, 6-8 September 2017	Benjamin Cowie, WHO Invited Partner and Technical Consultant
Preliminary Meeting for the Establishment and Linkage of Viral Hepatitis Laboratory Surveillance and Patient Monitoring Systems, Manilla, Philippines 16-17 August 2017	Nicole Romero, WHO Technical Consultant (invited/sponsored)
Kiribati mission in collaboration with WPRO to conduct education, training and establishment of liver clinic, Kiribati, 28 January – 7 February 2018	Kathy Jackson, WHO Technical Consultant (invited)
Assessment of Viral hepatitis strategic information in China, 2017: A rapid review; Beijing, China, 11-14 July 2017	Margaret Littlejohn, WHO Technical Consultant (invited/sponsored)
WPRO Viral Hepatitis Laboratory Assessment; Ulaanbaatar, Mongolia, 11-19 September, 2017	Margaret Littlejohn, Theo Karapanagiotidis, WHO Technical Consultant (invited/sponsored)
Ministry of Health Mongolia and WHO Western Pacific Regional Office Development of Hepatitis Surveillance Guidelines, Monitoring and Evaluation Framework; Ulaanbaatar, Mongolia, 1-12 August 2017	Laura Thomas, WHO Technical Consultant (invited/sponsored)
WHO Collaborating Centres Directors Coordination Meeting, Deakin University Centre for Population Health; Melbourne 18 October 2017	Laura Thomas, Invited Centre Representative

WHO/WPRO mission rapid situational analysis of viral hepatitis services in Cambodia; Cambodia, 22-28 October 2017	Nicole Allard, WHO Technical Consultant (invited/sponsored)
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Visitors to the Centre

The Centre hosted a number of visitors from a range of organisations and institutes around the world, as well as representatives from WHO.

Date	Visitor; affiliation, purpose
19/06/2017	Emily Adamson; Cancer Council of Victoria, <i>Meeting of WHO CC for Viral Hepatitis Epidemiology and Public Health Research Advisory Group</i>
19/06/2017	Jude Byrne; AVIL, <i>Meeting of WHO CC for Viral Hepatitis Epidemiology and Public Health Research Advisory Group</i>
19/06/2017	Dr Jane Davies; Menzies School of Health Research, Royal Darwin Hospital; <i>Meeting of WHO CC for Viral Hepatitis Epidemiology and Public Health Research Advisory Group</i>
19/06/2017	Dr Danny Gallant; SA Department of Health, <i>Meeting of WHO CC for Viral Hepatitis Epidemiology and Public Health Research Advisory Group</i>
19/06/2017	A/Prof Rebecca Guy; Kirby Institute, <i>Meeting of WHO CC for Viral Hepatitis Epidemiology and Public Health Research Advisory Group</i>
19/06/2017	Linda Mack; Royal Melbourne Hospital, <i>Meeting of WHO CC for Viral Hepatitis Epidemiology and Public Health Research Advisory Group</i>
19/06/2017	Vanessa Towell; Australian Society for HIV, Viral Hepatitis and Sexual Health Medicine, <i>Meeting of WHO CC for Viral Hepatitis Epidemiology and Public Health Research Advisory Group</i>

19/06/2017	Lien Tran, Hepatitis Victoria, <i>Meeting of WHO CC for Viral Hepatitis Epidemiology and Public Health Research Advisory Group</i>
19/06/2017	Helen Tyrrell; Hepatitis Australia, <i>Meeting of WHO CC for Viral Hepatitis Epidemiology and Public Health Research Advisory Group</i>
08/11/2017	Dr Maryam Alavi; Viral Hepatitis Clinical Research Program, Kirby Institute, NSW, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	Mr Robin Auld; Communicable Diseases Branch, Health Protection NSW, NSW Health, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	Prof Greg Dore; Viral Hepatitis Clinical Research Program, Kirby Institute, NSW, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	A/Prof Jason Grebely; Viral Hepatitis Clinical Research Program, Kirby Institute, NSW, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	Dr Behzad Hajarizadeh; Viral Hepatitis Clinical Research Program, Kirby Institute, NSW, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	Dr Amy Kwon; Prof Sallie Pearson, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	Prof Sallie Pearson; Centre for Big Data Research in Health, UNSW Sydney, NSW, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	Dr Phil Anderson; Data Integration Services Centre, Australian Institute of Health and Welfare, ACT, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	Emily Adamson; Cancer Council Victoria, <i>National Forum on viral hepatitis data linkage studies</i>

