National Hepatitis Strategic Framework (NHSF) for Pakistan 2017-21
NATIONAL HEPATITIS STRATEGIC FRAMEWORK (NHSF) FOR PAKISTAN 2017-2021

Ministry of National Health Services, Regulations and Coordination (NHSRC), Pakistan
Contents

Acronyms .................................................................................................................................................. 3
Foreword .................................................................................................................................................... 4
Executive Message .................................................................................................................................... 5
Messages from Provincial Health Departments ......................................................................................... 6
Acknowledgements ..................................................................................................................................... 8
Executive Summary .................................................................................................................................. 11
1. INTRODUCTION .................................................................................................................................. 14
   1.1 Background ........................................................................................................................................ 14
   1.2 Pakistan’s demography and health profile ......................................................................................... 15
   1.3 Developing the national hepatitis strategic framework (NSHF) 2017-2021 .......................................... 17
   1.4 Limitations of the development of the NSHF .................................................................................... 18
2. THE EPIDEMIOLOGY OF HEPATITIS IN PAKISTAN ......................................................................... 18
   2.1 Hepatitis B, C and D epidemiology .................................................................................................... 19
      2.1.1 Prevalence of HBsAg in the general Population ........................................................................... 19
      2.1.2 Prevalence HBeAg in HBsAg positive cases ............................................................................... 20
      2.1.3 Prevalence of HCV in the general Population ............................................................................ 20
      2.1.4 Prevalence of HCV and HBV in some key groups ......................................................................... 22
   2.2 Risk Factors for the transmission of HCV and HBV in Pakistan ......................................................... 23
3. PAKISTAN’S NATIONAL RESPONSE TO HEPATITIS ..................................................................... 26
   3.1 Pakistan Hepatitis Response and Structure ...................................................................................... 26
   3.2 National hepatitis response .............................................................................................................. 27
      3.2.1 Hepatitis Surveillance & Monitoring and Evaluation ................................................................ 27
      3.2.2 Prevention ..................................................................................................................................... 28
      3.2.3 Testing .......................................................................................................................................... 30
      3.2.4 Treatment .................................................................................................................................... 30
4. KEY CHALLENGES AND OPPORTUNITIES FOR AN EFFECTIVE FUTURE RESPONSE .......... 30
   4.1 Key Challenges ................................................................................................................................... 30
   4.2 Key Opportunities ............................................................................................................................. 31
5. PRIORITY ISSUES EMERGING FROM SITUATION AND RESPONSE ANALYSIS .................... 32
6. NATIONAL STRATEGIC FRAMEWORK AND EXPECTED RESULTS OF THE NATIONAL RESPONSE 2017-2021 .......................................................................................................................... 33
6.1 Guiding principles
6.2 Vision, goal, targets and strategic objectives
   6.2.1 Vision
   6.2.2 Goals and targets
   6.2.3 Strategic Objectives
6.3 Key Priority interventions and actions for the NHSF for Hepatitis response
6.3.1 Interventions and main actions for attaining Objective 1: Strengthening the leadership, governance and advocacy for a coordinated and integrated hepatitis response
6.3.2 Interventions and main actions for attaining Objective 2: To increase the availability and use of strategic information that will enable the development and monitoring of the implementation of evidence-based strategies
6.3.3 Interventions and main actions for attaining Objective 3: To improve the quality, and scale up coverage of the hepatitis B and C prevention
6.3.4 Interventions and main actions for attaining Objective 4: To improve access to the viral hepatitis B and C testing and diagnosis services
6.3.5 Interventions and main actions for attaining Objective 5: To improve access to the comprehensive treatment, care and support for hepatitis B and C patients

7. IMPLEMENTATION OF THE NATIONAL HEPATITIS STRATEGIC FRAMEWORK
   7.1 Development of the hepatitis provincial action plans
   7.2 Collaboration with other public health programs and partners
   7.3 Ensuring long-term viability of hepatitis programming through integration
   7.4 Coordination mechanisms

