



World Health  
Organization

Myanmar

# Myanmar National Action Plan for Viral Hepatitis Response

## 2017-2020

National Hepatitis Control Program

Department of Public Health

2017 - 2020



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**September 2017**



## Acknowledgement

This work has been carried out through the stakeholders' meeting for the action plan for viral hepatitis response on 14 October 2016 in Yangon, Myanmar in collaboration with Department of Public Health: Yangon District Public Health Office, National AIDS Program, National Drug Abuse Prevention and Control Program, Department of Medical Research, National Health Laboratory, National Blood Center, Thaketa Specialist Hospital, Clinton Health Access Initiative, Médecins Sans Frontières-Holland, Médecins Sans Frontières-Switzerland, Burnet Institute, AIDS Alliance Myanmar, Médecins du Monde (MDM), Community Partners International (CPI), Foundation for Innovative New Diagnostics (FIND), Myanmar Positive Group (MPG) and Myanmar Liver Foundation, US-CDC, UNOPS (Global Fund and 3MDG), UNAIDS, UNICEF and World Health Organization (WHO).

National Hepatitis Control Program  
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Ministry of Health and Sports, Myanmar



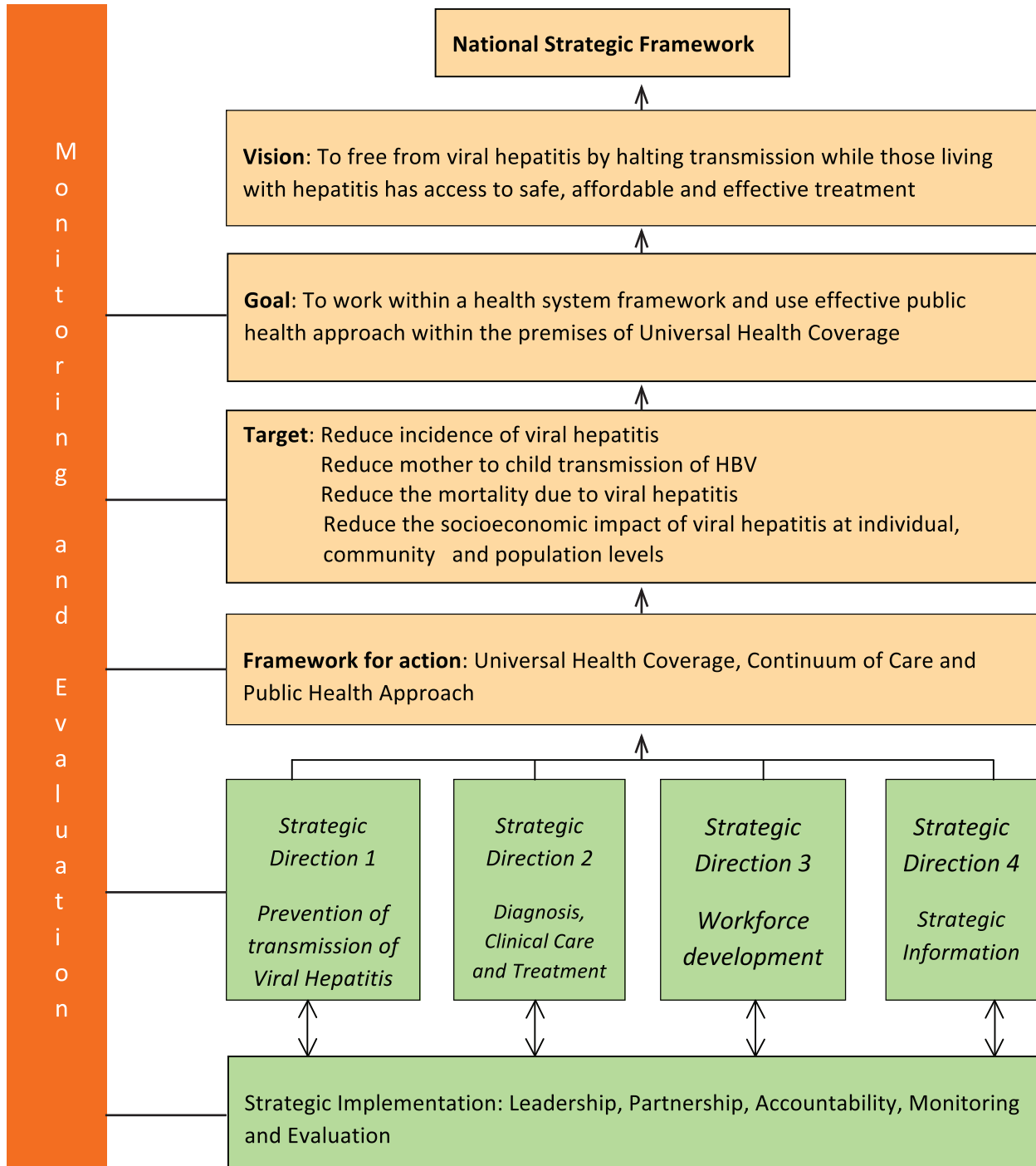
## Epidemiology of Viral Hepatitis in Myanmar

The national Sero-prevalence, by the collaborative effort of Department of Medical Research and Department of Public Health instead of Department of Medical Research survey for Hepatitis B and C was conducted from May to November 2015 by the Department of Medical Research, and it was conducted in 18 study sites covering all States and Regions. Key preliminary results from the prevalence survey shows that the disease burden for Hepatitis B and C in the general population is 6.51% and 2.65% respectively. The highest occurrence of HBsAg positivity was found in Yangon (12.29%), Patheingyi (9.15%), and Mawlamyine (7.84%). The highest occurrence of anti-HCV positivity was found in Mawlamyine (10.34%), Mandalay (7.17%) and Lashio (5.03%) respectively<sup>1</sup>. Depending on the age group, hepatitis B was found to be more prevalent in the young adults (20-39 years) and Hepatitis C in the older age group of 40-59 years. The risk factors associated with transmission of Hepatitis B are male gender, history of liver disease or hepatitis and history of household contacts. The risk factors associated with the transmission of hepatitis C are male gender, age more than 50 years, history of blood transfusion, dental treatment, surgery and history of liver disease or hepatitis.