08/11/2017	Kathleen Bapaume; Centre for Victorian Data Linkage, Department of Health and Human Services Victoria, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	Dr Elizabeth Birbilis; Sexual Health and Viral Hepatitis, Department of Health and Human Services Victoria, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	Dr Joseph Doyle; Centre for Population Health, Burnet Institute, Vic, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	Prof Margaret Hellard; Centre for Population Health, Burnet Institute, Vic, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	Nasra Higgins; Communicable Disease Epidemiology and Surveillance, Department of Health and Human Services Victoria, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	Prof Stuart Kinner; Melbourne School of Population and Global Health, University of Melbourne, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	Kathryn Snow; Melbourne School of Population and Global Health, University of Melbourne, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	Stacey Rowe; Communicable Disease Epidemiology and Surveillance, Department of Health and Human Services Victoria, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	Sharon Williams; Centre for Victorian Data Linkage, Department of Health and Human Services Victoria, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	Prof Peter Baade; Epidemiology Research Program, Cancer Council Queensland, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	Dr Susanna Cramb; Cancer Council Queensland, <i>National Forum on viral hepatitis data linkage studies</i>

08/11/2017	A/Prof Patricia Valery; QIMR Berghofer Medical Research Institute, Qld, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	Dr Angela Young; Policy and Client Services, Population Health Research Network, WA, <i>National Forum on viral hepatitis data linkage studies</i>
08/11/2017	Dr Clare Bradley; Centre for Research Excellence in Aboriginal Sexual Health and Blood Borne Viruses, South Australian Health and Medical Research Institute, SA, <i>National Forum on viral hepatitis data linkage studies</i>
15/03/2018	Dr Nicola Stephens; Department of Health and Human Services (Vic), <i>Attending WHO Collaborating Centre for Viral Hepatitis Epidemiology and Public Health Research Advisory Group meeting</i>
15/03/2018	Liz Birbilis; Department of Health and Human Services (Vic), <i>Attending WHO Collaborating Centre for Viral Hepatitis Epidemiology and Public Health Research Advisory Group meeting</i>
15/03/2018	Lien Tran, Hepatitis Victoria, <i>Meeting of WHO CC for Viral Hepatitis Epidemiology and Public Health Research Advisory Group</i>
22/05/2018	Dr Thomas Tu; Department of Molecular Virology, Universität Heidelberg, Germany, <i>Present a seminar and discuss collaborations</i>

Committees and advisory groups

Centre staff members served on the following governing boards, committees and advisory groups during 2016-2017.