8. MONITORING AND EVALUATING THE HEPATITIS RESPONSE

9. REFERENCES
## Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>AKU</td>
<td>Aga Khan University</td>
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<tr>
<td>CDA</td>
<td>Center for Disease Analysis</td>
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<td>CDC</td>
<td>Centers for Disease Control and Prevention</td>
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<td>DAAs</td>
<td>Direct Acting Antivirals</td>
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<td>DHS</td>
<td>Demographic and Health Surveys</td>
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<td>DVH</td>
<td>Division of Viral Hepatitis</td>
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<td>EMR</td>
<td>Eastern Mediterranean Region</td>
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<td>EPI</td>
<td>Expanded Program on Immunization</td>
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<td>FATA</td>
<td>Federally Administrative Tribal Areas</td>
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<td>FELTP</td>
<td>Field Epidemiology and Laboratory Training Program</td>
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<td>GAVI</td>
<td>Global Alliance for Vaccines and Immunization</td>
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<td>GHSS</td>
<td>Global Health Sector Strategy</td>
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<td>HAV</td>
<td>Hepatitis A virus</td>
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<td>HBV</td>
<td>Hepatitis B virus</td>
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<td>HCV</td>
<td>Hepatitis C virus</td>
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<td>HEV</td>
<td>Hepatitis E virus</td>
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<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
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<td>KPK</td>
<td>Khyber PakhtunKhwa</td>
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<td>MICS</td>
<td>Multiple Indicators Cluster Surveys</td>
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<td>MIS</td>
<td>Malaria Indicator Surveys</td>
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<td>MSM</td>
<td>Men Who Have Sex with Men</td>
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<tr>
<td>NGOs</td>
<td>Non-government organizations</td>
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<td>NHSF</td>
<td>National Hepatitis Strategic Framework</td>
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<td>NHSRC</td>
<td>National Health Services, Regulations and Coordination</td>
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<tr>
<td>PHIA</td>
<td>Population-based HIV Impact Assessment</td>
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<td>PMRC</td>
<td>Pakistan Medical Research Council (Now called Pakistan Health Research Council)</td>
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<td>PHRC</td>
<td>Pakistan Health Research Council</td>
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<td>PWID</td>
<td>People who Inject Drugs</td>
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<td>SBTP</td>
<td>Safe Blood Transfusion Program</td>
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<td>SME</td>
<td>Subject Matter Experts</td>
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<td>STI</td>
<td>Sexually Transmitted Infection</td>
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<td>SDG</td>
<td>Sustainable Development Goals</td>
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<td>TAG</td>
<td>Technical Advisory Group</td>
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<td>TWGs</td>
<td>Technical Working Groups</td>
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<td>VH</td>
<td>Viral Hepatitis</td>
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<td>WHA</td>
<td>World Health Assembly</td>
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<td>WHO</td>
<td>World Health Organization</td>
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Foreword

Viral hepatitis has globally affected millions of people worldwide with approximately 1.4 million deaths annually from various types of viral hepatitis. Population wise (> 8 million) and prevalence wise (5%) Pakistan has the second highest global burdens of hepatitis C virus infection. With an increasing population and rising exposure rates to the risk factors, it is estimated that approximately 240,000 new HCV cases are added annually to the existing pool with thousands dying each year due to cirrhosis and liver cancer.

Recognizing the enormity of the problem, WHO developed a global hepatitis strategy aiming at disease elimination by 2030. To achieve the targets for Pakistan, Ministry of National Health Services, Regulation and Coordination (NHSRC) tasked the Technical Advisory Group (TAG) for the prevention and control of viral hepatitis in Pakistan to develop a “National Hepatitis Strategic Framework (NHSF) 2017-21” and align it with the WHO strategy for disease elimination by 2030. TAG therefore requested the Division of Viral Hepatitis (DVH) of Center for Disease Control and Prevention (CDC), USA to support the development of “National Hepatitis Strategic Framework (NHSF) 2017-21” for Pakistan and it is through this collaboration that the hepatitis elimination strategy has been formulated.

Responding to the TAGs demand of making available new oral hepatitis drugs which have high cure rates, I took the challenge of negotiating with the local and international drug companies and by the Grace of Allah made these drugs available to the population within a record time and at rates that are cheapest in the world. Our goal was to eliminate the disease by 2030 through treating millions of patients yearly and thus reducing the disease pool. With this vision in mind, Ministry of NHSRC is now urging Provincial health departments to join hands and implement the strategy in stepwise manner to achieve disease elimination within the targeted dates.

I wish to express my sincere thanks to TAG, CDC, Pakistan Health Research Council (PHRC), WHO, Technical Working Groups (TWGs), Provincial health departments and experts who gave their input in the development of this important document.