### Development of the Myanmar National Strategic Plan and the Action Plan for Viral Hepatitis

The first national consultative workshop on the development of the National Hepatitis Control Program was conducted on the 17th of November, 2014 which served to develop the road map for the National Hepatitis Program. Subsequently, the simplified clinical guidelines for screening, diagnosis, and treatment of Hepatitis B was revised and simplified hepatitis C treatment guideline was developed. In Nay Pyi Taw, on the 25<sup>th</sup> of June, 2015, the third consultative meeting was held with the government and the civil society partners to finalize these guidelines. The fourth consultative meeting on the development of the National Strategic Plan on hepatitis was conducted on the 15<sup>th</sup> -16<sup>th</sup> of September, 2015, during which participants developed the draft National Strategy Plan on viral hepatitis and introduced the five-year Action Plan of viral hepatitis. Technical Working Groups (TWG) meetings for each strategic direction were held in June and July, 2016 to revise the draft and finalize the National Strategy and the Action Plan. Finally, the Myanmar Action Plan for Viral Hepatitis Response was adopted following a government and civil society partners meeting in Yangon on 14 October 2016. This document uses the framework that was accepted during this consultative process which contains the four strategic directions of prevention of transmission of viral hepatitis; diagnosis, clinical care and treatment; workforce development; and surveillance and research/strategic information (Figure 1).

<sup>1</sup> Department of Medical Research, Ministry of Health and Sports, National Prevalence survey report 2015

**Fig 1. National Strategic Framework of Viral Hepatitis response**

## National targets for viral hepatitis response

Following the global targets described within the Global Health Sector Strategy<sup>2</sup> on viral hepatitis, the targets for the viral hepatitis response have been determined as described in Table 1 and Table 2 shows the objectives, priority interventions and targets of next five years. The national action plan activities for the coming five years are summarized in Table 3. The leadership, partnership, and accountability functions of the national hepatitis program are listed in Table 4. Table 5 illustrates the variety of partners involved in and committed to responding to the viral hepatitis problem in Myanmar and lists their proposed actions.

**Table 1. National targets for viral hepatitis response in Myanmar for 2030**

Core intervention	Indicator	Myanmar 2015	Myanmar 2020	Myanmar 2030	Global 2030
<b>Childhood vaccination</b>	Hepatitis 3 <sup>rd</sup> dose vaccination coverage	76%	80%	90%	90%
<b>Prevention of mother-to-child transmission of hepatitis B</b>	Hepatitis timely birth dose vaccination coverage	15% of institutional deliveries 2% of all deliveries	75% of all deliveries	80%	90%
<b>Safe injections</b>	Proportion of safe injections in health care facilities.	To be determined in 2017	To be determined after the injection safety assessment	To be determined after the injection safety assessment	90%
<b>Harm reduction</b>	Number of needles/PWID/year	222	300	365	300
<b>Testing</b>	Percent of persons with chronic HBV and HCV infections diagnosed	<1%	25%	50%	90%
<b>Chronic HBV infection treatment</b>	Percent of treatment eligible persons with chronic HBV infection treated	<1%	<1%	50%	80%
<b>Chronic HCV infection treatment</b>	Percent of treatment eligible persons with chronic HCV infection treated	<1%	30%	50%	80%

<sup>2</sup> WHO Global Health Sector Strategy on viral hepatitis. 2016 <http://www.who.int/hepatitis/strategy2016-2021/ghss-hep/en/>



**Table 2. Objectives, priority interventions and targets with respect to strategic directions of the viral hepatitis response, Myanmar 2017 – 2020**

SD 1. Prevention of transmission of viral hepatitis			
Objectives	Priority interventions	Baseline 2015	Target 2020
<ul style="list-style-type: none"> <li>To increase community awareness of viral hepatitis and preventive measures</li> <li>To reduce transmission of viral hepatitis in key target population</li> </ul>	1. Advocacy, Education and Communication for public awareness		
	2. Prevention of mother-to-child transmission of hepatitis B <i>Global indicator C3a: timely HBV birth dose and other interventions to prevent mother-to-child transmission of HBV</i>	2%	75%
	3. Increasing the coverage third dose HBV vaccine. <i>Global indicator C3b: third dose HBV vaccine</i>	76%	80%
	4. Hepatitis B vaccination for high risk populations and vulnerable adults (PWID)		50%
	5. Infection control precautions and safe injection practices in health care settings <i>Global indicator C5: proportion of safe injections in health care facilities</i>		
<ul style="list-style-type: none"> <li>To improve coverage of harm reduction programs inclusive of viral hepatitis</li> </ul>	6. Harm reduction program for people who inject drugs (PWID) and people who use drugs (PWUD) <i>Global indicator C4: number of needle-syringes distributed per person per year</i>	222	365
	7. Implementation of blood safety strategies for quality assurance		All blood tested with quality assured tests for HBV and HCV
	8. Access to safe food and water		
	9. Sentinel surveillance system for enhanced case reporting of acute viral hepatitis		Annual data published
	10. Promotion of safe sex through condom program		

