LA TROBE UNIVERSITY

Australian Research Centre in Sex, Health & Society

Asia Pacific Viral Hepatitis Policy Survey and Assessment: Taiwan

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CEVHAP

Coalition to Eradicate Viral Hepatitis in Asia Pacific

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Table of contents

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1. Executive Summary

Over five hundred million people globally are estimated to be infected with chronic viral hepatitis with most (75%) living in the Asia Pacific Region. Hepatitis B and hepatitis C cause significant global mortality and morbidity with 1,285,000 deaths each year attributable to them and their sequelae of cirrhosis, liver failure and hepatocellular cancer.

The burden of viral hepatitis and liver cancer is significant for Taiwan. Research from Taiwan has changed how the world responds to the infection including identifying the link between hepatitis B and cancer, the transmission of hepatitis B from mother to child, how this transmission can be reduced, the development of a vaccine to halt this transmission, and the implementation and success of a population level vaccination program.

In a reflection of the complex and multifaceted responses needed to reduce the burden of viral hepatitis, significant challenges in the Taiwan response to viral hepatitis remain. These challenges are reflected in the poor understanding and responses to the infection by people with viral hepatitis, barriers in the timely clinical management for the infection and the late clinical presentation of people with chronic viral hepatitis, often with hepatocellular cancer.

This report describes, assesses and analyses the public policy responses to chronic viral hepatitis B, hepatitis C and liver cancer in Taiwan with an aim of identifying the successful components of the Taiwanese approach including existing best practice and public policy strengths and challenges. Data for the report was obtained through semi-structured interviews with clinicians and other professionals working in public health, communicable diseases or public policy advocacy in Taiwan and a review of publicly available policy documents.

The Taiwan response to viral hepatitis is framed within a health system architecture established during the Japanese colonisation between 1895 and 1945. Within this system the impact of infectious diseases was recognised, and disease prevention formed an essential part of the overall health approach. Specific cultural influences exist supporting the response to viral hepatitis in Taiwan with the privileging of the liver within Chinese culture and of the privileged status of medical professionals. More recently the introduction of a population wide health insurance scheme largely addresses economic barriers to accessing health services.

Viral hepatitis public policy advocacy and development in Taiwan has been largely led by specialist clinicians and researchers. Public policy for viral hepatitis was established in 1982 by framing the then sometimes contentious implementation of the hepatitis B vaccination program. With successful advocacy, successive five year plans incorporating treatment and care interventions were developed and implemented.

New models of public policy have been introduced over the past 20 years that could be used to further inform this response. These include the World Health Organization Prevention and Control of Viral Hepatitis Infection: Framework for Global Action and the Ottawa Charter for Health Promotion, both of which could be used to evaluate and reframe current responses to viral hepatitis.

The significant prevalence of viral hepatitis within the community, the silence of the infection at an individual level, and the level of activity that has been harnessed in Taiwan over many years provides a unique set of problems. While there are only few barriers to the physical access to treatment and care services for people with viral hepatitis, they are significant.

People with viral hepatitis are often not engaged fully in responding to their infection. This may result from a passive process where people are screened but not comprehensively informed in ways that are accessible to a member of the public of the impact of the infection, including its natural history, and how people with the virus can best respond to the infection. While most people with viral hepatitis require clinical monitoring, only a minority require pharmaceutical treatment. Framing government policy and health promotion resources from the perspective of a person living with viral hepatitis will be more accessible, accurate and meaningful.

Understanding and describing viral hepatitis as a chronic illness requiring regular monitoring, as opposed to an infection of the liver or as a communicable disease requiring pharmaceutical treatment could provide insights into improving compliance and strengthen relationships between people with viral hepatitis and their clinicians. The provision of clinical management including pharmaceutical treatment occurs through public hospitals and essentially limits access to this clinical management. The development of new models of care involving community based physicians, and particularly with the use of specialist hepatology nurses would increase the number and reach of services in which people with viral hepatitis could access services.

A sizeable proportion of the Taiwan population has viral hepatitis and they are an important resource which is not systematically used in the Taiwanese response to the infection. Many people with viral hepatitis come from families in which the infection has been an issue for generations. There will be a vast reservoir of knowledge in how these individuals and families respond to viral hepatitis, which if systematically investigated could be of use for policy developers and implementers in Taiwan.

Viral hepatitis is a largely silent infection at an individual level, and participants were concerned of complacency within government given its long term commitment to reducing the burden of infection. This commitment has been generated by the dedication of researchers and clinical specialists over many years. This report highlights that the long journey is still required.

2. Introduction

It is estimated that, globally, over five hundred million people are infected with chronic viral hepatitis with most (75%) living in the Asia Pacific Region. Hepatitis B and hepatitis C cause significant global mortality and morbidity with 1,285,000 deaths each year attributable to them and their sequelae of cirrhosis, liver failure and hepatocellular cancer.(1) Despite effective prevention interventions particularly with vaccination for hepatitis B, and an increasing range of effective treatment options for both hepatitis B and hepatitis C, the burden of chronic viral hepatitis on health systems within the region will continue to increase unless strategic, coordinated and integrated public health responses are implemented within and across the region.

This report describes, assesses and analyses the public policy responses to chronic viral hepatitis B, hepatitis C and liver cancer in Taiwan with an aim of identifying the individual components of the Taiwanese approach including existing best practice and public policy strengths and challenges.

The Coalition to Eradicate Viral Hepatitis in Asia Pacific (CEVHAP) is a non-profit organisation dedicated to public policy reform to reduce the significant health, social and economic burden of viral hepatitis in the Asia Pacific region. This project is among a number of projects being conducted through CEVHAP to determine and assess the constituent elements of a comprehensive and effective public health response to viral hepatitis throughout the Asia and Pacific region.

Taiwan was selected given the numbers of people with chronic viral hepatitis within its jurisdiction, the existence of a civil society and a clinical infrastructure related to blood borne viruses including HIV/AIDS and hepatitis. Identifying gaps within, or barriers to, these structures can then be used to identify policy issues in which advocacy interventions within specific countries and across the region can be developed. The methodology used in this pilot project will be evaluated to identify how it can best be adapted and replicated for additional policy assessments in other countries in the region.

Taiwan is recognised internationally for its pioneering role in preventing the transmission of hepatitis B. This role is recognised through innovative research identifying the link between hepatitis B and cancer,(2) the transmission of hepatitis B from mother to child,(3) how this transmission can be reduced,(4) the development of a vaccine to halt this transmission, and the implementation and success of a population level vaccination program.(5, 6) This leadership was reinforced with clinical research over the past three decades which has transformed how hepatitis B and hepatitis C treatments are delivered. In spite of this, significant gaps in the

Taiwan response to viral hepatitis remain. These gaps are essentially reflected by the poor understanding and responses to the infection by people with viral hepatitis, with only a minority accessing timely clinical management for their infection, and the late clinical presentation of people with chronic viral hepatitis often with hepatocellular cancer (7). Hepatitis D is not specifically addressed in this report, given the primacy and focus of government responses to hepatitis B and hepatitis C and the relationship of these viruses with liver cancer.

This policy assessment reviewed literature and conducted a series of interviews with key participants and/or partners in the national response to chronic viral hepatitis in Taiwan. They include clinicians, government officials, advocates, representatives from non-government organisations, and pharmaceutical companies. The interviews were conducted in Taiwan during June/July 2012.

3. Rationale

This policy assessment was conducted given the international focus on the development of public policy responses to reduce the burden of chronic viral hepatitis since 2009. This activity has included:

Viral Hepatitis: Global Policy, by the World Hepatitis Alliance (2010)

Sixty-third World Health Assembly resolution WHA63.18 on Viral Hepatitis (2010)

World Health Organization, Prevention and Control of Viral Hepatitis Infection: Framework for Global Action (2012).

The first document, from the World Hepatitis Alliance, *Viral Hepatitis: Global Policy* (8) mapped national government policies and programs targeting viral hepatitis with data collected through self-reported surveys of health ministries/departments across all World Health Organization member states. The report summarised viral hepatitis prevention and control programs and policies at global, regional and country level according to six key themes: policy; awareness and education; surveillance; testing; treatment, and care; and civil society engagement. Data for the document were obtained through self-report from respective government sources and the report notes that "the existence of a policy or programme cannot be taken as testament to its implementation, effectiveness or comprehensiveness." The diplomatic status of Taiwan is contentious. Taiwan is not a member of the World Health Organization, and while attending and presenting at the World Health Assembly since 2009 as Chinese Taipei,(9) the mapping of policy conducted by the World Hepatitis Alliance did not occur within Taiwan.

In 2010, the Sixty-third World Health Assembly adopted resolution WHA63.18 which acknowledge the impact of chronic viral hepatitis and provides the rationale and designates the 28 July of each year as World Hepatitis Day.(8) The resolution urged member states to undertake a range of activities and requested the Director General to establish the development of 'guidelines, timebound goals, strategies and tools for the prevention and control of viral hepatitis.'

The third global response is the World Health Organization, Prevention and Control of Viral Hepatitis Infection: Framework for Global Action.(10) This framework, released in 2012, declares the World Health Organization vision of a world where viral hepatitis transmission is stopped and where everyone has access to safe and effective care and treatment through the development of a public health approach to reducing the burden of infection. The framework identifies four axes in which activity is required:

1. Raising awareness, promoting partnerships, and mobilising resources
2. Evidence-based policy and data for action
3. Prevention of transmission
4. Screening, care and treatment.

Policy interventions specifically addressing chronic viral hepatitis should seek to reduce the burden of infection and its sequelae at an individual and health systems level by assessing the scope of the problem, identifying strategies and prioritising activities that aim to reduce the current and future burden of infection, and by identifying the key partners and other stakeholders required to implement the interventions. This could include policies specifically addressing prevention; access to screening, testing and clinical management including treatment; and identification of barriers for people with chronic viral hepatitis to participate in these interventions. Unlike responses to other blood borne viruses such as HIV/AIDS, where countries in the region have developed integrated and specific policy and regulatory infrastructure to coordinate responses to reduce the burden of HIV infection, there is little evidence of policy coordination implemented in response to chronic viral hepatitis.

While many challenges are country specific, there are a number of issues that are common across the Asia Pacific that were identified at the Hepatitis B Policy Workshop held alongside the 20th Conference of the Asia Pacific Association for the Study of the Liver (APASL) in Beijing in March 2010.(11) These issues included:

- Low patient and public understanding of the disease and its implications
- Differing opinions among medical experts on best clinical management regime
- Lack of effective prevalence and/or surveillance data in many countries
- Lack of policy coordination across different areas of government
- No identification of common advocacy messages or coordination of advocacy activity amongst stakeholders within specific countries or across the region
- Competing priorities for policy makers/short term focus of governments.

This policy assessment is innovative in its approach by interviewing key participants using a qualitative methodology to identify and interrogate policy identified by key participants. The use of this methodology provides the opportunity to explore and capture the complexity of experiences described by participants in relation to the response to viral hepatitis in Taiwan, particularly in the connection between the development of policy, and of the practical implications of its implementation. There are limits to this qualitative approach and the analysis does not claim to be representative but seeks to provide useful insights to inform the direction and development of strategic and programmatic interventions.

4. Methodology

The project was conducted in two stages with approval from the La Trobe University Faculty of Health Sciences, Human Ethics Committee (approval FHEC 12/6).

Stage one consisted of semi-structured interviews with 26 key Taiwan based participants identified through their participation in CEVHAP or the Taiwan Association for the Study of the Liver. Semi-structured interviews provided the flexibility to investigate unexplored topics with the schedule revised as interviews progressed to investigate emerging themes.(12) The semi structured interviews consisted of the following questions:

- What health or social issues affect people with chronic viral hepatitis in Taiwan?
- What organisations are involved in responding to chronic viral hepatitis? (Clinical/Specialist/General practitioner/Community/Patient support/Prevention)
- How do people with chronic viral hepatitis find out that they are infected?
- How are people with chronic viral hepatitis clinically managed?
- To what health services are they referred?
- What public policies affect these processes?
- Who develops health policy? How is this done?
- Who implements health policy?
- What are the structures of health policy development and implementation?
- Are there barriers to these processes? What are these barriers?
- Would an effective public policy response to chronic viral hepatitis in Taiwan look like? What are the barriers to achieving this?

Additional participants were identified after an internet web search of professionals working in public health, communicable diseases or public policy advocacy in Taiwan or as a result of referral from another participant. While people with hepatitis were not purposively recruited to the project, two of the sample voluntarily disclosed their individual experience of living with the infections. Participants documented the health policy infrastructure operating in Taiwan including funding and policy arrangements; clinical organisations and structures, and formal and informal participants and drivers of hepatitis-related policy including academic and non-government organisations. The majority of interviews were held in English with a Mandarin speaking interpreter available when required.

Data collected from interviews in this stage were in a qualitative form with interviews electronically recorded, transcribed and verified. Transcripts were analysed using Nvivo 10 (QSR International Pty Ltd, VIC, Australia) by organising data into codes in which main themes were

identified. The data was indexed with an interpretation developed through the creation of typologies and associations between themes.

Data gathered during stage two of the research was desk-based and focused on publicly available policy responses, with the translation of documents arranged if necessary. Most policy fell, although not exclusively, within the scope and responsibility of respective health authorities and included:

- Primary prevention programs including public education campaigns, vaccination, blood supply safety and antenatal care
- Secondary prevention including testing, screening, diagnosis, notification and reporting of hepatitis B and hepatitis C
- Access to treatment, and coordinated and strategic activities seeking to improve access to treatment
- Links to other health, social and economic policy areas including maternal health, human rights and cancer prevention.