Centre staff	Committee/Group
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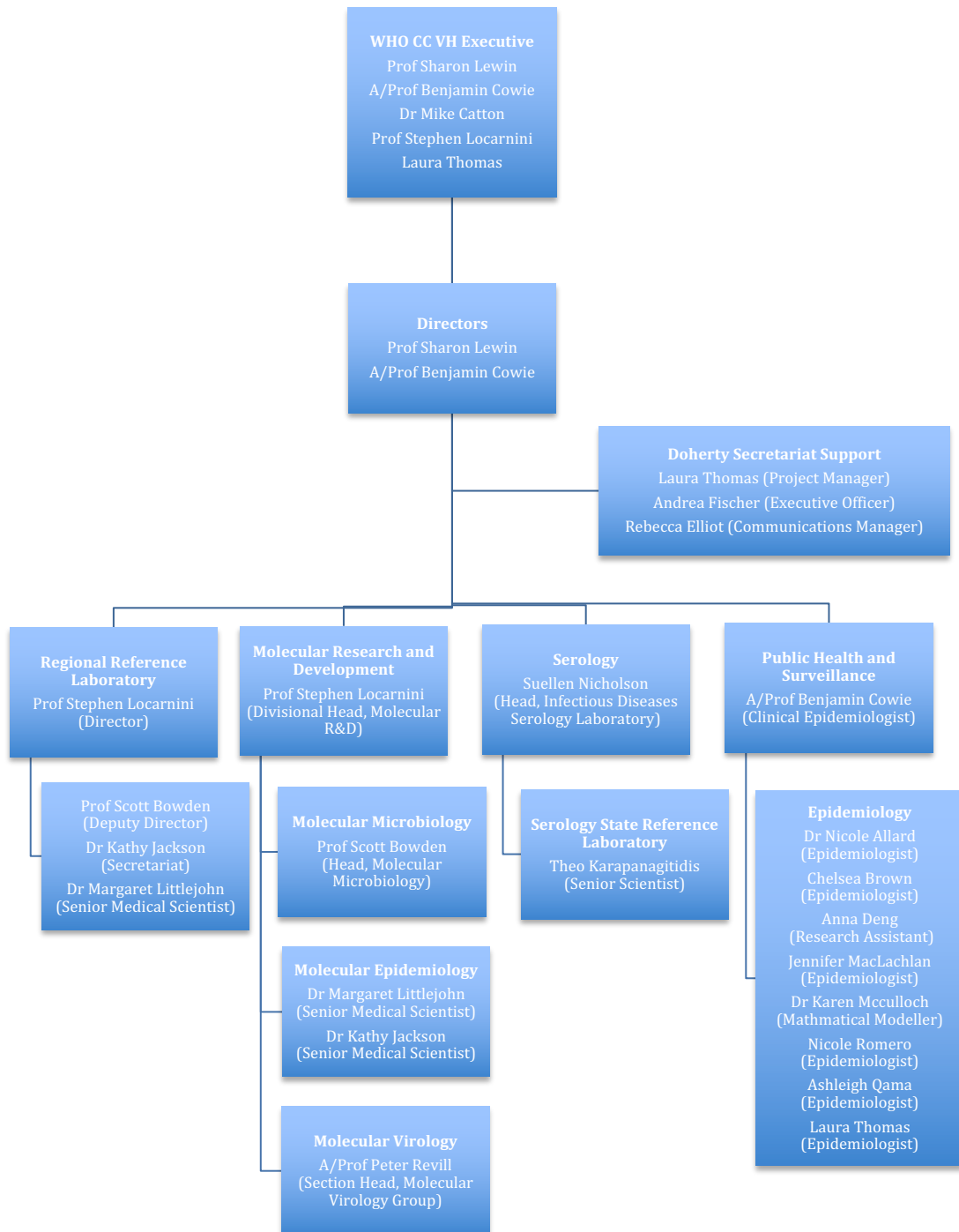
Scott Bowden	<p>Member, Basic Science Committee, Australasian Viral Hepatitis Conference</p> <p>Member, Committee reviewing National Hepatitis B Testing Policy</p> <p>Member, Committee reviewing National Hepatitis C Testing Policy</p> <p>Member, External Peer Review Group, WHO Guidelines on Hepatitis B and C Testing</p>
Stephen Locarnini	<p>Member, External Peer Review Group, WHO Guidelines on Hepatitis B and C Testing</p>
Benjamin Cowie	<p>Chair, WHO Collaborating Centre for Viral Hepatitis Epidemiology and Public Health Research Advisory Group</p> <p>Chair, Abstracts Sub-Committee, World Hepatitis Summit</p> <p>Member, Departmental Advisory Committee on Blood Borne Viruses and Sexually Transmissible Infections, Victorian Government Department of Health</p> <p>Member, Organising Committee, Australasian Viral Hepatitis Conference</p> <p>Member, Organising Committee, Australasian Viral Hepatitis Elimination Conference</p> <p>Chair, Global Hepatitis Programme, WHO Strategic Information and Modelling Reference Group</p> <p>Chair, Submissions Subcommittee, World Hepatitis Summit</p> <p>Member, WPRO, WHO, Hepatitis B Expert Resource Panel</p> <p>Member, WPRO, WHO, Strategic and Technical Advisory Committee for Viral Hepatitis</p> <p>Member, Hepatitis Australia, Hepatitis B Community Education Project Steering Committee</p> <p>Member, National BBV and STI Surveillance Sub-committee, Communicable Diseases Network Australia (CDNA)</p> <p>Committee Member, Victorian Hepatitis B Alliance</p> <p>Member, ICE-HBV Stakeholders' Consulting Group</p>