**SD 2. Diagnosis, clinical care and treatment**

Objectives	Interventions	Baseline 2015	Target 2020
<ul style="list-style-type: none"> <li><b>To increase the number of people who know their HBV or HCV status</b></li> </ul>	1. Create systems and tools to enhance access to diagnosis, treatment and care.		
	2. Identify those infected with viral hepatitis early in the course of their disease and improve access to quality treatment and care.		
	<b>Global indicator C2:</b> Infrastructure for HBV and HCV testing.		
	<b>Global indicator C6:</b> Percent of people living with HBV and/or HCV diagnosed.	<1%	25%
<ul style="list-style-type: none"> <li><b>To increase the number of eligible HBV and HCV patients on treatment</b></li> </ul>	<b>Global indicator C7a:</b> Percent of treatment coverage for HBV patients.	<1%	<1%
	<b>Global indicator C7b:</b> Percent of treatment initiation for HCV patients.	<1%	30%
	<b>Global indicator C8a:</b> Percent of viral suppression for chronic HBV patients treated.		
	<b>Global indicator C8b:</b> Percent of cure for chronic HCV patients treated.		
<ul style="list-style-type: none"> <li><b>To decrease mortality associated with HBV and HCV</b></li> </ul>	<b>Global indicator C10:</b> Deaths from hepatocellular carcinoma (HCC), cirrhosis and liver diseases attributable to HBV and HCV infection		

**SD 3. Workforce development**

Objective	Interventions	Baseline 2015	Target 2020
<ul style="list-style-type: none"> <li><b>To build and strengthen the capacity of health workforce in prevention, diagnosis, treatment and care</b></li> </ul>	1. Collaborate with professional, medical, and other organizations to build a workforce capable of providing viral hepatitis prevention, care and treatment		
	2. Build capacity for viral hepatitis prevention, care and treatment	2	
	3. Strengthen enabling environment for health care workers to prevent hepatitis transmission		

SD 4. Surveillance, research and strategic information			
Objectives	Interventions	Baseline 2015	Target 2020
<ul style="list-style-type: none"> <li>To obtain evidence for advocacy and planning</li> <li>To understand the epidemic and the required response</li> </ul>	1. Establish a national monitoring and evaluation system for the cascade of services		
	2. Establish a national surveillance system for program and disease monitoring of viral hepatitis		
	3. Strengthen research agenda for evidence based documentations and planning		

**Table 3. Myanmar Viral Hepatitis Response Action Plan 2017 to 2020**

**Strategic Direction 1: Prevention of Transmission**

Intervention	Activity targets timeline			
	2017	2018	2019	2020
<b>1.1. Advocacy-Education-Communication-for Public Awareness</b>				
General public	Conduct a one-day workshop with implementing partners on increasing community awareness.	Conduct a one-day workshop with implementing partners on increasing community awareness.	Conduct a one-day workshop with implementing partners on increasing community awareness.	Conduct a one-day workshop with implementing partners on increasing community awareness.
	Develop IEC materials including pamphlets (100,000), posters (50,000) signboards (20) and TV spots (12 times).	Develop IEC materials including pamphlets (200,000), posters (50,000) signboards (20) and TV spots (12 times).	Continue using IEC materials including pamphlets (300,000), posters (100,000) signboards (20) and TV spots (12 times).	Continue using IEC materials including pamphlets (400,000), posters (100,000), signboards (20) and TV spots (12 times).
	Observe the World Hepatitis Day on 28 July at the central level with active participation of the civil society and implementing partners and 14 states and regional levels.			

Intervention	Activity targets timeline			
	2017	2018	2019	2020
Higher risk groups	Prepare CDs to be distributed to hospitals and healthcare facilities.			
<b>1.2. Prevention of mother-to-child transmission of hepatitis B</b>				
Timely birth dose (TBD) of HBV vaccine to newborns within 24 hours of life.	75% of all infants born in hospitals receive TBD.	80% of all infants born in hospitals receive TBD.	85% of all infants born in hospitals receive TBD.	90% of all infants born in hospitals receive TBD.
	Provide TBD vaccination out of cold chain at pilot sites.	20% of all infants born in the presence of skilled birth attendants receive TBD.	30% of all infants born in the presence of skilled birth attendants receive TBD.	40% of all infants born in the presence of skilled birth attendants receive TBD.
Hep3 vaccine <1 year of age	Increase coverage to 76%.	Increase coverage to 77%.	Increase coverage to 78%.	Increase coverage to 80%.
<b>1.3. Achieve hepatitis B vaccination for high risk populations and vulnerable adult</b>				
HBV vaccine to PWID/key populations	20% of coverage	25% of coverage	30% of coverage	50% of coverage

Intervention	Activity targets timeline			
	2017	2018	2019	2020
<b>1.4. Infection control and injection safety precaution and practices in health care settings</b>				
Infection control including injection safety Infection control including injection safety	Integrate infection control services (including injection safety) within the Departments of Medical Services and Public Health.	Integrate infection control services (including injection safety) within the Departments of Medical Services and Public Health.	Integrate infection control services (including injection safety) within the Departments of Medical Services and Public Health.	Integrate infection control services (including injection safety) within the Departments of Medical Services and Public Health.
	Develop a national Working Group for infection control including injection safety.	Establish and implement an injection safety policy. Develop and enforce guidelines for infection control in all healthcare facilities (including laboratories)	Establish infection control committees in all major hospitals.	Establish infection control committees in all healthcare facilities.  Safe injection policy review.
	Perform a baseline injection safety assessment.  Develop checklist for assessment.	Build healthcare worker capacity in tertiary hospitals and universities to create a critical mass for training and role modeling.  Monitor with checklist for infection control in health facilities.	Ensure availability and maintenance of infrastructure and systems. Monitor with checklist for infection control in health facilities.	