5. Chronic Viral Hepatitis and Liver Cancer – the Taiwan Context

Taiwan is a Pacific Ocean island physically separated from mainland China by the Taiwan Strait. The island was historically known as 'Formosa', from the Portuguese, *Ilha Formosa* meaning beautiful island. While the political context of Taiwan has been particularly complex since 1944, the Australian Government describes Taiwan as currently having a "vibrant democracy" since the end of an era of martial law in 1987.

Taiwan had a population of 23,224,912 in 2011. The Taiwan Centers for Disease Control report approximately 2.5 million people living with chronic hepatitis B (surface antigen positive) and 700,000 people with hepatitis C (RNA positive),(13) a population prevalence of 10-15% for hepatitis B and 2-5% for hepatitis C. Significant variations in the hepatitis C population prevalence exist with 2.1% of the population in Taipei infected, rising to 26.5% of the population in Taitung County with an increasing prevalence rate associated with age.

Hepatitis B and hepatitis C virus infections are the major causes of cirrhosis, hepatoma and other liver disease which together constituted the eighth leading cause of death in Taiwan in 2011. Hepatitis B accounts for 1% of the total inpatient expenditure (14) with significant socio-economic savings expected to result from its successful control.(15)

Of the 152,030 people who died in Taiwan in 2011, 42,559 people died of cancer, which has been the leading cause of death in the country since 1962. The top three cancers are cancers of the lung, liver and colorectal system, with cancers of the liver and bile ducts accounting for almost 19% of all cancer related deaths, or 11,077 people in Taiwan (16) with an additional 5,153 people dying as a result of chronic liver disease and cirrhosis in 2011. The Department of Health, in their report of deaths in Taiwan in 2011-2012, notes the median age of death has increased, with the exception of chronic liver disease and cirrhosis and that the ranking of deaths from cirrhosis and liver disease has dropped from the 6th highest cause of death to the 8th leading cause of death. Other public health issues affecting Taiwan identified by the Taiwan government include:

- An ageing population with a low birth rate with estimates of 20% of people in Taiwan being over the age of 65 years by 2025 and with the country being defined as a "super-aged" society by the United Nations.
- Tobacco
- Obesity

- Tuberculosis, described by the Department of Health as Taiwan's "most dangerous communicable disease" with 638 people dying as a result of the infection in 2011
- HIV, with 22,822 people infected with the virus including 2,028 new infections in 2011. The proportion of new HIV infections from unsafe injecting dropped from a high of 72% in 2005 to 5% in 2011. The government identifies this reduction occurring as a result of the implementation of a harm reduction plan in 2008, which included the distribution of sterile injecting equipment, drug substitution programs, and information, education and communication strategies
- Influenza A (H1N1)
- Dengue Fever with 1702 cases and five deaths reported in 2011 concentrated mainly in southern Taiwan and Penghu County
- Outbreaks of enterovirus, which resulted in 177 deaths of young children between 1998 and 2001.

6. Health delivery context

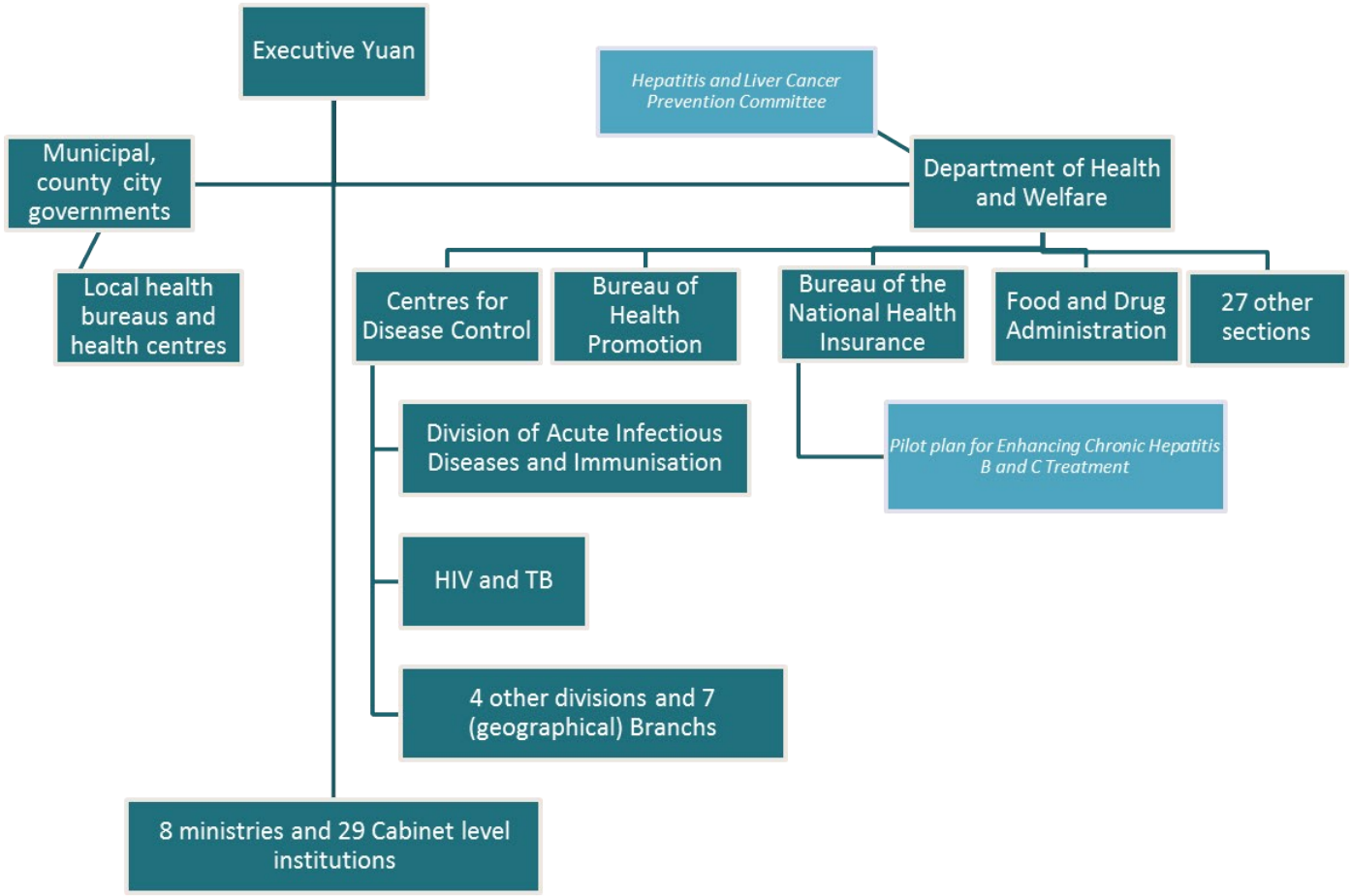

Figure 1 - Hepatitis Policy and Service Structure

The Taiwan national government consists of the Office of the President and five branches, the Executive Yuan, Legislative Yuan, Judicial Yuan, Examination Yuan and Control Yuan. The Executive Yuan has a council (or Cabinet) comprised of the premier, who chairs its meetings, the vice premier, the heads of ministries and commissions, and ministers without portfolio. There are eight ministries and 29 other Cabinet-level organizations under the Executive Yuan including the Ministry of Health and Welfare (also known as the Department of Health).

Health service delivery operates at two levels: at the national level through the Department of Health, and through municipal, county or city health authorities. The Department of Health provides technical assistance, supervision and coordination of local health agencies. The

Centers for Disease Control, Bureau of Health Promotion and Bureau of National Health Insurance are described as 'affiliated organisations' within the Department of Health. Regulatory authority for communicable disease prevention occurs through the Communicable Disease Control Act, and the HIV Infection Control and Patient Rights Protection Act.(17)

The Centers for Disease Control (CDC) are described by the Department of Health as being responsible for developing communicable disease control strategies and for the supervision, direction and evaluation of communicable disease programs conducted by local health authorities. Viral hepatitis related activity, including prevention and clinical management falls under the responsibility of the Division of Acute Infectious Diseases and Immunization within the Centers for Disease Control.

Examples of city or municipal level health activity include the Taipei City Health Department, which contains a Division for Disease Control and Prevention responsible for implementing immunisation programs and a Health Promotion Division. In addition, the city health department is responsible for the operation of hospitals and other clinical settings including community based health centres and the provision of liver cancer screening through their cancer control program. The Kinmung Branch of the Taipei City Health Center includes harm reduction programs including needle and syringe programs, the provision and operation of methadone programs and the Research and Development Center for Sexually Transmitted Diseases and AIDS.

At the city/county level, each local government has a Bureau of Health that handles health-related issues and supervises health stations within its administrative region. These health stations are a distinctive feature of Taiwan's public health network and their history has been traced to the medical police system of the Japanese colonial period. A health station has a medical-administrative director and several public health nurses, the number of which depends on the assigned workload and area of concern. Health stations provide physical checkups, routine vaccinations including hepatitis B,(17) following up people with major illnesses, reporting local health issues, promoting health education and, in many rural areas, providing basic medical outpatient care.

Taiwan has a national premium-financed health insurance system, the National Health Insurance.(18) This scheme commenced in 1995 and is a mandatory medical insurance scheme providing a broad range of medical coverage including Traditional Chinese Medicine and dental services. The Bureau of National Health Insurance states that 99% of the entire population are covered by this insurance, with the remainder consisting of foreign nationals within their first six months of residence or who are not employed, or Taiwanese living outside of Taiwan. Prisoners have recently been included into the scheme (2012).

People with insurance have access to more than 19,000 health care facilities that have contracts with the Bureau of National Health Insurance. These facilities include inpatient and ambulatory care, dental services, traditional Chinese medicine therapies, obstetric services, physical rehabilitation and chronic mental illness care, among other services. Most forms of clinical management such as treatment access and surgery are covered by the system including examinations, laboratory tests, prescription medication, medical materials and paraphernalia, limited home nursing care and certain over-the-counter drugs.

Funding of the insurance scheme is split between employees (paying 30% of the premium), employer (60%) and the central government (10%). Premiums for people on low-incomes are covered by the central government with subsidies or interest-free loans to cover premiums provided to other disadvantaged groups, including certain rural residents, indigenous people and low-income groups.

Co-payments exist for people accessing hospital services and for drug prescriptions with this co-payment being 'to remind the insured that medical resources are used to help people who are ill or injured and should not be wasted under any circumstances."(19) This payment ranges from $NTD50/US$1.67 for dental care and Traditional Chinese Medicine to $NTD450/US$15 for emergency care and people accessing outpatient care at a hospital without a referral pay an additional $NTD150/US$5.00 (2011). Exemptions for people or populations experiencing barriers to health services (20) with co-payments capped at NT$52,000/US$1,750 per health condition per calendar year.(21) A recent amendment to the National Health Insurance system (2012) includes a 2% supplementary premium charge on part-time income, stock dividends, interest earnings, rental income, professional practice income and bonuses exceeding four months' salary. The Bureau of National Health Insurance currently reimburses contracted health care services on a cost for fee basis and from 2013 is moving to a diagnosis related payment system, which includes hepatitis B and hepatitis C, with an aim of limiting the overuse of clinical resources.

The development and implementation of the national insurance scheme has occurred within the context of much debate. Some of the key issues and research findings surrounding the implementation of National Health Insurance include an increase in accessibility (22, 23) and demand for health services (24) without an increase in waiting times.(23) A narrowing in health disparities across the country has been found,(23) with the availability of access to health services according to need,(25) and a noticeable improvement in the geographical distribution of western and Chinese medicine health care professionals and dentists.(26)

In terms of the impact of National Health Insurance on physicians, the lack of a 'gate-keeper' or referral protocols has been reported to increase access to specialist services within a context of an increasing lack of physicians (22, 27) with physicians seeing more patients per hour

compared to those in “Western countries.”(24) There is a reported variable quality of care (22, 28) and the scheme as a whole faces increasing financial pressures, while having low administrative overheads.(22, 24, 28) The pharmaceutical industry are reported to be concerned that drug prices in Taiwan are “unsustainably low” with delays in new drug approvals affecting the willingness of drug companies to launch drugs in the country.(24, 29)

In terms of the physical infrastructure of the health care system, the Department of Health reports just over 69 hospital beds per 10,000 population, in a total of 507 hospitals. While this number of hospitals is decreasing over time, there is a gradual increase in the number of medical clinics.

The context in which activity to reduce the individual and social impact of viral hepatitis is framed by a well-established and relatively stable government, with clear and defined structures in which government supported policy and activity is undertaken. The introduction of the Bureau of National Health Insurance successfully provides access to health care services for the vast majority of the population with an effective and resourced physical infrastructure in which health services are provided.

7. Viral Hepatitis Context

Hepatitis B

- 2,400,000 (975,000 women, 1,446,000 men) are infected with chronic hepatitis B in Taiwan
- Between 10-15% of the Taiwan population have chronic hepatitis B
- 417 acute cases occur per year
- 67,411 people with hepatitis B received treatment between Oct 03 to Dec 10
- Hepatitis B is prevented by vaccination
- 96.59% of babies received their 3rd hepatitis B vaccination dose in 2009
- 99.55% of elementary school students received their 3rd vaccination dose in 2009.

Hepatitis C

- 700,000 people in Taiwan are chronically infected with hepatitis C
- Between 2 – 5% of the Taiwan population have hepatitis C
- 36,641 people with hepatitis C were treated between Oct 03 and Dec 10
- Over 4,000,000 needles and syringes distributed in 2009.