Ms. Saira Afzal Tarar
Federal Minister
Ministry of National Health Services, Regulation and Coordination (NHSRC)
Islamabad
Executive Message

Pakistan is facing an epidemic of Hepatitis C Virus (HCV) and a pandemic of hepatitis B (HBV). Both these diseases are playing havoc in the world causing huge disease burden. In the world, Pakistan has the 2nd largest HCV population and an intermediate endemicity of HBV. HBV is a vaccine preventable disease therefore we are developing strategy on enhancing the EPI coverage and also adding the HBV birth dose. There is no vaccine for the prevention of HCV therefore we all have to prevent the disease and find, diagnose and treat infected cases.

WHO has set global targets for hepatitis elimination by 2030. To achieve these targets, the Provincial hepatitis control programs, public and private sector health care institutes and persons have to work in harmony and make optimal use of opportunities and resources and overcome challenges. Yearly targets need to be set up and compliance monitored. Gaps need to be timely identified and plugged and next year’s targets set accordingly. The “National Hepatitis Strategic Framework (NHSF) 2017-21” developed by PHRC through Provincial consultation should be followed to ease HCV treatments. There is a dire need to collect and pool data of treated cases to see the success of treatment and forecast next investment.

The strategic document of hepatitis elimination is an excellent piece of work which involved collaboration between various experts within Pakistan and abroad like Provincial health departments, health and hepatitis experts, CDC and WHO. I would like to thank all of them for undertaking this important task and giving guidance to the Federal and Provincial Health departments to eliminate hepatitis from Pakistan.

Muhammad Ayub Sheikh
Secretary
Ministry of National Health Services, Regulation and Coordination (NHSRC)
Islamabad
Messages from Provincial Health Departments

1. **Director General Health Punjab**
   Punjab is the most populous province of the country. Hepatitis B and C are maximally affecting Punjab with some of our districts having a 3 times higher disease prevalence (13%) as compared to the national prevalence (5%). There are many thousand new cases of hepatitis that are constantly adding to our pool of patients. WHO has given directions through its global strategic document that hepatitis needs to be eradicated globally by 2030. All countries with medium to high hepatitis prevalence are therefore aligning their hepatitis strategy with that of WHO to achieve the target by 2030. This “National Hepatitis Strategic Framework (NHSF) 2017-21” for Pakistan was the need of the day and it defines very clearly how many patients do we have to diagnose and how many we have to treat every year to reach the no hepatitis target by 2030. I am thankful to Ministry of NHSRC, TAG, CDC, WHO and all other partners for developing this strategic document.

   **Dr. Faisal Zahoor**
   Director General Health Services Punjab

2. **Director General Health Sindh**
   In Pakistan, Sindh has the 2nd highest population cohort and has the 2nd highest burden of hepatitis. WHO has set the target of hepatitis elimination from the globe by 2030. To set and work on these targets for Pakistan, the provincial health departments and other ministries have to work very aggressively but together to pick, test and treat all cases of hepatitis and eradicate this disease by 2030. It is heartening to see that Federal Government through PHRC has produced this “National Hepatitis Strategic Framework (NHSF) 2017-21” document at the right time so that the Provinces set their targets and monitor them regularly. This strategic document was prepared with the inputs and feedback of all provinces and their experts and I found it very helpful and appropriate.

   **Dr. Muhammad Akhlaq Khan**
   Director General Health Services Sindh

3. **Director General Health Khyber Pakhtunkhwa (KPK)**
   Our province has been disturbed since many years due to various challenges like terrorism, influx of internally displaced population and poor resources. Health in such situations though needs more funds and human resources but often gets less priority due to other priorities. The disease prevention strategy is often cost effective and in Khyber Pakhtun Khawa, I feel proud in sharing that we were the first province which started
hepatitis B prevention through introducing the birth dose of hepatitis B vaccine. According to WHO, hepatitis needs to be eradicated from all over the globe by 2030, and they have developed some way forward for all countries to follow. The development of the “National Hepatitis Strategic Framework (NHSF) 2017-21” for Pakistan is an important step towards achieving this target for Pakistan. I must appreciate the efforts of Federal government, TAG and all the partners and experts for developing this important document for Pakistan.

Dr. Shabina Raza
Director General Health Services KPK

4. Director General Health Baluchistan

Area wise, Baluchistan is the largest Province of the country but resource wise it is it is very poor. The population is sparse and scattered and there are hard to reach areas. There is constant brain drain due to unstable law and order situation. Within the health care delivery system, there are extreme challenges of diagnosis, access to treatment and affordability compounded by frequent electricity failures leading to cold chain issues for vaccines and medicines. The “Pakistan’s National Hepatitis Strategic Framework (NHSF) 2017-21” is providing adequate guidance to the Province for undertaking prevention, diagnosing maximum patients and putting them through effective and affordable treatments to eliminate hepatitis C by 2030 from our country. I and my Provincial experts were a part of this strategy developing process and congratulate TAG, National and Provincial TWGs in preparing this final document.