Intervention	Activity targets timeline			
	2017	2018	2019	2020
<b>1.5. Harm reduction program for people who inject drugs (PWID) and people who use drugs (PWUD)</b>				
Harm reduction	Expand harm reduction services for PWIDs to include hepatitis B and C testing.	Test 2,000 PWID for hepatitis B and C and link to clinical care if necessary.	Test 15,000 PWID for hepatitis B and C and link to clinical care if necessary.	Test 25,000 PWID for hepatitis B and C and link to clinical care if necessary.
	Expand Methadone Maintenance Therapy. <sup>3</sup>			
	18,974 PWID on MMT	23,316 PWID on MMT	27,658 PWID on MMT	32,000 PWID on MMT
	Needle-syringe distribution services. <sup>3</sup>			
	23.1 million	25.4 million	27.7 million	30 million
<b>1.6. Implementation of blood safety strategies</b>				
Blood safety	Set the standard quality assurance of HBV and HCV testing including public and private sector.	Move to a computerized system to keep records of blood donors.  Use unique identifier coding system for all major general hospitals.	Use unique identifier coding system for all state/ regional general hospitals.	Expand the computerized system to include all blood banks.
	Plan for development the quality assurance policy for blood borne diseases.	Publish and disseminate the quality assurance policy for blood borne diseases.  Test all blood donations for HBV and HCV with quality assured tests.	Test all blood donations for HBV and HCV with quality assured tests.	Test all blood donations for HBV and HCV with quality assured tests.

## Strategic Direction 2: Diagnosis, Clinical Care and Treatment

Intervention	Activity targets timeline			
	2017	2018	2019	2020
<b>2.1. Create systems and tools enhance access to laboratory diagnosis, treatment and care</b>				
Diagnosing Hepatitis Infection	Establish a national framework for hepatitis testing guidelines (e.g. national testing policies, regulatory mechanism, and national reference laboratory).	Increase capacity for testing services (e.g. management of human resources, procurement and supply chain, storage and transportation, equipment and laboratory information systems); link testing services to care and clinical management services.		
	Assure quality and safety of testing services e.g. quality management systems, personnel, training and supportive supervision).	Assure quality and safety of testing services e.g. quality management systems, personnel, training and supportive supervision).	National External Quality Assurance System (EQAS) to establish.  10% of labs in NEQAS system.	30% of labs in NEQAS system.
	Procure hepatitis diagnostics (RDT, viral load tests and reagents for APRI scoring).	Make use of existing testing opportunities such as antenatal clinics, HIV or TB clinics to increase testing coverage.	Expand testing opportunities to increase coverage.  Offer testing to all health-care workers.	Ensure 25% of all persons with HBV and HCV know their status.

Intervention	Activity targets timeline			
	2017	2018	2019	2020
<b>2.2. Identification of persons infected with viral hepatitis early in the course of their disease and improve access to quality treatment and care</b>				
Enhancing treatment of HBV and HCV infection	Start national process for reduction in prices of drugs and diagnostic test kits.	Obtain chronic hepatitis C treatment with DAAs for 600 USD per treatment.	Obtain chronic hepatitis C treatment with DAAs for 600 USD per treatment.	Obtain chronic hepatitis C treatment with DAAs for 500 USD per treatment.
	Plan for HBV treatment and testing guidelines Review HCV treatment and testing guidelines.	Start on treatment 1,000 patients with chronic HBV infection.	Start on treatment 2,000 new patients with chronic HBV infection.	Start on treatment 4,000 new patients with chronic HBV infection.
	Treat 2,000 patients with chronic HCV infection.	Treat 10,000 new patients with chronic HCV infection.	Treat 20,000 new patients with chronic HCV infection.	Treat 30,000 new patients with chronic HCV infection.
Logistic Management System	Develop recording and reporting of logistic information management system (LMIS).	Make sure of using LMIS forms. No stock out of medicines and test kits.	Make sure of using LMIS forms. No stock out of medicines and test kits.	Make sure of using LMIS forms. No stock out of medicines and test kits.
	Carry out forecasting meeting annually.	Carry out forecasting meeting annually.	Carry out forecasting meeting annually.	Carry out forecasting meeting annually.