Liver cancer

- 42,559 people died of cancer in 2011, 11,077 of them as a result of cancers of the liver and bile ducts
- Hepatitis B causes 70% of liver cancer, while hepatitis C causes 20% of liver cancer
- An additional 5153 people died in 2011 as a result of chronic liver disease and cirrhosis
- Treatment for hepatitis reduces liver cancer. Of 1068 people surveyed: 82% had been tested for viral hepatitis and 70% did not know the relationship between hepatitis and liver cancer.

7.1. HEPATITIS B

Taiwan has often led the world in understanding and responding to viral hepatitis and its impact. Pioneering research from Taiwan identified processes for detecting liver disease, the use of liver biopsy, the link between hepatitis B and cancer,(2) the transmission of hepatitis B from mother to child,(3) how this transmission can be reduced,(4) the development of a vaccine to halt this transmission, and the implementation and success of the implementation of a population level vaccination program.(5, 6)

The Centers for Disease Control estimates that just under 1 million (975,000) women and 1,446,000 men in Taiwan have chronic hepatitis B with 172-417 confirmed acute cases occurring annually between 2001 and 2010(13) and with the number of women with chronic hepatitis B identified through prenatal screening declining from 17.2% in 1998 to 9.7% in 2010. Chen found a 17.3% prevalence of hepatitis B decreasing for people over the age of 50, with significant geographic variations and greater prevalence being found in Keelung City and Yilan City.(30)

Taiwan was the first country in the world to introduce a nation-wide hepatitis B vaccination program.(7, 31) From July 1984 to June 1986, newborns of high-risk HBsAg-positive mothers were vaccinated,(32) with the programme extended from July 1986 to include all newborns, and further extended to all preschool children from July 1987 to June 1988 who missed the scheduled vaccination. Health care personnel were added to the vaccination programme in 1987 and in 1990, the programme covered all elementary school children with vaccine records checked for all school entrants.(31) The vaccination not only significantly reduced the prevalence of hepatitis B among young people in Taiwan, with chronic hepatitis B prevalence declining from 10.5% prior to the immunisation program to 0.8% but also produced a significant decline in liver cancer incidence among children and young adults.(6)

The Risk Evaluation of Viral Load Elevation and Associated Liver Disease/Cancer-Hepatitis B Virus, more commonly known as the REVEAL study, was conducted in Taiwan and investigated the natural history of chronic hepatitis B. This community-based prospective cohort study enrolled 23,820 participants during 1991–1992 from seven townships in Taiwan. Serum samples were collected at study entry and tested for hepatitis B surface antigen (HBsAg) and e antigen (HBeAg), antibodies against hepatitis C virus, alanine aminotransferase (ALT), and a-fetoprotein (AFP). Incidence of liver cancer, cirrhosis and liver related mortality were significantly associated with hepatitis B viral load (DNA) and genotype. The study also showed that people with inactive hepatitis B had an increased risk of liver cancer and liver-related mortality compared with people who were HBsAg-seronegative.(33, 34)

Hepatitis B is the leading cause of liver cancer.(35) The need to effectively treat people with hepatitis B is highlighted by Fwu et al (2010) in their finding of excess risk of death due to both liver-specific and non–liver-related causes for women with chronic hepatitis B in Taiwan. The authors recommend effective prevention and treatment of hepatitis B virus infection as an important public health priority.(36)

While there are high rates of vaccine coverage,(37) with the CDC describing hepatitis B immunisation coverage for babies born in 2009 being 97.83% for the first, 99.8% for the second and 99.55% for the third dose among elementary school students there is a continued need for ensuring the efficacy of the vaccine over time.(38) There are several reasons identified as

supporting the success of the implementation of the vaccination program in Taiwan including the commitment and determination of the government to reduce the burden of the infection; a range of government and academic institutions involved in the implementation of the program; a well-designed public health infrastructure; highly trained nursing staff; public education taking place over a three year period, and the careful design and evaluation of the program.(7, 31, 39)

Screening for viral hepatitis in Taiwan commenced in 1984 with the screening of pregnant women. Screening currently (2013) occurs through:

- Ante-natal screening
- A national disease screening program for all adults over the age of 45 years
- Screening conducted by non-government organisations
- Entry into university and within some workplaces
- Blood donation.

The Center for Disease Control describes activities including the screening of children born to mothers who are e-antigen positive even after immunoglobulin and immunoprophylaxis. Screening for viral hepatitis occurs in a context where surveys of the general community show reluctance of using screening services when they have no symptoms. Another survey of 19,000 people conducted by the Bureau of Health Promotion, the National Health Research Institutes and the Bureau of Controlled Drugs showed a lack of knowledge about screening services and their eligibility to access these services.(40)

The “National Health Insurance Chronic Hepatitis B and C Treatment Plan” was initiated in 2003 to treat people with chronic viral hepatitis. The 2011 CDC Annual Report reports that the Hepatitis B and C Trial Treatment Program treated 67,411 patients with hepatitis B and 36,641 patients with hepatitis C between October 2003 and December 2010.(60)

Treatment for viral hepatitis is available through public hospitals with the two main antiviral treatments for hepatitis B being interferon and nucleoside/nucleotide analogues. Lin and Kao (41) note the recommendations of the American Association for the Study of Liver Disease (AASLD), the European Association for the Study of Liver (EASL), and the Asian Pacific Association for the Study of Liver (APASL) and that indications for hepatitis B treatment should include quantitative serum hepatitis B DNA level, alanine aminotransferase (ALT) level and/or histological severity. Government reimbursement of hepatitis B treatment is limited to three years in duration with exemptions.

While treatment is available, and of a world class standard in Taiwan, barriers to treatment include low awareness amongst people with chronic hepatitis B particularly in their

understanding of the need for regular monitoring of the infection, insufficient knowledge on the part of physicians of the importance of timely treatment, and financial barriers.(7)

Stigma and discrimination related to blood borne infections has been reported as reducing access to health care services.(28, 42-44) Little research has occurred in Taiwan on these issues with one study of Taiwanese university students (45) comparing knowledge, health beliefs and self-efficacy toward hepatitis B prevention. This study found that most students (regardless of hepatitis B status) reported they would be afraid to tell friends if they were infected with hepatitis B, and would be afraid of being infected if their friends had hepatitis B, suggesting confusion in relation to transmission and prevention related issues.

7.2. HEPATITIS C

The Centers for Disease Control identifies a population prevalence of hepatitis C of 4.4% in Taiwan. Chen (46) reported in 1990, that 0.95% of 420 volunteer blood donors were infected with hepatitis C with the infection being extremely common among people with haemophilia (100%) and people who inject drugs (81%). Lee et al (47) described hepatitis C prevalence in Taiwan of 0.28% among 1,419 “healthy” people and 0.8% among 500 unselected paid blood donors (1991). In terms of people at higher risk of the infection, both Lee and Chen found high risk groups included people with haemophilia, people with HIV, people who inject drugs and haemodialysis patients with transmission associated with poor infection control and frequent medically-based injection.

Hepatitis C prevalence is higher among older people, with specific geographical differences in hepatitis C prevalence ranging to 26.5% in Taitung County. Sun (48) found in a community based survey in seven Taiwan townships significant geographical differences in hepatitis C prevalence ranging between 1.6% - 19.6% with a relationship between blood transfusion, medical injections, acupuncture and tattooing.

In terms of prevention, hepatitis C transmission occurs primarily among people who inject drugs in a context where the Department of Health report the number of cases of HIV among people who inject drugs increasing from 18 in 2002 to 624 in 2003. During this period, the proportion of HIV transmission related to unsafe injecting rose from 9% of new infections in 2003 to 72% in 2005 (49) within a context of a rapid increase in overall HIV diagnoses.(50) A 2013 study found 90% hepatitis C prevalence among heroin users seeking entry into a drug substitution program, with only one-third of the sample being aware of their hepatitis infection.(51) This, and other studies, have found that the majority of people with HIV infected through unsafe injecting are also infected with hepatitis C.(50)

The rapid increase in HIV infections, particularly among people who inject drugs led to the Centers for Disease Control introducing a harm reduction program, initially in four administrative areas and then nationally, with the distribution of sterile injecting equipment in November 2005; drug substitution program in February 2006; expansion of access to HIV diagnostic testing and the development of health education and counselling interventions for people who inject drugs. The success of the program is demonstrated by the areas in which the program was not introduced showing significant increases in HIV incidence.(52)

Another form of hepatitis C prevention occurs through reducing the number of injections among people who inject drugs by prescribing drug substitutes, primarily methadone. This drug substitution program commenced in 2005 in consultation with the Department of Justice and dispenses methadone through 60 services to approximately 15,000 people. The program is funded directly through the Taiwan Centers for Disease Control rather than the Bureau of the National Health Insurance with methadone dispensed through public hospitals. Retention rates of people on the methadone program are similar to other jurisdictions with 41% one year after commencement, and 43% after 18 months.(53) No feedback was provided by people accessing the program and therefore it is not possible to identify people's reasons for continuing or discontinuing in the programme. One study reported a sero prevalence of 18.5% for hepatitis B and 89.9% for hepatitis C among people accessing the methadone program through two hospitals, with only 3.4% of people using methadone who were infected with hepatitis C receiving treatment for the infection.(54)

In 2009, there were a reported 1103 needle and syringe program sites in Taiwan distributing over 4,000,000 needles per year with 9000 people who inject drugs accessing these sites over a 12 month period. Needles and syringes can be purchased at over 7,000 pharmacies without prescription.(55)

While hepatitis treatment is free of charge and available, studies show people who inject drugs experience barriers to treatment and other health services in Taiwan.(56, 57) Lin et al found that only four out of 15 (26.7%) people in their study who inject drugs and who were infected with HIV were under regular clinical treatment for their HIV infection, with the authors noting barriers to treatment access including fear of police intervention near hospitals, and the inability to afford hospital co-payments.(58) People who inject were also noted as experiencing poor levels of family support, with injecting drug use resulting in stigma within the community and among health service providers.(57)

Research suggests that hepatitis C treatment, while having potential long term benefits impacts negatively on quality of life in the short term. Taiwanese research shows that people experiencing hepatitis C infection were noted as having impaired quality of life before treatment, which further reduced during treatment and improved 6 months after successful

treatment.(59) Another study showed financial stress and lack of family support affected quality of life of people with hepatitis C undergoing treatment.(60)

Lee et al found a reduction in mortality of liver cancer among younger people and that while the proportion of hepatitis B liver cancer in Taiwan progressively decreased between 1981 and 2001, it was proposed that there was an increase in hepatitis C virus related liver cancer.(61)

8. Policy Context

Government responses to reducing the burden of viral hepatitis infection and liver cancer have been detailed through regular 5-yearly plans since 1982. These responses were originally developed as a result of hepatitis prevention being selected as one of eight priorities within the Taiwan Science and Technology Development Program, established by the Taiwan government in 1978 to develop scientific expertise.(62) The 5-yearly plans are developed by the Centers for Disease Control on advice from a Department of Health Hepatitis Prevention Committee, originally established in 1981 and initially chaired by Prof JL Sung, (63) who has been described as the *father of hepatology and gastroenterology in Taiwan.*(64)

The plans aim to reduce the morbidity and mortality associated with hepatitis B.(64, 65) The focus of the program in its initial development, while having several components, was to prevent "perinatal transmission through immunisation."(31, 66) Professor DS Chen notes the changing focus of this program with the inclusion for the treatment of viral hepatides being included in the aim in 2002.(64) The Taiwan Centers for Disease Control (13) described the priorities of these plans as:

- Improving the surveillance system for acute cases
- Severing hepatitis A infection paths
- Enhancing health education on liver disease control
- Improving blood transfusion management
- Raising hepatitis examination quality.

In their 2011 and 2012 Annual Reports, the Centers for Disease Control state that in relation to viral hepatitis, the department will "move in the following directions: early detection and screening of hepatocellular carcinoma and seeking effective hepatitis treatment."(13)

Current government policy, including funding, is detailed in the current Prevention and Treatment plan for Chronic Viral Hepatitis (First Stage Plan, 2012-2016).(67) This plan contextualises activity to reduce the burden of chronic viral hepatitis with the following information:

- More than 3 million adults are infected with either hepatitis B or hepatitis C in Taiwan with these viruses being the predominant reason for deaths from liver cancer with up to 50,000 people having accessed funded treatment for the infections
- Based on prenatal hepatitis B screening, the rate of chronic hepatitis B infection dropped from 17.2% in 1989 to 9.7% in 2010

- There is a hepatitis C prevalence of 4.4% among adults with a higher prevalence among older people, and with significant geographical differences of the lowest prevalence existing in Taipei at 2.1% ranging to a prevalence in Taitung County of 26.5%
- There are concerns that the duration in which the hepatitis B vaccine is effective has not been confirmed
- That children born to mothers who are e-antigen positive have a 10% risk of experiencing a chronic hepatitis B infection
- The general community have a poor understanding of the link between hepatitis and poor health outcomes such as cirrhosis and cancer despite most respondents in the relevant study being tested for hepatitis
- A survey of people with hepatitis B showed that 45% did not conduct regular monitoring and 15% had no knowledge of hepatitis B treatment
- That regular monitoring of hepatitis B and hepatitis C reduces the incidence and mortality of liver cancer
- A telephone survey finding that 32 out of 107 people with chronic viral hepatitis failed to consult doctors with the reasons being lack of obvious symptoms (79.4%), too busy (17.8%), and not knowing where to find suitable doctors (11.1%).