	<p>Justice Health Clinical Advisory Committee, Victorian Government Department of Justice and Regulation</p> <p>Australian Technical Advisory Group on Immunisation (ATAGI) Special Risk Groups Working Party</p> <p>Associate Editor, BMC Hepatology, Medicine and Policy</p> <p>Joint Editor, Sexual Health, CSIRO Publishing</p> <p>Editorial Board, Infection and Chemotherapy</p> <p>Hepatitis B Clinical Lead and Member, Governance Board, VHHITAL Consortium</p> <p>Co-head, Public Health Cross Cutting Discipline, Doherty Institute</p>
Margaret Littlejohn	<p>Secretary, ACHV</p> <p>Member, ICE-HBV Stakeholders' Consulting Group</p> <p>Member, Planning Committee for World Hepatitis Day and World Indigenous Persons Day</p>
Jennifer MacLachlan	<p>Member, WHO Collaborating Centre for Viral Hepatitis Epidemiology and Public Health Research Advisory Group</p> <p>Member, Epidemiology and Public Health Committee, Australasian Viral Hepatitis Conference</p> <p>Member, Board, Hepatitis Victoria</p> <p>Member, Blood-Borne Virus and Sexually Transmissible Infection Surveillance Data Subcommittee, Victorian Government Department of Health and Human Services</p> <p>Member, Victorian Planning Committee for World Hepatitis Day</p> <p>Committee Member, Victorian Hepatitis B Alliance</p> <p>Member, The Kirby Institute Annual Surveillance Report Advisory Committee</p> <p>Member, Organising Committee, The Doherty Institute Hepatitis B Virus Symposium</p>
Peter Revill	<p>President, ACHV</p> <p>Committee, ICE-HBV</p>

	<p>Member, ICE-HBV Governing Board</p> <p>Member, ICE-HBV Virology Group</p> <p>Member, ICE-HBV Immunology Group</p> <p>Member, ICE-HBV Innovative Tools Group</p>
Laura Thomas	<p>Member, WHO Collaborating Centre for Viral Hepatitis Epidemiology and Public Health Research Advisory Group</p> <p>Member, ICE-HBV Stakeholders' Consulting Group</p> <p>Member, Planning Committee for World Hepatitis Day and World Indigenous Persons Day</p> <p>Member, STI/BBV and Law Strategy Committee, Australian Research Centre in Sex Health and Society (ARCSHS), La Trobe University</p> <p>Member, Abstracts Sub-Committee, World Hepatitis Summit</p>
Nicole Allard	<p>Member, WHO Collaborating Centre for Viral Hepatitis Epidemiology and Public Health Research Advisory Group</p> <p>Committee Member, Victorian Hepatitis B Alliance</p> <p>Member, Board, Hepatitis Victoria</p> <p>Member, Governance Board, VHHTAL</p> <p>Editor, B Positive</p>
Nicole Romero	<p>Member, WHO Collaborating Centre for Viral Hepatitis Epidemiology and Public Health Research Advisory Group</p> <p>Committee Member, Victorian Hepatitis B Alliance</p> <p>Member, Working group for Public Health Cross-Cutting Discipline, Peter Doherty Institute</p>
Chelsea Brown	<p>Member, WHO Collaborating Centre for Viral Hepatitis Epidemiology and Public Health Research Advisory Group</p>
Karen Mcculloch	<p>Member, WHO Collaborating Centre for Viral Hepatitis Epidemiology and Public Health Research Advisory Group</p>

Management and staff

Organisational Structure



Contact Details

	Role	Name	Email
Directors			
	Director	Associate Professor Benjamin Cowie	benjamin.cowie@mh.org.au
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