### Strategic Direction 3: Workforce Development

Intervention	Activity targets timeline			
	2017	2018	2019	2020
<b>3.1. Collaborate with professional, medical and other organizations to build a workforce capable of providing viral hepatitis prevention, care and treatment</b>				
Collaborate with physicians, nurses, pharmacist both public and private.	Collaborate with physicians, nurses, pharmacist both public and private.	Expand collaboration with physicians, nurses, pharmacist both public and private.	Expand collaboration with physicians, nurses, pharmacist both public and private.	Expand collaboration with physicians, nurses, pharmacist both public and private.
<b>3.2. Build capacity of a workforce capable of providing viral hepatitis prevention, care and treatment for hepatitis</b>				
Train medical professionals of government, NGOs and GPs in viral hepatitis treatment. Conduct refresher trainings for those already trained.		Create 1 centre of excellence for viral hepatitis diagnosis and treatment in Yangon.	Create 1 centre of excellence for viral hepatitis diagnosis and treatment in Mandalay.	
	Expand 2 trainings to 10 hospitals in Yangon and Mandalay and 7 one stop services of drug control program, ART centers of public and private.	Conduct 2 trainings (district hospitals and ART centers of public and private).	Conduct 2 trainings district and township hospitals. Conduct 1 refresher training.	Conduct 2 trainings district and township hospitals. Conduct 1 refresher training.
Train Laboratory staff for diagnostic testing, universal precautions and waste management.	2 trainings to 10 hospitals in Yangon and Mandalay and 7 one stop services of drug control program, ART centers of public and private.	2 trainings to 17 hospitals and ART centers of public and private.	2 trainings to 10 hospitals in Yangon and Mandalay and 7 one stop services of drug control program, ART centers of public and private.	2 trainings to 10 hospitals in Yangon and Mandalay and 7 one stop services of drug control program, ART centers of public and private.

Intervention	Activity targets timeline			
	2017	2018	2019	2020
Train the data collectors for data management.	1 training on the data management.	1 training on the data management.	1 training on the data management.	1 training on the data management.
Train blood bank staff for quality assurance of hepatitis.		2 trainings to blood banks for NEQAS	1 training to blood banks for NEQAS	1 training to blood banks for NEQAS
Train for LMIS.	Train the health staff for book keeping of stocks.	Train the health staff for book keeping of stocks.	Train the health staff for book keeping of stocks.	Train the health staff for book keeping of stocks.
Train for electronic database.	Train the health staff for data management.	Train the health staff for data management.	Train the health staff for data management.	Train the health staff for data management.
<b>3.3. Strengthen enabling environment for health care workers to prevent hepatitis transmission</b>				
Initiate Continuous Medical Education (CME) programs for hospitals and private clinics.	1 CME in collaboration with MMA.	10 CME in collaboration with MMA.	17 CME in collaboration with MMA.	17 CME in collaboration with MMA.
Continue training healthcare workers on diagnosis and treatment and care of chronic viral hepatitis including e-learning.	Continue training healthcare workers on diagnosis and treatment and care of chronic viral hepatitis including e-learning.	Continue training healthcare workers on diagnosis and treatment and care of chronic viral hepatitis including e-learning.	Continue training healthcare workers on diagnosis and treatment and care of chronic viral hepatitis including e-learning.	Continue training healthcare workers on diagnosis and treatment and care of chronic viral hepatitis including e-learning.

## Strategic Direction 4: Strategic information

Intervention	Activity targets timeline			
	2017	2018	2019	2020
<b>4.1. Establish a national monitoring and evaluation system for comprehensive prevention and care</b>				
Understanding the epidemic and the response.	Complete and publish national chronic hepatitis burden estimates by using all available data.	Plan for setting up a sentinel surveillance system for enhanced case reporting of acute viral hepatitis.	Set up a sentinel surveillance system for enhanced case reporting.	Monitor and publish data from the sentinel surveillance system for enhanced case reporting.
	Build an investment case to estimate cost, budget implications, epidemiological impact and cost effectiveness.	Work with the National AIDS Programme to include hepatitis B testing in the pregnant women and B and C testing in HSS and IBBS surveys.	Work with the National AIDS Programme to include hepatitis B testing in the pregnant women and B and C testing in the PWID surveys.	Work with the National AIDS Programme to include hepatitis B testing in the pregnant women and B and C testing in the PWID surveys.
Monitoring interventions to decrease transmission.	Engage with other programs and partners to gather and publish data on vaccination, harm reduction, blood and injection safety services.			
Monitoring testing and treatment.	Set up the system to collect the number of people tested for HBV or HCV infections.	Set up a patient registry to follow-up and publish data on people on treatment (for HBV) or have received treatment (for HCV).		
Program Evaluation.	Annual review for Hepatitis Program.	Annual review for Hepatitis Program.	Annual review for Hepatitis Program.	Annual review for Hepatitis Program.
Conduct National Strategic Plan review.		NSP review among stakeholders.		NSP review among stakeholders.

Intervention	Activity targets timeline			
	2017	2018	2019	2020
<b>4.2. Establish national hepatitis surveillance system</b>				
Surveillance system.	Procure HBV and HCV diagnostic tests integration with NAP IBBS for PWID.	Procure HBV and HCV diagnostic tests integration with NAP for HSS, IBBS surveillance system of KPs.	Procure HBV and HCV diagnostic tests integration with IBBS for PWID, FSW and MSM.	Procure HBV and HCV diagnostic tests for HSS, IBBS surveillance system of KPs.
Acute and Chronic hepatitis surveillance.	Procure HBV and HCV diagnostic tests for acute hepatitis and chronic hepatitis infection.	Procure HBV and HCV diagnostic tests for acute hepatitis and chronic hepatitis infection.	Procure HBV and HCV diagnostic tests for acute hepatitis and chronic hepatitis infection.	Procure HBV and HCV diagnostic tests for acute hepatitis and chronic hepatitis infection.
<b>4.3. Strengthen research agenda for evidence based documentation and planning</b>				
Public health research on viral hepatitis	Prevalence of chronic hepatitis B infection in 5-year-old children and pregnant women.	Implementation research on diagnosis and service delivery models.	Hepatitis B vaccine coverage and response among different groups.	Prevalence of HBV and HCV infections in special population
	Feasibility study of needle cutters for sharp disposal (waste management introduction and pilot testing).			
	Implementation research on diagnosis and service delivery models.			
	Operational research on safe injection practices.			
	Molecular epidemiology of Hepatitis B and C infections in Myanmar.			