The Prevention and Treatment plan for Chronic Viral Hepatitis, in its Future Forecast assumes the number of people with chronic hepatitis B will continue to decrease as a result of vaccination; that migration from high prevalence countries will affect prevention and treatment access, and that the sharing of injection equipment contributes to the numbers of people infected with hepatitis B and hepatitis C.

Current interventions described in the plan include:

- Hepatitis B vaccination for all new-borns
- One hepatitis B and one hepatitis C screening for every person born in or after 1966
- Hepatitis B and hepatitis C screening available for pregnant women and people over the age of 40 years as part of a comprehensive health check conducted at municipal or city levels
- Access to hepatitis B and hepatitis C treatment for people meeting specific requirements.

The prevention of hepatitis C transmission through the implementation of harm reduction initiatives such as the distribution of needles and syringes and drug substitutions programs fall under the responsibility of the HIV/TB Division of the Centers for Disease Control.

The goals of the plan are to reduce the mortality from cirrhosis and chronic hepatitis by 50% from 2008 figures through public education, increased screening of people between 45 and 65 years and of the number of people accessing treatment. A series of challenges are noted as are performance indicators and assessment criteria. The plan will be implemented by:

- Raising community awareness of hepatitis B and hepatitis C prevention in primary schools and a print and electronic media campaign
- Promoting hepatitis B vaccination
- Encouraging the community to have screening tests
- Developing a hepatitis B and hepatitis C screening data base
- Encouraging people with hepatitis B and hepatitis C to access treatment services and reduce the harm associated with chronic hepatitis infection
- Establishing a referral system including a medical record for pregnant women diagnosed with chronic hepatitis
- Continuously revising treatment guidelines
- Evaluating the implementation strategies.

Access to viral hepatitis treatment is to be broadened by increasing the number and breadth of medical services able to treat and a 'relaxation' of the criteria for medication use including replacing liver biopsy with DNA testing, extension in the length of time available for hepatitis treatments and the provision of Tenofovir as a first stream medication for hepatitis B.

The total financial commitment provided by the Taiwan government for implementing the plan over the five years to 2016 totals $TWD20,880,911,000/$US705,676,359 with the vast majority ($TWD20,000,000,000/$US676,064,975) being for the provision of pharmaceutical treatment. It should be noted that hepatitis B vaccination costs are not included in this data.

Implementation of the plan and of funding provided in 2012 in TWD/USD is:

1. Prevention of hepatitis B and hepatitis C viral infection through ($TWD68,000,000/ $US2,289,560):

    a Raising public awareness about prevention and vaccination
    b Provision of hepatitis B vaccination to infants; 'supplementary vaccine to pre-schoolers and new enrolled primary students, and testing and continued screening of children born to e-antigen positive mothers

Screening ($TWD36,957,000/$US1,2432,527)

a Raise awareness among the public about their disease status including through local and community health services.
b Promote hepatitis B and C screening among the general community
c Conduct screening among pregnant women
d Discuss with the 'Council of Labour Affairs' the inclusion of viral hepatitis screening into the overseas worker health check-up programme.

e Development of a hepatitis B and hepatitis C screening data base as an 'information sharing system' across a range of services

Enhancing Hepatitis B and C Treatment and follow-up ($TWD4,054,470,000/$US136,118,000 – with $TWD4,000,000,000/$US134,289,000 being for clinical treatments)

a Encourage people with viral hepatitis to access clinical management services
b Development of information brochures targeting people with viral hepatitis; provide information through web-sites
c Ensure that health care workers are aware of treatment access and are able to refer people with viral hepatitis
d Establish a referral or case follow-up system for people with viral hepatitis including
    i) Doctors providing brochures to pregnant women with hepatitis B and referral of people diagnosed with viral hepatitis through screening processes
    ii) 'Hepatitis B Carriers' Medical Record' added as an appendix to the pregnancy brochure
    iii) Local health department 'urged' to issue reminders to pregnant women with HBeAg(+) for treatment and check-up half year after giving birth.
e Review and standardise the 'Healthcare Pilot plan for Enhancing Chronic Hepatitis B and C Treatment.'

An additional $TWD11,000,000/$US369,295 are allocated per year for evaluating the program.

Table 1 - Timeline of viral hepatitis responses in Taiwan

DATE	EVENT
1895	Japanese colonisation of Taiwan provides the infrastructure for identifying and responding to viral hepatitis including the development of tropical health and community health centres, and in recognising the importance of hepatitis as a health condition
1925	Death of Sun Yat Sen, founder of the Republic of China, reportedly from hepatitis related liver cancer
1964	Taiwan receives the first certificate of malaria eradication from the World Health Organization
1965	Blumberg identifies the marker of hepatitis B
1971	Establishment of the Department of Health within the Executive Yuan (national cabinet)
1971	Dr. Myron Tong and Dr Kwang-Juei Lo of the Taipei Veterans General Hospital find 80% of liver cancer patients have chronic hepatitis B.
1972	Prof JL Sung with Dr K Nishioka finds 76% of Taiwanese patients with liver cancer were chronically infected with hepatitis B
1975	Dr Palmer Beasley commences recruitment for a study of over 22,000 male government workers in Taiwan finding the association between hepatitis B and liver cancer
1978	Familial clustering of hepatitis B recognised
1980	The role of mother to child transmission of hepatitis B in causing liver cancer is identified
1981	Palmer Beasley finds that immunoglobulin given at birth helps prevent 75% of perinatal transmission
1981	Prospective study of 22,707 men in Taiwan finds an elevated risk between chronic hepatitis B and liver cancer
1982	First 5 year Viral Hepatitis Control Program endorsed by the Taiwanese government
1982	Alpha fetoprotein shown to be marker for liver cancer
1983	Hepatitis Prevention Committee of the Cabinet-level National Health Department established with Prof. Sung appointed Chairman to implement the hepatitis B vaccination program
1984	Hepatitis B vaccination launched targeting infants born to mothers with chronic hepatitis B (Jul 84)
1984	Screening of pregnant women for hepatitis B commences
1985	Molecular biology instituted as a primary course for graduate students at the National Taiwan University College of Medicine
1986	Mass hepatitis B vaccination program expanded to include all new born infants
1987	Preschool children vaccinated initially on a voluntary basis with payment
1990	Hepatitis C recognised as the second most common cause of liver cancer in Taiwan
1991	Clinical trial of interferon and ribavirin as a hepatitis C treatment commenced
1991	REVEAL study recruits 23,820 people from 7 Taiwan townships and finds the connection between hepatitis B e-antigen positivity and liver cancer and viral load, progression to cirrhosis and cancer
1992	Blood donors screened for hepatitis C
1995	Introduction of the National Health Insurance program
1996	Definition of a hepatitis C cure rather than the previously used term of “remission”
1997	Hepatitis B vaccination proved as a cancer reducing vaccine with findings of the reduction of liver cancer among children 6-9 years in Taiwan.
2000	Prof Kao publishes the impact of hepatitis B genotypes on natural history and treatment
2002	Viral hepatitis treatment included in the Viral Hepatitis Control Program
2003	National Health Insurance Chronic Hepatitis B and C Treatment Plan commenced
2005	Rapid increase of HIV infections occurring among people who inject drugs led to the implementation of the drug related harm-reduction program

9. Participant Interviews

Semi-structured interviews were conducted with 26 Taiwan based participants. These participants were identified through their participation in Taiwan Association for the Study of the Liver and/or CEVHAP with additional participants identified after an environmental scan of professionals working in public health, communicable diseases or public policy advocacy in Taiwan or as a result of referral from a participant. While people living with viral hepatitis were not purposively recruited to the project, two of the sample voluntarily disclosed their individual experience of living with the infections.

Participants documented and discussed the health policy infrastructure operating in Taiwan including funding and policy arrangements; clinical organisations and structures, and formal and informal participants and drivers of hepatitis-related policy including academic and non-government organisations.

The majority of interviews were conducted in English with a Mandarin speaking interpreter available when required. One limitation of the interviewer not speaking Mandarin is that there is inconsistency in some of the terms, descriptions, titles or tenses used in some of the quotes. The following section outlines key findings from the interviews and uses quotes to illustrate key themes and issues emerging from the analysis of the interviews.

9.1. HISTORY AND POLITICAL CONTEXT

The context for the development and implementation of viral hepatitis public policy in Taiwan was seen by several participants as occurring as a result of political and social factors as much as evidence based medicine.

In 1895, Taiwan was occupied or colonised by the Japanese who after finding that infectious diseases were a greater problem than expected (68) established the infrastructure for a coordinated public health system. This infrastructure included the development of local community health centres throughout Taiwan, with these located in *each county, each village (TW1)* and the Tropical Medicine Research Centres located at the then named Taihoku Imperial University, renamed in 1945 as the National Taiwan University.

The participants noted that the impact of this perspective was the privileging of a public health approach to reducing the burden of infections that focussed on the prevention of disease, as opposed to a more limited clinical treatment delivery perspective. Other aspects of an essential public health infrastructure were introduced during this time with the development of water

drainage and sewage systems. The system included the development of health policy which, as in Japan at the time, was the responsibility of the police bureaucracy.(69) The focus of this health system was preventative medicine and the eradication of diseases such as malaria, plague and tuberculosis, particularly given the impact of these diseases on the occupying force.

The Japanese were seen by one participant as recognising the importance of gastrointestinal disease within their population *(TW2)*, which then informed the development of the health system in Taiwan alongside the awareness of the high incidence of liver cancer within the Taiwanese population. Key issues framing the policy and health service response to viral hepatitis raised by participants were that Taiwan was seen as an *experimental island for tropical medicine (TW3)* with the country being the first in the world to *have gained the very first certificate of malaria eradication in the world (TW3).* This perspective, describing Taiwanese interest, leadership and innovation in implementing key health interventions, is reflected in the development and implementation of the hepatitis B vaccination program.

The high profile of gastroenterology was not only associated with the high levels of hepatocellular carcinoma among the community, but was also an artefact of the Japanese colonisation associated with the high level of gastrointestinal cancers within Japan. One participant recognised the social privileging of physicians by the Japanese, where people *bow to the physician* (*TW4*). This honouring was seen as another *inherited (TW4)* aspect of the health system in Taiwan with the *medical profession (being seen as) a social leader (TW5)*.

A reflection of the importance of hepatitis within Taiwan was reported by one informant *(TW3)* with the attribution of the death from hepatocellular carcinoma of the first president of the Republic of China, Sun-Yat Sen as a result of hepatitis. This attribution of hepatitis B to the cancer that led to his death was reported as being incorrect, and that in fact bile duct cancer was the reason.

The response to viral hepatitis in Taiwan is informed by several intersecting and inter-related activities. Taiwan has had a broad range of experiences in terms of the modern development of the nation with the end of colonisation in 1945, the impact of the civil war in mainland China and its implications for the Taiwan government, changes in the political support of the country by the United States, and the movement to a democratic and transparent political system from martial law. The transition of the economy from a low to high income country was seen by two participants as having provided the opportunity for the government to devote resources to take action to reduce the substantial burden of viral hepatitis and liver cancer (*TW2, TW1)*.

The fundamental role Dr Palmer Beasley played in relation to viral hepatitis in Taiwan was identified by several participants. Dr Beasley's discovery of liver cancer incidence among a cohort of 22,000 Taiwanese government employees; of hepatitis B being transmitted from mother to child during birth, and of the role of hepatitis immunoglobulin in stopping this

infection provided the scientific basis for advocacy with the Taiwanese government to develop a comprehensive response to hepatitis B. His advocacy with various political stakeholders was understood by some participants to have played an essential part in the establishment of the hepatitis B vaccination program in Taiwan. Other political influences were also described by participants, for example the whole of government response adopted during the 1980s to the development of a *science and technology national program*, which had *eight fields*, with one being for *hepatitis control (TW3)*.

Establishing hepatitis B as a priority was influenced by personal, political and pragmatic imperatives. It includes political leaders having the infection *(TW3)*; prevention being understood as important and, at the time, as being more cost effective than life long clinical responses to competing health issues such as cardiovascular disease or diabetes *(TW3)*; the pioneering role that Taiwan had in the eradication of malaria, and a political desire for a focus on bio-technology *(TW5, TW2)*.

The role of martial law, with its command and authoritarian structure was seen as supporting the development of responses to viral hepatitis *(TW3, TW2, TW24,TW6).* While communication and education of the public and politicians was necessary, the implementation of viral hepatitis interventions, particularly in respect to the establishment and implementation of the hepatitis B vaccination program was *smooth* within this political context *(TW3).*

The political status of Taiwan, with its observer rather than member status within the World Health Organization, was identified by one participant *(TW7)* as providing continued impetus for successfully responding to national and international health priorities. This informant considered that the development and implementation of successful health policies would support the membership of Taiwan to this international body.

This breadth and confluence of activity supported a whole of government response to viral hepatitis. This was described as including the Ministry of Health, the Ministry of Economics *(TW3)*, the Ministry of Education, the Council of Science and a Committee for Research, Planning and Review *(TW8)* and provided part of the context for the formation of a cabinet level advisory committee in 1983 *(TW8)*, currently known as the National Committee on Hepatitis and Liver Cancer (also described by participants as Hepatocellular Carcinoma) Control and the development and implementation of the hepatitis B vaccination program. This committee, currently chaired by Professor DS Chen, provides advice to the Department of Health who is then responsible for the development of policy and its implementation (*TW9*).