**Table 4. Governance, leadership and coordination functions for the implementation of the national action plan**

<b>Governance, leadership and coordination<sup>4</sup></b>				
	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
<b>Governance</b>	Create a Steering Committee with the involvement of relevant Director Generals or their deputies to oversee the hepatitis response. This is the group responsible for programme oversight. A senior official within the MOHS, appointed by the minister, generally chairs it. It may include representatives from other ministries or sectors. It meets at least annually to review the programme.	Meet as often as necessary to oversee the hepatitis response.		
<b>Leadership</b>	Create a Technical and Strategic Group (TSG) to advise the MOHS on the viral hepatitis response. TSG convenes at least bi-annually to advise the MoHS on strategic directions, priorities and activities. It consists of a broad range of stakeholders including, but not limited to, the academia (teaching and research), national professional organizations (doctors, nurses, midwives, etc.), civil society, patient groups and service provider groups (laboratories, blood banks, hospitals, etc.). WHO, UNAIDS, UNICEF and other international technical agencies are also asked to join this group. Under the guidance of TSG, the TWG are grouped in four in line with four strategic directions. The participants are from the government and private sector such as INGO, local NGO and CBO.	TSG meets at least bi-annually to review the programme and the disease burden, and makes recommendations.  TWG meets quarterly to share the updates and proposes new development.		
<b>Coordination</b>	Create an Internal Coordination Group within the MoHS to coordinate the activities of different units within the MOHS. This groups would consist of representatives from immunization, blood safety, infection prevention and control (including injection safety), Occupational Health, Laboratory, Health Literacy Promotion Unit (HLPU), Health Management Information System (HMIS), drug and commodities procurement, health-care facilities, screening programmes (e.g. premarital, antenatal care, etc.) and relevant treatment services for hepatitis or other programmes (e.g. HIV, TB programmes, RMNCH).	Meet no less than quarterly to coordinate among different units and increase synergies.		
<b>Monitoring</b>	Create a monitoring framework by making use of the relevant WHO guidance. <sup>5</sup>	Start collecting data to monitor the national hepatitis response.		

<sup>4</sup> For details of the recommended governance, leadership and coordination arrangements, please see the Manual for the development and assessment of national viral hepatitis plans: a provisional document. <http://www.who.int/hepatitis/publications/manual-hep-plan/en/>

<sup>5</sup> Monitoring and evaluation for viral hepatitis B and C: recommended indicators and framework 2016. <http://www.who.int/hepatitis/publications/hep-b-c-monitoring-evaluation/en/>

Table 5. Partner mapping in Myanmar for Viral Hepatitis for 2017

Strategic Direction	Objectives	Activities	Organizations	Townships to implement
Prevention of transmission of viral hepatitis	Increase community awareness of viral hepatitis and preventive measures	1. Develop printed information education communication materials	BI, MSF-H, MLF, MSF-CH CHAI	Yangon, Mandalay, Pyin Oo Lwin, Shan, Dawei, countrywide
		2. Mobilization of Civil society organization	MLF	countrywide
		3. Mass media campaign for general population	MLF	countrywide
		4. Conduct targeted awareness raising in high risk groups	BI, MANA, MLF	Sagaing, Shan, Mandalay and Yangon
	Prevention of mother to child transmission of viral hepatitis	1. Administer a Birth Dose of HBV vaccine to newborns	MoHS	countrywide
		2. Administer HBV vaccine to children	MoHS	countrywide
	Achieve HBV vaccination for high risk population and vulnerable adults	1. Administer HBV vaccine to PWID	SARA, AHRN, BI, MSF-CH, MLF, MANA	Yangon, Mandalay, Pyin Oo Lwin, Shan, Dawei
		2. Administer HBV vaccine to health care workers	MLF, MoHS	Healthcare workers within Ministry of Health and Sports
	Infection Control and injection safety	1. Integrate infection control with department of medical services and public health.	MSF-H, central epidemiology unit, NHL, BI	Yangon, Kachin, Shan already implemented
		2. Develop a national policy and plan/guidelines on infection control including injection safety	NHL	countrywide (guidelines)
		3. Set up a waste management system for the safe disposal of sharps	BI, MSF-H, MANA, MSF-CH, DoPH, MLF, MGH, NHL	Yangon, Kachin, Shan already implemented
	Improve coverage for harm reduction programs inclusive of VH	1. Provide needle syringe program	BI, Alliance MSF-H, MANA, SARA, AHRN, MDM	Tamu, Sagaing, Mogaung, Yangon Yangon, Kachin, Shan already implemented
		2. Provide MMT	DoMS	
		3. Provide community based harm reduction	BI, Alliance, MANA, SARA, ARHN, MDM	Tamu, Sagaing, Mogaung, Yangon
		4. Strengthen harm reduction network	BI, MSF-H, MANA, SARA, MDM, ARHN	Partnering with other organization

Strategic Direction	Objectives	Activities	Organizations	Townships to implement
Prevention of transmission of viral hepatitis	Implementation of blood safety strategies	1. Screen all donated blood for HBV and HCV	DoMS	
		2. Implement quality control measures for lab testing	CHAI	
		3. Upgrade and strengthen testing facilities	CHAI	
	Promotion of safer sex through condoms program	1. Distribute the condoms	BI, MSF-H, DoPH (donation), MANA, NAP	Yangon, Kachin and Shan within our existing cohort of patients already implemented
		2. Purchase Condoms	BI, MANA	
Diagnosis Clinical Care and Treatment	Increase the number of people who know of their HBV or HCV status	1. Train staff for RDT screening	BI, NHL, CHAI, MLF, MANA	
		2. Train laboratory staff to Viral load testing	MSF-H and CH, NHL, BI, CHAI	Yangon
		3. Train staff for fibroscan	BI, MSF-H, CH	Yangon
		4. Purchase RDT test	BI, MSF-H, MANA	Yangon, Kachin, Shan
		5. Purchase Viral load test	BI, MSF-H	Yangon already implemented; Shan, Kachin possibly in 2017
		6. Purchase fibroscan	BI, MSF-H	Yangon
		7. Laboratory diagnosis of HBV	MSF-H, NHL for occasional PCR, MLF chemiluminescence at private lab	Yangon, Kachin, Shan Only RDTs within our existing cohort of patients
		8. Laboratory diagnosis of HCV	MSF-H, MSF-CH, NHL do GeneXpert, screening with chemiluminescence	Yangon, Kachin and Shan within our existing cohort of patients already implemented with RDT
	Identify those infected with VH early in the course of their disease and improve access to quality treatment and care	1. Training/e-learning medical professional for treatment and care	BI, MSF-H, CHAI	Yangon MD attended the TOT organised by CHAI, for the start of the treatment waiting for the government and ERB approval
		2. Initiation of treatment	BI, MSF-H MSF-CH (coinfection), CHAI	
		3. Post treatment care	BI, MSF-H, DoMS, DoPH	
		4. Co-infected treatment - HIV	BI, Alliance MSF-H	

Strategic Direction	Objectives	Activities	Organizations	Townships to implement
Workforce Development	Build and strengthen the capacity to health workforce	Collaborate with professional, medical and other organizations	Alliance, CHAI, MLF (counseling) DoMS	Yangon
		1. Train the medical professionals of government, NGOs and GPs for hepatitis		
		2. Update the curriculum for training	BI, CHAI	
		3. CME and mentoring programs	BI, CHAI	
		4. Develop human resource database	BI	
Strategic information	Establish a national monitoring and evaluation system for the cascade of services	5. Train on Universal precaution of health care workers	DoMS, DoPH, BI (for our sites)	All
		1. Develop recording system	BI, MSF-H CHAI	Yangon
		2. Develop reporting system	BI, MSF-H, CHAI, MSF-CH	Yangon
		3. Connect to HMIS system	BI, DoPH, CHAI	
		4. Develop logistics management information system	BI, CHAI, 3MDG (procurement)	
		5. Develop M&E guidelines	BI, MSF-H, MSF-CH, CHAI,	Yangon
	Establish a national surveillance system for program and disease monitoring of VH	6. Develop M&E database	BI MSF-H, MSF-CH,	Yangon
		1. Acute hepatitis surveillance	BI	
		2. Chronic hepatitis surveillance	BI	
		3. Death registry	MSF-H	Yangon
		4. Conduct prevalence survey	DMR	To be determined
Conduct implementation research	1. Conduct implementation research(s)	BI, MSF-H, MSF-CH,	Yangon, to submit in 2016 and wait for the approval	



**Table 6. Cost Summary by Strategic Directions and Strategic Interventions (\$)**

		Responsi- bility	2017	2018	2019	2020
	<b>Total Cost to National Hepatitis Program</b>		<b>5,828,519</b>	<b>19,691,049</b>	<b>32,270,869</b>	<b>38,806,545</b>
<b>0</b>	<b>Governance, Leadership and Coordination</b>		<b>-</b>	<b>17,400</b>	<b>17,400</b>	<b>17,400</b>
0.1	Steering Committee Meeting	NHCP	-	2,320	2,320	2,320
0.2	Technical Working Group Meeting	NHCP	-	9,280	9,280	9,280
0.3	Internal Coordination Meeting	NHCP	-	3,480	3,480	3,480
0.4	Technical Strategic Group Meeting	NHCP	-	2,320	2,320	2,320
<b>1</b>	<b>Prevention of Transmission of Viral Hepatitis</b>		<b>244,900</b>	<b>218,942</b>	<b>304,627</b>	<b>304,627</b>
<b>1.1</b>	<b>Advocacy, Education, and Communication for Public Awareness</b>		<b>230,000</b>	<b>157,983</b>	<b>265,983</b>	<b>265,983</b>
1.1.1	Develop printed information education communication materials	NHCP	214,500	115,683	223,683	223,683
1.1.2	Develop Mass Media Campaign for General Population	NHCP	5,500	15,300	15,300	15,300
1.1.3	Mobilization of Civil Society Organizations to Carry Out Awareness Raising	NHCP	10,000	27,000	27,000	27,000
<b>1.2</b>	<b>Prevention of Mother to Child Transmission of Hepatitis B and hep B birth dose</b>		<b>14,900</b>	<b>-</b>	<b>-</b>	<b>-</b>
1.2.1	Administer Hepatitis B Birth Dose Vaccination in Hospital Deliveries	EPI	14,900	-	-	-
1.2.2	Provide Birth Dose Out of Cold Chain to Infants Born to Skilled Birth Attendant	EPI	-	-	-	-