While most participants had a clear overview of how the political and health structures operated in relation to viral hepatitis, a small number had incorrect or confused understandings. One informant (incorrectly) described the committee being constituted through the National Bureau of Health Insurance *(TW10)* as opposed to the Department of

Health, and that its members were *all physicians.* The membership of the committee was described by one informant as being limited to people from the *National Taiwan University (TW11).*

As noted previously, medical professionals are seen as social leaders and at one level this meant that while governments and ministers change, *the medical profession know the problem, we know how to solve it, but we don't have the power, we don't have the money, but we have to persuade them (TW5).* Several participants described a staged or staggered approach to obtaining government or policy support for hepatitis with advocacy successes being described as a *struggle.* One informant reported that *we struggled maybe for more than 10 years until we convinced the government to reimburse the treatment for chronic hepatitis B and hepatitis C (TW9),* while another noted the progressive nature of expanding government policy that required advocacy to be *step by step progressive (TW5)*. Various time frames were noted in the identification of a health problem and the development and implementation of policy, with one informant stating that *government policy [is] behind the medical knowledge [by] about five years (TW12).*

Three participants were concerned about complacency by the government as a consequence of the perceived long term success of the response to viral hepatitis in Taiwan (*TW5, TW2*) with one participant suggesting that *people don't think it's an infectious disease (TW1)*. There were political risks related to this complacency. Given the effective prevention interventions, particularly with the success of the implementation of the hepatitis B vaccination program, there might be the potential for a diminution of the response (*TW5, TW2)*.

An associated issue was of the changing understanding among some participants about the nature of viral hepatitis being primarily seen within government and the health sector as a viral infection or communicable disease. From the perspective of most people with viral hepatitis, viral hepatitis is a chronic disease in which the primary form of clinical management relates to regular monitoring rather than pharmaceutical treatment *(TW1)*. This perspective was noted by another informant who noted that focussing specifically on hepatitis treatment reduced the priority for improving general health such as increasing exercise, reducing smoking, improving diet and reducing alcohol *(TW11).* Another informant with a public health remit noted that care professionals see the infection as a clinical issue requiring a clinical response. This was noted by one participant as limited, particularly given their *training in public health (TW13).*

One informant noted that while there had been a comprehensive and largely successful response to viral hepatitis, the major problem related to that of *coordination (TW19).*

9.2. HEALTH SERVICE STRUCTURE

Participants were asked to comment on health service structures including the physical infrastructure and the implications of this; the programmatic, and the policy infrastructure.

The physical structure of the health system includes local health services and large urban based hospitals and the existence of this infrastructure was noted by several participants as one of the many successes of the Taiwan health care system. One participant noted that *every township (has) a so-called primary healthcare centres and there is a chief, there's a doctor and nurse (TW13).* These services are responsible for public health activities (*TW3*). Two thirds of the public hospitals in the country are located in the north of Taiwan, the most populous part of the island, although several participants noted that access to public hospitals and effectively specialists was limited in the southern region where there is a higher proportion of Indigenous people, people with hepatitis C and reportedly people who inject drugs.(50)

Several participants noted the barriers associated with the physical infrastructure, particularly in relation to access to specialist services. In contrast there are few barriers limiting public access to specialists within public hospitals. Some of the implications of this broad access relates to patients accessing clinical specialists for what could be minor problems or routine examinations that in all likelihood could be seen within primary health services.

The programmatic structure includes a surveillance system which was described as *very good (TW8),* and the policy structure which is developed at a national level and implemented at a local level. The regular exchange of individual staff from the national to the local level was seen as benefitting both the development of national policy and how it was implemented. One informant noted that this exchange of staffing and expertise supported communication between the national and local government health authorities *(TW14)* and meant that the national authorities understood the *obstacles or problems* in implementing health programs. This communication also supported the regular evaluation of health service provision at a local level.

At a local level, responsibility for addressing viral hepatitis primarily lies with the hepatitis vaccination programs, with responses to chronic viral hepatitis such as clinical management including treatment defaulting to that of clinicians and the Bureau of National Health Insurance. Other sections within the local health service include Disease Control Divisions or infectious disease sections in which two sections exist – one addressing acute infectious diseases such as SARS and H1N1, and the other addresses chronic infections such including HIV and TB. One informant noted this rationale for this division of labour was that while hepatitis had a greater mortality, there was concern that a *big outbreak (of TB) would be a disaster (TW1).* A further

section of the local health services was the health management section looking at chronic diseases such as diabetes and heart disease.

This process of development and implementation of policy was seen by one of the participants as being *one success* of the Taiwan response to viral hepatitis (*TW1*). Policy is developed nationally, primarily as it relates to access to clinical services either through screening, monitoring of infection or access to clinical treatment; all of which have funding implications for the Bureau of National Health Insurance.

National policy to reduce the burden of viral hepatitis and liver cancer is detailed through consecutive national five year plans developed in consultation with a broad range of stakeholders and approved by the Executive Yuan, the chief policymaking instrument of the Taiwanese government. The scope of this plan has changed over time to have initially focussed on viral hepatitis, then viral hepatitis and hepatocellular carcinoma with the most recent plan being incorporated into a broader infectious/communicable diseases plan. These changes were not made on the advice of the advisory structure, where reservations were noted with each change. These reservations related to concern that viral hepatitis would lose profile and funding as a result of this incorporation *(TW3).*

Stakeholders reported to have been consulted in the development of the plans include the National Committee on Hepatitis and Liver Cancer (Hepatocellular Carcinoma) Control, the Bureau of National Health Insurance, and the Taiwan Association for the Study of the Liver. One informant described the role of the clinician as providing *updated information to our government to modify the policy (TW12).* The plan is not seen as static but an *evolving process (TW8)*, revised when there *is evidence of gaps*.

The national policy implementation is overseen by the National Committee on Hepatitis and Liver Cancer (Hepatocellular Carcinoma) Control, which also includes working groups for specific issues including epidemiology and clinical, health worker and community education, and diagnostics and vaccine.

Specialist clinical management of viral hepatitis in Taiwan is provided through gastroenterologists and hepatologists. Several participants noted the historical rationale for this choice, and of the differences between the management of viral hepatitis in mainland China where the specialists primarily involved in viral hepatitis treatment are infectious disease physicians. *(TW2 TW12, TW9)* One rationale noted for this was that when treatments were first introduced, and given the sometimes significant levels of side effects on the liver particularly, gastroenterologists were best placed to respond.

9.3. VIRAL HEPATITIS – PREVENTION OF TRANSMISSION

Taiwan was the first country in the world to implement the vaccination program.(15) The development and implementation of the hepatitis B vaccination program in Taiwan occurred on a staggered basis and was perceived by the participants as being *well planned (TW15)*. Participants noted concerns within the broader community at the time of the then innovative program, including concerns that Taiwanese babies were being used by America as a *guinea pig (TW1)* or as an *animal experiment (TW2)*. These perspectives were addressed in part by community education, with three participants noting martial law and its command and authoritarian structures supported the smooth implementation of the program *(TW3, TW2, TW6, TW24).*

The research and advocacy of key Taiwanese clinicians and Palmer Beasley was essential for the development and implementation of the vaccination program, with advocacy supporting the program reportedly being conducted over a 20 year period *(TW1)*. As noted previously, there was an association between the introduction of the hepatitis B vaccination program and the development of a systematic government funded science and technology program with one informant highlighting that Taiwan *set up the computer system, the very first computer system in the entire government (TW3)* to support the implementation of the program.

Participants highlighted the lack of a hepatitis C vaccine is an essential barrier to hepatitis C prevention *(TW9)*. People who inject were described as being socially stigmatised, often *poorly educated (TW3)* and *economically poor (TW12)* with injecting drug use reportedly to be occurring within correctional settings. One participant noted that approximately *30-40 acute hepatitis C* cases were reported each year *(TW8)*. One informant identified concerns of a continued *(TW3)* or increased hepatitis C prevalence among people who inject with one perspective that this group was a challenging audience for the provision of education *(TW25),* although given the assumed limited size of this population in Taiwan, these challenges had little impact of hepatitis C prevalence at a population wide level *(TW3, TW12)*.

Other participants reported hepatitis C outbreaks occurring *in some endemic townships (TW9),* as a result of poor infection control practices by *illegal doctors*. One informant working in the south of Taiwan noted continued high hepatitis C prevalence within the general community *(TW17)* with *injecting drug use not being a problem in the south (TW11).*

Two participants stated that Taiwan introduced needle and syringe programs after a sero-prevalence study of HIV among people who inject drugs found a high and increasing prevalence of HIV, hepatitis B and hepatitis C (*TW2, TW8)*. The introduction and operation of the needle and syringe program was, and continues to be, funded to reduce HIV transmission. Sterile

injecting equipment is available through publicly available vending machines *(TW8).* One informant noted much activity from public health authorities in providing education to people who inject drugs to reduce the risk of HIV and hepatitis C, although it was recognised that there was a gap between *knowledge and behaviour that has not been identified* (*TW1*). While needle and syringe programs are essential to reducing the transmission of HIV and hepatitis C, there were *community pressures in maintaining effective distribution through vending machines (TW25)*.

9.4. VIRAL HEPATITIS – SCREENING

Screening for viral hepatitis is carried out in several ways. While not compulsory *(TW3),* several participants reported screening being widely available. At the same time, it was also acknowledged that up to 60% of people with viral hepatitis, both hepatitis B and hepatitis C, were unaware of their infection *(TW9)*.

A population-wide disease screening program funded by the government, described as *a general health check-up (TW8)* was introduced in 2011 for people over the *age of 45* (*TW12, TW8, TW7).* The screening, for both hepatitis B and hepatitis C (*TW7),* was described variously as being available every three years for people over the age of 45, and every year for people over the age of 60 (*TW21*). People are able to access viral hepatitis screening within the context of other infections and being available for *one-time*. Implementation of this screening by hospitals is supported by funding incentives from the Bureau of National Health Insurance *(TW8).* While this screening program was reported by most participants, one was not aware of the program and noted that *we don't have a national program for screening; so many people don't know they are carriers (TW10).*

Participants described screening as generally reactive and determined on patient request, rather than as a result of clinician led investigation. Concerns were noted that this screening is done in the context of a broad range of other health related screening and individuals would be overwhelmed and unable to effectively respond to a positive diagnosis (*TW1)*. Another perspective noted that the success of this initial and continuing screening of people with viral hepatitis was inherent in the skills and motivation of the physician promoting it to their patients.

One participant working in a non-government organisation reported that their service conducted outreach screening of viral hepatitis. This screening included serology and ultrasound for *the people in every village (TW6).* Screening also occurs in some instances by local government authorities *(TW12)*. One implication of this is while local government is able to screen, they have no role in providing follow-up clinical services.

Liver cancer screening was reported as uncomplicated and as part of *standard procedure (TW9)* when people with viral hepatitis attend hospital. Screening people for hepatitis B was described by one clinician as making a difference by increasing the number of patients presenting early in the disease progression for *hepatoma (TW13).* In a comment highlighting the need for a full range of support professionals to be involved in the response to viral hepatitis, one participant reported that at a health systems level there was a lack of skilled sonographers *(TW19)*.

Viral hepatitis is largely managed within clinical services by gastroenterologists and hepatologists and HIV by infectious disease specialists. Co-infection with HIV and viral hepatitis appears to fall between the two professions. One physician working with people with HIV noted their concern that gastroenterologists did not routinely screen their patients for HIV, and that these specialists *have no idea about HIV* (*TW25*). The participant also described a systematic barrier to testing people for HIV with limits for testing patients for conditions that were not directly related to the conditions being treated by the doctor. This was of particular concern given the opportunity for resistance to the drug Tenofovir by people with hepatitis B co-infected with HIV.

While screening for hepatitis B appeared to be accessible, gaps were identified by several participants. Rather than being about the screening process per se, these gaps were related to what occurs after a person has had their blood taken particularly in information provided to people diagnosed with the infections. One participant noted a survey from one non-government organisation of up to 70% of people who had been diagnosed with hepatitis B or hepatitis C already knew they were infected.

The Taiwanese health system includes a card, officially known as the “NHI Card” issued by the Bureau of National Health Insurance containing a range of personal information including:

- Medication usage and past examinations for doctors
- The authoritative record of treatment under the National Health Insurance program
- Catastrophic illnesses, which are exempt from a co-payment
- Organ donation
- Payment details.

An issue in the development of the card related to human rights, particularly the right to privacy. As a result of these discussions, one informant stated that hepatitis B and hepatitis C serology status were not included within the card *(TW21)* with one clinician noting that the lack of information meant *it’s very hard for us to identify who is the carrier (TW19).*

Other participants noted that while hepatitis B was screened effectively, they were concerned that there was a lack of understanding and knowledge about hepatitis C among the broader community and health care workers, and that this reduced the level of screening of hepatitis C

(TW7, TW25). There was also recognition from one informant of a resistance by people to be screened for a range of illnesses let alone hepatitis, particularly when these diseases were asymptomatic *(TW19).*

9.5. VIRAL HEPATITIS – CLINICAL MANAGEMENT

A full range of hepatitis B treatments are available in Taiwan and funded under certain criteria by the Bureau of National Health Insurance for an initial three year period. One informant noted that 15,000 people with hepatitis B and 6,000 people with hepatitis C were treated each year *(TW5, TW19),* while another noted that only 10% of the million people requiring treatment *received treatment (TW5)*. Another informant noted that the focus of the government on treatment had only occurred over the previous ten years, and that prior to this the focus of resources and policy was in preventing hepatitis B transmission through the vaccination program *(TW1).* This implies that there may be many people with viral hepatitis, who when diagnosed were not provided with information about clinical management or treatment options.