<b>1.3</b>	<b>Achieve Hepatitis B Vaccination for High Risk Populations and Vulnerable Adults</b>		-	-	-	-
1.3.1	Provide 3 Doses of Hepatitis B Vaccination in PWID	INGO	-	-	-	-
<b>1.4</b>	<b>Infection Control Precautions and Safe Injection Practices in Health Care Settings</b>		-	<b>8,120</b>	<b>4,350</b>	<b>4,350</b>
1.4.1	Form Working Group for Infection Control Including Injection Safety	NHCP	-	7,540	3,770	3,770
1.4.2	Form Infection Control Committee in All Hospitals	NHCP	-	580	580	580
<b>1.5</b>	<b>Harm Reduction Program for People Who Inject Drugs (PWID) and People Who Use Drugs (PWUD)</b>		-	-	-	-
1.5.1	Provide HBV and HCV Testing to PWID	NAP	-	-	-	-
1.5.2	Provide Needles and Syringes to PWID	NAP	-	-	-	-
1.5.3	Provide Methadone Maintenance Therapy to PWID	NAP	-	-	-	-
<b>1.6</b>	<b>Implementation of Blood Safety Strategies</b>		-	<b>52,839</b>	<b>34,294</b>	<b>34,294</b>
1.6.1	Integration of data recording and reporting from blood banks to hepatitis program	National Blood Banks	-	3,480	3,480	3,480
1.6.2	Development of quality assurance policy for blood screening of blood borne diseases	National Health Laboratory	-	14,895	-	-
1.6.3	Publish quality assurance policy	National Health Laboratory	-	750	-	-
1.6.4	Disseminate quality assurance policy	National Health Laboratory	-	2,900	-	-
1.6.5	Development of unique identifier for blood donors	National Blood Banks	-	30,814	30,814	30,814

1.7	<b>Ensuring Access to Safe Food and Water</b>		-	-	-	-
1.8	<b>Promoting Safer Sex Through Condom Programs</b>		-	-	-	-
1.8.1	Procurement of Condoms and Distribution	NAP	-	-	-	-
1.9	<b>Prevention and Control Measures for Acute Viral Hepatitis Outbreak</b>		-	-	-	-
<b>2</b>	<b>Diagnosis, Clinical Care, and Treatment</b>		<b>5,338,304</b>	<b>19,184,857</b>	<b>31,684,232</b>	<b>38,226,149</b>
2.1	<b>Create Systems and Tools to Enhance Access to Diagnosis, Treatment and Care</b>		<b>302,251</b>	<b>2,916,488</b>	<b>5,372,327</b>	<b>8,599,016</b>
2.1.1	Procure RDTs for Screening	NHCP	64,587	566,320	966,969	1,546,690
2.1.2	Procure VL Machines and Tests for Diagnosis	NHCP	219,161	2,015,269	3,883,207	6,400,144
2.1.3	Procure Commodities for Staging	NHCP	18,503	331,319	518,572	648,602
2.1.4	Establish LMIS	NHCP	-	3,580	3,580	3,580
2.2	<b>Identify persons infected with viral hepatitis early in the course of their disease and improve access to quality treatment and care</b>		<b>5,036,053</b>	<b>16,268,369</b>	<b>26,311,905</b>	<b>29,627,133</b>
2.2.1	Procurement of HCV drugs for treatment	NHCP	5,036,053	16,195,106	26,092,115	29,114,291
2.2.2	Procurement of HBV drugs for treatment	NHCP	-	73,263	219,789	512,842
<b>3</b>	<b>Workforce Development</b>		<b>40,500</b>	<b>66,750</b>	<b>57,950</b>	<b>48,150</b>
3.1	<b>Collaborate with Professional, Medical, and Other Organizations to Build a Workforce Capable of Providing Viral Hepatitis Prevention, Care and Treatment</b>					
3.2	<b>Build capacity of a workforce capable of providing viral hepatitis prevention, care, and treatment for Hepatitis</b>		<b>40,000</b>	<b>60,590</b>	<b>48,290</b>	<b>38,490</b>

3.2.1	Training of medical professionals and health care workers	Medical Services	40,000	50,790	38,490	38,490
3.2.2	Develop Center of Excellence for Capacity Building	Medical Services	-	9,800	9,800	-
<b>3.3</b>	<b>Strengthen enabling environment for health care workers to prevent hepatitis transmission</b>		<b>500</b>	<b>6,160</b>	<b>9,660</b>	<b>9,660</b>
3.3.1	Conduct CME programs	Medical Services	500	5,000	8,500	8,500
3.3.2	Update education program inclusive of e-learning	Medical Services	-	1,160	1,160	1,160
<b>4</b>	<b>Research, Surveillance and Strategic Information</b>		<b>204,815</b>	<b>203,101</b>	<b>206,660</b>	<b>210,219</b>
<b>4.1</b>	<b>Establish a National Monitoring and Evaluation System for the Cascade of Services</b>		<b>54,815</b>	<b>51,361</b>	<b>54,920</b>	<b>58,479</b>
4.1.1	Develop National Hepatitis M&E plan	NHCP	13,000	17,544	17,544	17,544
4.1.2	Develop Electronic Database for Recording and Reporting	NHCP	41,815	25,116	28,676	32,235
4.1.3	Conduct review meetings	NHCP	-	8,700	8,700	8,700
<b>4.2</b>	<b>Establish a National Surveillance System for program and disease monitoring of viral hepatitis</b>		<b>-</b>	<b>1,740</b>	<b>1,740</b>	<b>1,740</b>
4.2.1	Mortality surveillance of chronic hepatitis infection per training to cirrhosis and hepatocellular carcinoma		-	1,740	1,740	1,740
<b>4.3</b>	<b>Strengthen research agenda for evidence based documentations and planning</b>		<b>150,000</b>	<b>150,000</b>	<b>150,000</b>	<b>150,000</b>
4.3.1	Conduct Research Initiatives	Department of Medical Research	150,000	150,000	150,000	150,000