Much peer reviewed data exists proving the efficacy of treatment in reducing the impact of liver disease and hepatocellular carcinoma and this was noted by several participants (*TW5, TW2, TW13)*. The criterion used for treating people with hepatitis B was seen as appropriate *(TW2)* in prioritising patients with an *urgent demand (TW5)*. There was a conflicting view from another participant who considered that ALT level should not be used as a criterion for access to insurance funded hepatitis C treatment *(TW7).*

Maintaining compliance was seen to be the responsibility of the clinician, with one informant noting that it was dependant on *how strong the doctor is in insisting the patient want to follow up (TW21)* while a clinician noted that clear communication with patients including expectations was their *duty (TW15).* Other clinicians noted that this communication was difficult given their workloads, with one saying that they would see *100, 150 (patients per clinic) so you omitted some kind of important information (TW12)*.

Case management was important for one informant who had access to a clinic based case manager who if you *miss your appointment, she will call you … so compliance is good (TW13).* This informant noted that compliance rate within their service was 85%, compared to other hospitals where compliance was 50-60%. This latter figure was challenged by another informant who described the compliance in their service being *97-99% (TW15).*

The psychological side effects often experienced by people with hepatitis C were noted as a challenge for clinical services but the lack of time in accessing the specialist, and *pride* from the patients perspective meant that these side effects were not addressed (*TW22)*. This was

particularly important in relation to hepatitis C, and particularly for people who were currently or had previously injected drugs, and who received little support for their drug dependency *(TW25)*. In spite of the education, screening and infrastructure available in Taiwan, clinicians reported the regular late presentation of people with viral hepatitis, with one noting that 1/3 of their patients had fibrosis or cirrhosis (TW23)

The limited time duration for funded hepatitis B treatment makes the decision for commencing treatment more complex for both clinician and patient given the possibility of drug resistance. One clinician noted spending *a lot of time (TW15)* with patients to ensure their patients were aware of the implications of commencing treatment. This participant also noted that the familial nature of hepatitis B infection has benefits and risks for hepatitis B, with family members sometimes also needing or having experienced treatment and either supporting or acting as a barrier to other family members needing treatment.

The possibility of a cure for hepatitis C within 24 or 48 weeks made the treatment decision uncomplicated for both clinician and patient with several participants noting the favourable IL28 score for people in Taiwan predicting better treatment outcomes. In spite of this, several participants noted that only a minority of people needing treatment for hepatitis C accessed this treatment (TW17*).* Other participants noted that people who inject, or who disclose injecting drug use or methadone use *do not access hepatitis C treatment (TW8)* in spite of not having any additional barriers to others in the community. There will be significant changes in how hepatitis C is treated over the next couple of years with the development of direct acting antivirals. This was noted by one participant as providing an opportunity to increase options for the provision of hepatitis C treatment, where *everybody can treat hepatitis C (TW5)*.

Barriers to hepatitis B treatment were noted, and included health service delivery limits, knowledge and clinical issues. One non-government organisation reported conducting a questionnaire with people with chronic viral hepatitis and suggested that the major barrier to accessing treatment services was lack of time and inability to find an appropriate specialist.

Hepatitis treatments are available through clinics in public hospitals staffed by specialist clinicians. A significant health service delivery limit identified by participants was that gastroenterologists were the only clinical specialists able to prescribe reimbursed treatments. Several participants commented that there were a limited number of gastroenterologists, with one reporting 20 or 30 specialists, willing or able to treat people with viral hepatitis *(TW5)*. Part of this was reported to relate to a perceived complexity of viral hepatitis treatments requiring specialists to spend time explaining treatments to patients, particularly in comparison with other gastrointestinal issues where clinicians could earn more by seeing a greater number of patients *(TW5)*.

Other health service delivery limits discussed by participants included the physical access to clinics. Several participants noted that the majority of public hospitals and gastroenterologists were located in the north of Taiwan (*TW13, TW11, TW2)* with *some counties not having a hepatitis specialist (TW8, TW3).* This lack of geographical access particularly affects minority populations including Aboriginals *(TW17),* some communities that have a high prevalence of hepatitis C. Other delivery limits include the time required for patients to attend clinics, particularly for people living in rural areas, and for hospitals with long waiting times. One informant noted the challenge for people in finding a doctor who they felt was *trustable (TW24)* and with whom they could effectively communicate. The issue of patients having to present to the specialist every two months for drug prescriptions was also reported as a barrier to people on treatment, particularly with the lengthy waiting times involved within specialist services (*TW12*).

These personnel limits were exacerbated by the lack of a referral process for people attending public hospitals resulting in minor issues being addressed by a clinical specialist *(TW12, TW15)*. There were concerns that this focus on minor issues meant that patients requiring specialist care were not being seen *(TW12)*. Several participants highlighted that within Chinese population and culture, there was a social cachet in having seen a specialist *(TW12)*. This exacerbates already heavy workloads for specialist clinicians and increases waiting times.

Several participants spoke of the need to ensure that clinical specialists led the clinical response to viral hepatitis. One noted the issues related to the provision of hepatitis B treatments including the *treatment candidates, the decision to use, what kind of agent, … the end point of therapy, the timing to test resistance, how to switch or change your antiviral policy (TW12).* While there were times when it was important to see a specialist clinician, several participants noted that much of the clinical monitoring work could be done by family physicians *(TW24, TW11).* Again, this perspective was not held by all participants with one noting a limited expertise of general practice with GPs *in Taiwan ... really treating cough and cold (TW24)* and that there would be significant patient resistance to this monitoring.

It noted previously in this report that there is a process in which family physicians are able to prescribe hepatitis treatments. While this does not frequently occur, participants commented on the benefit of family physicians being able to treat including increasing the numbers and breadth of physicians able to prescribe, and better patient compliance with family physicians often having better relationships with individual patients *(TW13)*.

Being clinically managed at a public hospital requires a co-payment for most people *(TW12)*. In relation to hepatitis C treatment, this means patients are required to visit the public hospital every week for the first month, and then every two months for the monitoring of treatment. The impact of a co-payment for these visits, in addition to the need for taking time off work or

being away from home for several hours for a short consultation were seen to challenge compliance *(TW12, TW23)*. The indirect costs were noted as being particularly challenging for people in rural areas particularly in terms of travel times *(TW17),* but were cheaper for community based health services *(TW11)*.

Hepatitis C treatment was described as *troublesome* or as one participated noted in relation to barriers to hepatitis C treatment, *almost like the Berlin Wall (TW5).* One informant described their personal experience of the limits to hepatitis C treatment with ALT levels of more than 80 being required before hepatitis C is reimbursed. Their response was to pay for this treatment themselves *(TW19)*.

The changing nature of viral hepatitis policy has increased the number of people accessing clinical services including a previous requirement for liver biopsy to access treatment *(TW20)*, where only a *proportion (30%) of patients were willing to do the liver biopsy (TW12)*.

The silent or asymptomatic nature of viral hepatitis infection on an individual with the infection was a barrier identified by several participants as being a fundamental barrier to treatment (*TW12, TW20, TW13).* For two participants, the most important aspects of commencing and continuing treatment was having *family support and the way the doctors speak to the patients. (TW22)* One participant, personally affected by viral hepatitis, reported that they *needed to ask the question that I want to ask* so that they could be better prepared for treatment *(TW16)*.

It was also noted that liver cancer was usually diagnosed late in the disease progression, and often without people knowing that they were infected with viral hepatitis *(TW9)*. This meant there were few clinical opportunities available to reduce its impact and additionally that there had been an increasing proportion of people presenting early in the progression of their disease state *(TW13)*.

9.6. CLINICAL MANAGEMENT - RESOURCING

The vast majority of funding for the implementation of the *Prevention and Treatment Plan for Chronic Viral Hepatitis* relates to the purchase of medication with treatment funding commencing in 2003 *(TW3, TW2, TW9)* and provided through the Bureau of National Health Insurance. One participant described the system as being *very very convenient and cheap (TW15),* while another associated with the pharmaceutical industry described it as *quite generous (TW10).* The reimbursement for the funding of viral hepatitis treatment was reported as having an essential impact on access to treatment, with one informant noting an increase in the proportion of people with viral hepatitis accessing treatment from 4% to 10% as a result of this funding *(TW10).*

As a national agency, the Bureau of National Health Insurance is responsible for the purchase of drugs, with several participants noting the success of Taiwan in obtaining cheaper prices for hepatitis treatments (*TW9*). One informant reported that for one drug Taiwan *paid 57% of the international medium … and about 28% of the US price (TW4)*. While this was seen to benefit Taiwan, several participants working or associated with the pharmaceutical industry were concerned that this reduced the willingness of drug companies to invest in research and development in Taiwan and delayed the launch of new drugs within Taiwan.

Gastroenterologists and hepatologists are the major professional group for whom viral hepatitis treatment prescriptions can be reimbursed. This essentially reduces access to health services by limiting the number of health professionals in which people with viral hepatitis can consult. It is possible for general practitioners to seek approval for prescribing, and one informant reported that only around *100 family physicians (TW2)* were permitted to prescribe treatments, with this permission only occurring after participating in a course organised by the Gastroenterological Society of Taiwan.

The cost for hepatitis treatments comes from a discrete budget administered by the Bureau of National Health Insurance in which one clinician calculated could treat up to *5,000 patients a year* (*TW9*). This essentially implies a quota of people who are able to access treatment within a specific year, and for some of the smaller institutions, one participant reported that in *some community hospital[s], the administrator will tell them ok, you[r] quota is running out, you cannot treat any patients (TW9).* Strategies for operating within these limits were noted, including the referral of patients to hospitals with more flexible budgetary limits.

Government reimbursement of viral hepatitis treatment is currently limited to three years duration. This is a key issue for hepatitis B related treatments, given the lower rate of sero-conversion as opposed to the defined end point of treatment for hepatitis C. Informants noted that when reimbursement for hepatitis B treatment commenced, and with the proven success of treatment in reducing mortality, reimbursement while initially limited to 18 months of treatment was extended to three years *(TW2, TW3)*. This provided hope that with continued advocacy and successful treatment outcomes, that in time, reimbursement could be further extended. It was also noted that there were opportunities for extending hepatitis B treatment for certain periods of time under specific clinical circumstances. These limits were seen as decisions made using a *financial and political (TW9, TW22)* rationale rather responding to clinical needs.

Physicians in Taiwan are paid by the number of patients they see – the larger the number of people a physician sees, the larger their income. One clinician reported seeing between 200-300 people per clinic. This has a fundamental impact on the time available for physicians can spend in supporting patients in their treatment regime or the quality of care an individual

patient can receive. While further research is required, this could essentially affect clinical management retention and/or compliance. Another clinician was concerned of the quality of care provided by clinicians seeing large numbers of patients per clinic *(TW17).* It was reported that some clinics had access to drug company funded nursing staff who were able to support patients and reduce the burden on individual specialist clinicians.

Participants described people with hepatitis as challenging clinicians given the complexity of the infection requiring more clinical time for providing information about the condition, *for the hepatologist, for the treat for hepatitis B or hepatitis C, it's usually takes long time to explain to the patient (TW5).* Another informant noted that the complexity of hepatitis C required them to spend more time with the patient and that they would be seeing *40 to 50 patients* during their morning outpatient clinic *(TW3).* These budgetary concerns meant that the clinical specialists treating people with viral hepatitis were doing this because *they enjoy treating the patients (TW3)*.

City based hospital patients are required to make a co-payment at each hospital visit which at the time of the interviews was $TWD500, or $USD16.60. While one informant noted that this does not affect access to hospital services (*TW22, TW23*), another was concerned that it reduced access for more marginalised populations (*TW20*). The amount of the co-payment is a sensitive issue for Taiwan and one informant noted that any politician supporting an increase to the co-payment would be a *public enemy (TW12).*

9.7. KNOWLEDGE, INFORMATION AND EDUCATION

The discussion about knowledge, information and education was broad and occurred at national, health worker, and at an individual level with reference to advocacy, and health maintenance.

Knowledge of viral hepatitis among political and government leaders and health workers was thought by several participants as being good with one informant noting that basically our *government and also the health personnel … know the importance of viral hepatitis (TW2)*. This was seen as essentially supporting the high vaccination rate evidenced in Taiwan *(TW3)*, particularly given the sometimes hostile response to the vaccination program by some within the community at its inception.

This perspective was not without concern though. One informant reported that the high profile of viral hepatitis within the Taiwan health and political systems meant that stakeholders working in other health conditions envied the response, with the implication being that Taiwan *should put … efforts into other diseases (TW9)*. The arguments against this diminution of activity to reduce the burden of viral hepatitis noted by the informant who highlighted the

value of data reflecting the continued health burden associated with viral hepatitis, particularly in relation to liver cancer. There was concern that the success of the vaccination program generated *complacency* among the government and that without challenging this complacency, *the struggle will be longer and longer (TW5)*.

A sense of complacency was described as an issue among family physicians, with clinical specialist concerned that [family] *doctors not panic or phobia to the hepatitis virus (TW25).* One informant reported that in spite of comprehensive education, *a lot of (health care workers) still think that hep B and hep C is the same, like it cannot be cured … as in no drug can treat that (TW7)*. This complacency was also noted among the general public with the awareness of the public about hepatitis having reduced over the previous 10 years *(TW23).*

Responding to a question about what other than clinical treatment was needed to improve the response to viral hepatitis, one public health specialist stated, *education education education education (TW19)*. Other participants considered that while there had been much community education people don't think *it's an infectious disease* and that *they don't have any alert about these two issues (TW1).* This informant also noted surveys from the Department of Health showing that only a minority of people surveyed understood a relationship between hepatitis and cancer. This provided a challenge suggested by another informant who was concerned that while information and education was provided with an aim of improving knowledge, this did not necessarily translate into behaviour change *(TW5).*

One informant highlighted data reporting that 60% of family physicians did not know there were effective treatments for hepatitis B *(TW5),* and that a sizable percentage of physicians were unclear of the efficacy of currently available treatments. This informant also described the comprehensive nature of medical education infrastructure available in Taiwan that provided the opportunity to conduct effective medical education.

Participants identified differences in the level of knowledge about hepatitis B and hepatitis C among government, clinicians and the community as a whole. One informant noted that for health care workers there was a significant history of hepatitis B clinical practice and development of models of care and that *everybody knows what to do* (*TW21*) in responding to hepatitis B, which was not replicated for hepatitis C. While most participants talked about hepatitis B, one noted that the government *haven't done anything for that part yet for hep C (TW7*), and another reported that people *know more about hepatitis B but less about hepatitis C*.

Several participants felt that there was good knowledge within the broader community about viral hepatitis. One informant described the impact of the publicity associated with death of a DJ, David Wang in 2004 *(TW16),* and other high profile Chinese people as a result of liver cancer *(TW21)*, and that *it raised my awareness of the importance of treating (TW16).* The

asymptomatic nature of viral hepatitis infection was regularly mentioned as a barrier to reducing its personal and social impact. One person with hepatitis B reported that *because there was no symptoms ... the liver function high, so what? I still just go on, my life is ok (TW16).*

Participants also noted the privileged position that the liver has within the Chinese culture and of the need to protect this organ. One informant noted *that the liver is the most important organ in my body, and because we work so hard so our liver is always under big pressure (TW7).* In spite of this need to protect the organ, there were also social requirements which challenge the integrity of the liver such as the use of alcohol, particularly in relation to business relationships. The veneration of the liver as an organ was not without complexity with a different understanding of the liver within the Chinese culture particularly in comparison with the understanding used in western clinical culture *(TW24)*. This was particularly true in terms of monitoring a mostly asymptomatic liver disease.

While people with viral hepatitis are said to be provided with information about the infection, the information was limited in scope. Regarding information provided at the point of diagnosis one informant said, *we hope they can understand the results, what's the meaning and what they should do, so we print small cards to explain what we mean, then the school will send a card to those students who are a carrier, antigen positive (TW8).* One of the people with hepatitis B noted that the only information provided to them when they were diagnosed was *get some rest, stop drinking, make sure you don't have this ALT elevation so high. Nothing was said about treatment (TW16).* At the time of diagnosis, which occurred when the family as a whole was diagnosed, the treatment options were limited.

The clinical intervention between patient and specialist is an essential point of the education of people with viral hepatitis. However, some participants also identified a range of implicit and explicit barriers to effective education including clinicians not being trained nor necessarily skilled to provide this information in ways that are acceptable or accessible to people with viral hepatitis. Another barrier related to the limited time available for specialists to be able to spend with an individual person to explain fully the implications of the infection, including its possible *seriousness (TW21).* The cultural privilege of clinicians was identified as a barrier by one participant who noted that patients were sometimes too nervous to tell their clinician of reservations about clinical management or discuss any of the side effects they were experiencing: *some patients don't know that they can tell the doctor they have side effects (TW13)*.

At an individual level, confidence in this knowledge was not necessarily confirmed. One informant noted that *a lot of patients do not know, do not understand the long-term consequences of chronic hepatitis B infection (TW12)*. There were structural barriers to

providing the level of information required for a person with hepatitis B with one clinician comparing their experience in the United States, where a clinician would see 10 patients per clinic compared to Taiwan where there was an expectation of seeing 100 – 150 per clinic *(TW12).* This meant that in the experience of this clinician in the US, the information provided to the patient included a description of the infection, the natural history and individual prognosis, treatment options, monitoring, and how to respond to side effects.

These structural barriers were supported by the asymptomatic nature of chronic hepatitis infection, particularly for people who require clinical monitoring as opposed to pharmaceutical treatment - *there's still a lot of drop out because if the doctor cannot provide any treatment to this patient ... this make no sense (for) the patient (to) keep coming back (TW7, TW10, TW20)*.

9.8. HUMAN RIGHTS, STIGMA AND DISCRIMINATION

Stigma and discrimination are increasingly recognised as essentially limiting access to health services. In Australia, stigma related to hepatitis is acknowledged as reducing access to prevention, treatment and health maintenance services. (28, 42) There is little literature available describing this issue in the Taiwan context. Two informants noted the lack of understanding about stigma and discrimination *(TW5, TW1)* while another informant noted that although one in five people in Taiwan had chronic viral hepatitis, people were scared of disclosing given the impact this could have on job seeking or finding a relationship *(TW1, TW19)*.

Discrimination related to hepatitis B related stigma often appears to be related to a lack of knowledge of how the virus is transmitted. One informant described older people being more likely to discriminate against people with hepatitis B particularly in relation to the sharing of food and food serving implements *(TW8)*. It was also noted that this would sometimes occur within families, where a table would not be shared if a family member had viral hepatitis *(TW8).* One informant noted the impact of a health education program in which to reduce hepatitis, presumably hepatitis A people should refrain from sharing cooking and serving implements. This informant felt that this lesson had been associated in people's minds with other forms of viral hepatitis *(TW21).*

Other participants suggested that there had been a change over time in people's attitudes towards people with viral hepatitis, with greater levels of education and purported understanding *(TW8)* and with the introduction of regulatory interventions that reduced possible discrimination related to blood borne viruses including hepatitis B and hepatitis C, particularly in the workplace (*TW3*). It was also noted that younger people, with more exposure to education about the viruses did not exhibit the same level of discriminatory behaviour.

It needs to be noted that not all participants reported that stigma and discrimination were issues related to viral hepatitis *(TW9, TW20).* In relation to hepatitis C, stigma was not felt by one informant to be an issue because the primary method of transmission for most people who are currently affected was through poor infection control (*TW7),* while people who inject were *stigmatised* (TW3).

Several participants noted discussions that occurred in terms of the development of the National Health Insurance card and the human rights implications to owners of the card for a proposal to include viral status on the card *(TW3)*.

10. Discussion

Taiwan has led the world in reducing the health, social and community burden of viral hepatitis. The leadership, innovation and commitment in the research conducted, and the health programs implemented within Taiwan have essentially changed how the world views and responds to viral hepatitis. Any suggestions made in this report are intended to support this leadership rather than imply any form of criticism of the people or activity undertaken in Taiwan to reduce the burden of chronic viral hepatitis.

There are essential components to the delivery of health services and scientific innovation which can be identified to have supported the development and implementation of these interventions in Taiwan. The structural government commitment to research provided Taiwan, and the rest of the world, with the scientific rationale for the development and implementation of a range of interventions designed to reduce the individual and community burden of viral hepatitis.

As a result of the development and implementation of the National Health Insurance program, in Taiwan, health care access is not limited by an individual's capacity to pay, including for screening or for the direct costs of clinical management including pharmaceutical treatment. The establishment of the physical infrastructure of community based health centres in Taiwan effectively provides access to health services and enables the implementation of health interventions such as the hepatitis B vaccination program.

The provision of regular and detailed government statements through consecutive 5-year plans since 1982 describing the impact of viral hepatitis, and the government response, including the financial resourcing available for these responses reflect the skilled advocacy by clinicians and researchers, and of the commitment of successive Taiwanese governments.

At an individual and community level, it is evident that there are still significant gaps in the response to viral hepatitis. This is reflected in the challenges experienced in implementing the screening program, the poor understanding within the community about hepatitis, the lack of knowledge of people with hepatitis about how to reduce the impact of the infection, the numbers of people presenting to clinics late in the disease progression, and the (albeit decreasing) proportion of people dying as a result of hepatocellular carcinoma.

The significant prevalence of viral hepatitis within the community, the silence of the infection at an individual level, and the level of activity that has been harnessed in Taiwan over many years provides a unique set of problems.

One aspect of the Taiwan response to viral hepatitis is that advocacy and government responses have consistently evolved over several decades. There are structural elements to this with the establishment of government advisory structures for hepatitis, and a level of pragmatism in the advocacy conducted through these structures. Some of this pragmatism is reflected in the achievement of good but limited goals particularly in relation to the funding of time-limited treatments with an understanding that these goals can be expanded over time with availability of evidence.

Several participants expressed a fear of complacency at a national level about the response to viral hepatitis, and which might also be understood as occurring on an individual level. The commitment and the transparency of this commitment, by successive Taiwan governments in responding to viral hepatitis particularly through the regular development and implementation of strategic responses or action plans is found in very few other countries.

The battle against hepatitis has not been won, and while many of the interventions described here are crucial, there is a need to develop new, and enhance existing, interventions.

The systems wide response to viral hepatitis in Taiwan has been effective, but the relationship between the individual and those systems needs to be strengthened. Advocacy for establishing and improving the response to viral hepatitis has been largely led by clinicians. This leadership is understandable given the expertise and the day to day experiences of clinicians treating people with end stage liver disease, which as Professor DS Chen noted, can be extremely distressing. Likewise, policy advice to the government has largely been the purview of clinical specialists. Including other expertise will support the development of innovation and broaden the discussion in these forums. A revitalised response to viral hepatitis could include expanding the breadth of partnerships involved in providing advice to the government.

Primary responsibility for the implementation of the *Prevention and Treatment Plan for Chronic Viral Hepatitis* occurs within the Centers for Disease Control of the Department of Health, and is reported upon by the immunization program. This would have occurred as a result of the original focus of government responses to viral hepatitis focussing on the implementation of the hepatitis B vaccination program. The broadening of the focus of the plan to incorporating clinical management and pharmaceutical treatment interventions, including reducing the barriers to treatment has occurred without necessarily a concomitant adjustment to the agency with primary responsibility for implementing the plan. Given the gaps in the program, and the expertise required, an argument could be made for reconsidering the most appropriate government agency to lead in implementing activity to reduce the burden of chronic viral hepatitis.

The establishment of organisations representing people with viral hepatitis, including patients provides the lived experience of viral hepatitis to advisory structures. These organisations have

not been established in Taiwan. Social research identifying the needs of people with viral hepatitis, including barriers to the health system, the identification of issues within the health system or of the social implications of viral hepatitis infection, could be conducted on a regular basis, with the findings used to inform the development of the recurrent government viral hepatitis plans.

There is a perspective that the advisory structure overseeing the implementation of the plan focuses on the development of clinical perspectives within a traditional public health model. Public health models of service delivery have changed over the past thirty years, particularly with the development and support of the Ottawa Charter for Health Promotion, and in particular in relation to the World Health Organization, Prevention and Control of Viral Hepatitis Infection: Framework for Global Action. These new models provide the opportunity for evaluating and reframing current responses to viral hepatitis.

Looking at gaps within the Taiwan response, while challenging, can be done by using these public health frameworks. In practical terms this means identifying and evaluating the hepatitis program through the policy architecture provided by the Ottawa Charter for Health Promotion:

- Building health public policy
- Creating supportive environments
- Strengthening community action
- Developing personal skills
- Reorienting health services

A description of the Ottawa Health Charter for Health Promotion is attached as appendix A.

There are few barriers to screening people for viral hepatitis, with the fundamental exception of people accessing health services generally. This issue bedevils governments and health authorities around the world, and not only in relation to viral hepatitis.

While screening for hepatitis is widely available, and the data from this screening provides government with important information, the act of identifying people with viral hepatitis is an essential but limited step in reducing the individual and community burden of infection. Screening a person and informing them that they are infected with a virus is insufficient. With HIV, counselling and testing is recognised as critical to the public health response with UNAIDS identifying this process as the “gateway to AIDS prevention and treatment and care services.” In terms of viral hepatitis, a comprehensive and standardised protocol for the provision of a diagnosis would provide the person being diagnosed with an understanding of their condition and information on how to respond effectively. The provision of a positive hepatitis diagnosis could include:

- A description of the natural history of the infection
- How to prevent transmission, including in the case of hepatitis C the provision of harm reduction information including where and how to access to sterile injecting equipment
- How reduce the impact of the infection including clinical management options and the reduction particularly of alcohol use
- Disclosure information, particularly if there are any legal obligations for the person with the virus and identifying how this disclosure could occur including to familial, sexual and injecting partners and to their children.

The lack of the systematic provision of information to people with viral hepatitis at the point of diagnosis means that clinical specialists are required to provide this education. These specialists, particularly within the context of the Taiwan health system do not necessarily have the resources including time and skill to conduct this education. Hepatitis infection can be complex for people without an understanding of western medicine. There is little evidence of resources that are available for people with chronic viral hepatitis that provides them with information about the infection, its natural history and how to respond effectively, outside of the provision of information about pharmaceutical treatment.

The focus and much of the discussion about viral hepatitis, both in government policy and research highlights the role of pharmaceutical treatment and this is completely understandable given the essential role of treatment in the response to viral hepatitis. But the focus on treatment devalues the need for the regular, and in most cases lifelong monitoring of the infection for the majority of people.

The provision of pharmaceutical treatment is seen as a 'gold standard' for patients, particularly given the clear outcome in relationship between doctor and patient when treatment is provided. Most people with hepatitis B and hepatitis C do not require pharmaceutical treatment, and that having their infection regularly monitored will be their primary form of clinical engagement. Viral hepatitis is a largely silent infection and requires a patient to be significantly motivated to continue to participate in this monitoring. Monitoring requires a level of trust in the process of clinical interventions, and where the primary form of engagement is waiting for a blood test and in most cases a very quick interaction with the specialist.

Regular monitoring can be conducted outside of specialist services by family or community based physicians, with reference to specialists when these physicians require guidance. There are a range of barriers that need to be addressed for this to effectively occur. People with viral hepatitis appear to be largely under-informed and uninvolved in the monitoring of their infection and only seek clinical support where the infection has progressed to a point where

there are limited clinical options available to them. While further data is required, this could result from the lack of systematic information provision at the point of diagnosis.

The lack of patient engagement and involvement means that to reduce the burden of viral hepatitis at an individual and community level, the health system is reliant on physicians to proactively conduct this regular monitoring. This implies the physicians themselves are aware of hepatitis and its implications; that they are aware that a patient is infected, and that the physicians have the resources, education and skills to conduct this monitoring

The support for providing disease monitoring through community based clinical services addresses issues related to often lengthy clinic waiting times, and specialist clinicians seeing often relatively minor conditions.

As noted previously, hepatitis clinical management has been solely the purview of gastroenterology. While there are historical, professional and cultural aspects to this, it essentially limits the response to viral hepatitis to specialist services, with much of the work of the clinical specialist such as monitoring could be done by family physicians without risk to patient safety. Community based physicians have an important role to play in hepatitis which was not noted during interviews or in other data gathered by the project. Their role is pivotal in increasing the level of screening, in regular monitoring of the infections and broadening geographical access to hepatitis services.

There have been significant changes in the understanding of natural history and of treatment options for viral hepatitis over the past 15 years, with many of these changes having being identified by clinicians and other researchers in Taiwan. Many people diagnosed over 10 -15 years ago may have not been provided with information detailing their clinical management options. The improvement both in treatment and the reduction of barriers to this treatment needs to be clearly communicated to people who have already been screened. There are not the resources including the time and accessible information available within specialist clinical services to conduct this level of education.

Treatment for both hepatitis B and hepatitis C can be rigorous for patients in their own way. The limits on the length of time that hepatitis B treatment can be reimbursed means sophisticated decision making needs to occur by the specialist, and in the best case scenario in discussion with the patient. This decision making will have an emotional impact on people with hepatitis B and often their close networks. In terms of hepatitis C treatment, the impact of side-effects can be devastating. Having a relationship consisting of clear and honest communication can be challenging between a clinician, who may be seeing a sizeable number of patients within the clinic and for people with viral hepatitis who may feel their clinician is too busy and be unable to disclose how they are feeling.

The provision of skilled hepatology nursing staff can assist a clinic on a range of levels, including ensuring patients are educated about their infection and of their options in terms of clinical management, and be more open to discussions that patients may not be able to discuss with the clinical specialist. They can also support the clinical specialist in providing information about the infection, including the monitoring of patients within community based health care settings.

Re-framing of viral hepatitis as a chronic illness which requires regular monitoring, as opposed to an infection of the liver or as a communicable disease requiring treatment, could provide insight into improving compliance and strengthen relationships between people with viral hepatitis and their clinicians. The reframing of viral hepatitis to that of a chronic condition requiring regular monitoring assists in reducing the need for people to access specialist clinical services, and in the investigation and resolution of barriers to this monitoring occurring within community based health clinics.

While universal access to the health system is provided for by National Health Insurance, a significant gap appears to exist in access of people who inject drugs to specialist clinical services. A lack of understanding of the needs of people who inject drugs or data describing this population in Taiwan is reflected in the lack of data contained in peer reviewed papers and gathered for this research. There are several reasons for this, including stigma and poor family, health care and community support with further investigation required to describe more fully the barriers to clinical services by people who inject drugs.

The liver has a privileged role within Chinese culture. As noted previously, the response to viral hepatitis has been led by specialist clinicians using the western medical model with its interpretation and understanding of the body and disease processes. There is substantial medical sociological literature exploring the impact of lay beliefs and cultural explanations of disease and blood including an awareness of the intrinsic impact that these beliefs have on individual and community responses to health issues.(70, 71) Identifying these beliefs, particularly in a country with a high prevalence of viral hepatitis could provide data informing the development of more nuanced and applicable interpretations of the liver and of hepatitis. This would provide information enabling the development of resources that incorporate the experience and lay knowledge of people with viral hepatitis.

This summary uses the four axes of the World Health Organization *Prevention and Control of Viral Hepatitis Infection: Framework for Global Action* to identify the achievements and challenges in the national response to viral hepatitis in Taiwan. The issues listed as achievements and challenges range from a global nature through to issues more specific to a local response to viral hepatitis.

Table 2 - Summary of achievements and challenges in the response to viral hepatitis in Taiwan

Axis 1: Raising awareness, promoting partnerships and mobilising resources	Axis 2: Evidence-based policy and data for action	Axis 3: Prevention of transmission	Axis 4: Screening, care and treatment
Achievements - Comprehensive and resourced health infrastructure - Government recognises viral hepatitis as a significant health issue requiring a comprehensive response - Regular awareness campaigns since 1982 - Sustained advocacy by clinicians and researchers supported through government advisory structures - Prevention is seen as an essential element of health activity	**Achievements** - Five-year action plans since 1982 - National action plans are responsive to changes in management/epidemiology - Taiwan has led the world in hepatitis research for several decades - An effective surveillance systems exists - One government authority has responsiblity for implementing the action plan - Whole of government responses to viral hepatitis initiated	**Acheivements** - Taiwan was the first country to implement a national hepatitis B vaccination program - Screening of pregnant women since 1984 - Provision of immunoglobulin for infants born to women with hepatitis B - A secure blood supply - Access to sterile injecting equipment - Infection control guidelines	**Achievements** - Bureau of National Health Insurance provides broad access to clinical services - Free viral hepatitis screening for people over 45 years - National hepatitis B and hepatitis C treatment plan reduces barriers to treatment - Appropriate hepatitis treatment criteria - Liver cancer testing is 'appropriate'
Challenges - Less comprehensive access to health services in the south than in the north of Taiwan - Advisory structures focus on clinical perspectives, and are without affected community representation - Poor understanding of the link between hepatitis and liver disease within the community and people with hepatitis - People with viral hepatitis and many health care workers may not be aware of changes in clinical management and of the link between hepatitis and liver cancer - Chinese cultural representations of the liver have not been used in raising awareness	**Challenges** - Lack of research looking at the social impact of viral hepatitis - Lack of systematic research into the barriers to screening and clinical management - Government policy incorporating perspectives of people with viral hepatitis	**Challenges** - Duration of hepatitis B vaccine efficacy - Lack of hepatitis C vaccine - Marginalisation of people who inject drugs from health services - Infection control outside of health centres	**Challenges** - Most people with viral hepatitis are unaware they are infected - Co-payments for hospital based care can reduce access - Treatment is primarily provided through specialist services - Most people with viral hepatitis are not clnically managed, with many presenting to clinics late in the disease progression. - Lack of consistent and clear information for people when they are diagnosed, or being managed - Limited access to treatment services for people who inject

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Appendix A: Ottawa Charter for Health Promotion

The first International Conference on Health Promotion was held in Ottawa, Canada in November 1986. The conference was primarily a response to growing expectations for a new public health movement around the world. Discussions focused on needs within industrialised countries, but took into account similar concerns in all other regions.

The aim of the conference was to continue to identify action to achieve the objectives of the World Health Organization (WHO) Health for all by the year 2000 initiative, launched in 1981. The Ottawa Conference was preceded by the Alma Ata Primary Health Care Conference in 1978, and followed by further international health promotion conferences in Adelaide (1988), Sundsvall (1991), Jakarta (1997), Mexico (2000), Bangkok (2005) and Nairobi (2009).

Each conference continues to strengthen health promotion principles and practice, such as healthy public policy, supportive environments, building healthy alliances and bridging the equity gap. The following information is taken from the Ottawa Charter for Health Promotion.

A.1 HEALTH PROMOTION

Health promotion is the process of enabling people to increase control over and improve their health. Health is seen as a resource for everyday life, not the objective of living. Health promotion is not just the responsibility of the health sector, but goes beyond healthy lifestyles to wellbeing.

The fundamental conditions and resources needed for good health are:

- Peace
- Shelter
- Education
- Food
- Income
- A stable ecosystem
- Sustainable resources
- Social justice and equity.

A.2 THREE BASIC STRATEGIES FOR HEALTH PROMOTION

The Ottawa Charter identifies three basic strategies for health promotion:

- **Advocate** – good health is a major resource for social, economic and personal development, and an important dimension of quality of life. Political, economic, social, cultural, environmental, behavioural and biological factors can all favour or harm health. Health promotion aims to make these conditions favourable, through advocacy for health.
- **Enable** – health promotion focuses on achieving equity in health. Health promotion action aims to reduce differences in current health status and to ensure the availability of equal opportunities and resources to enable all people to achieve their full health potential. This includes a secure foundation in a supportive environment, access to information, life skills and opportunities to make healthy choices. People cannot achieve their fullest health potential unless they are able to control those things that determine their health. This must apply equally to women and men.
- **Mediate** – the prerequisites and prospects for health cannot be ensured by the health sector alone. Health promotion demands coordinated action by all concerned, including governments, health and other social and economic sectors, non-government and voluntary organisations, local authorities, industry and the media.

A.3 LOCAL NEEDS AND POSSIBILITIES

People from all walks of life are involved as individuals and as members of families and communities. Professional and social groups, and health personnel, have a major responsibility to mediate between differing interests in society for the pursuit of health. Health promotion strategies and programs should be adapted to the local needs and possibilities of individual countries and regions to take into account differing social, cultural and economic systems.

A.4 AREAS FOR PRIORITY ACTION

Health promotion priority action areas identified in the Ottawa Charter are:

- **Build healthy public policy** – health promotion policy combines diverse but complementary approaches, including legislation, fiscal measures, taxation and organisation change. Health promotion policy requires the identification of obstacles to the adoption of healthy public policies in non-health sectors and the development of ways to remove them.
- **Create supportive environments** – the protection of the natural and built environments, and the conservation of natural resources must be addressed in any health promotion strategy.

- **Strengthen community actions** – community development draws on existing human and material resources to enhance self-help and social support, and to develop flexible systems for strengthening public participation in, and direction of, health matters. This requires full and continuous access to information and learning opportunities for health, as well as funding support.
- **Develop personal skills** – enabling people to learn (throughout life) to prepare themselves for all of its stages and to cope with chronic illness and injuries is essential. This has to be facilitated in school, home, work and community settings.
- **Reorient health services** – the role of the health sector must move increasingly in a health promotion direction, beyond its responsibility for providing clinical and curative services. Reorienting health services also requires stronger attention to health research, as well as changes in professional education and training.
- **Moving into the future** – caring, holism and ecology are essential issues in developing strategies for health promotion. A guiding principle should be that women and men should become equal partners in each phase of planning, implementation and evaluation of health promotion activities.

A.5 COMMITMENT TO HEALTH PROMOTION

The participants at the conference pledged to:

- Move into the arena of healthy public policy and advocate a clear political commitment to health and equity in all sectors
- Counteract the pressures towards harmful products, resource depletion, unhealthy living conditions and environments, and bad nutrition, and focus attention on public health issues such as pollution, occupational hazards, housing and settlements
- Respond to the health gap within and between societies, and tackle the inequities in health produced by the rules and practices of these societies
- Acknowledge people as the main health resource – to support and enable them to keep themselves, their families and friends healthy through financial and other means – and accept the community as the essential voice in matters of its health, living conditions and wellbeing
- Reorient health services and their resources towards the promotion of health, and share power with other sectors, disciplines and with people.
- Recognise health and its maintenance as a major social investment and challenge, and address the overall ecological issues of our ways of living.

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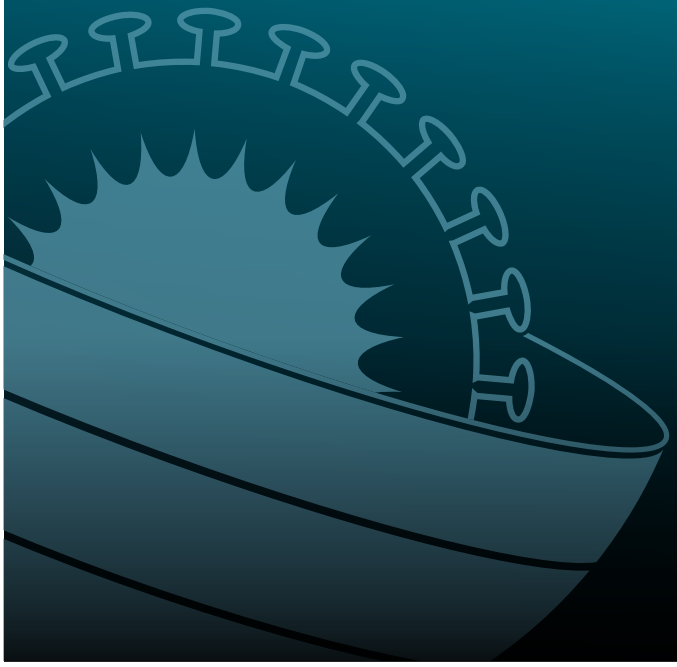

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