Dr. Masood Qadir Nousherwani
Director General Health Services Baluchistan
Acknowledgements

We are sincerely grateful to all the health professionals with varying backgrounds and specialties who have contributed to the development of this “National Hepatitis Strategic Framework (NHSF) 2017-21” for Pakistan.

Strategy Development Group

The NHSF Development Group was led by Dr. Huma Qureshi, hepatitis lead for government of Pakistan, Executive Director Pakistan Health Research Council (PHRC former PMRC).

Dr. Quaid Saeed was hired as a consultant to develop the NHSF.

One National and four Provincial Technical Working Groups (TWGs) were formulated to develop the NHSF.

Dr. Hamida Khattabi, Medical Officer World Health Organization (WHO) from Eastern Mediterranean Regional Office (EMRO) with Dr. Hassan Mahmood, Medical Officer Centers for Disease Control and Prevention (CDC) drafted and finalized the document.

Dr. Homie Razavi and his team from the Center for Disease Analysis (CDA) did the hepatitis C modelling analysis to set the Hepatitis C diagnosis and treatment targets.

National Technical Working Group (TWG)

The Technical Advisory Group (TAG) for the prevention and control of viral hepatitis nominated Dr. Huma Qureshi (PHRC), Dr. Hassan Mahmood (CDC) and Dr. Quamrul Hasan (WHO) to work as National TWG Pakistan.

Provincial Technical Working Groups (TWGs)

Provincial TWGs were formulated from the Provinces of Punjab, Sindh, Khyber PakhtunKhwa (KPK) and Baluchistan Provinces. Dr. Saeed Hamid (Aga Khan University), Dr. Ghiasun Nabi Tayyab (Lahore General Hospital), Dr. Aamir Ghafoor Khan (Pakistan Society of Gastroenterology) and Dr. Farooq Azam Jan (Director General Health Baluchistan) were nominated as Chairs for the Sindh, Punjab, KPK and Baluchistan TWGs respectively.
Director General (DGs) and senior officials of Provincial health departments, leading gastroenterologists and designated officers of various public health programs were also members of the TWGs.

**External peer review group**

- Division of Viral Hepatitis (DVH) - Centers for Disease Control and Prevention (CDC), USA:
  - Dr. Francisco Averhoff
  - Ms. Nancy Glass

- WHO Eastern Mediterranean Regional Office (EMRO) HAS Team:
  - Dr. Gabriele Riedner
  - Ms. Joumana Hermez
  - Mr. Ahmed Sabri

- WHO Head Quarters Geneva:
  - Dr. Stefan Wiktor
  - Dr. Hande Harmanci

**Steering Committee**

The members of the NHSF Steering Committee were:

Dr. Huma Qureshi (PMRC), Dr. Quamrul Hasan (WHO-Pak) and Dr. Hassan Mahmood (CDC)

PHRC researchers namely Dr. Arif Nadeem and Mr. Ibrar Rafique (PHRC) supported the steering committee in proof reading and formatting the NHSF.

**Overall coordination**

Dr. Huma Qureshi (PHRC) and Dr. Hassan Mahmood (CDC)

**Finalization of the document:**

Dr. Mohammad Assai (WR-WHO Pakistan) took the lead on the finalization of the document along with all TAG members, Provincial hepatitis control program Managers, Partners from WHO Country and Regional offices, USAID Pakistan, CDC Pakistan, Pakistan Kidney and
Liver Institute (PKLI), National AIDS Control Program (NACP), UNAIDS and Nai Zinadge. The document was endorsed by all the partners in the National Consensus Workshop held in June 2017 in Islamabad.

Dr. Safdar Kamal Pasha (WHO National Consultant for Hepatitis & HIV/AIDS) facilitated and coordinated from the WHO country office.

Dr. Hamida Khattabbi (WHO-EMRO) provided her strong technical inputs in the development, finalization and consensus building of this document.

**Funding**

Funding for the development of the NHSF was provided by Division of Viral Hepatitis (DVH) - Centers for Disease Control and Prevention (CDC), USA and World Health Organization (WHO).
Executive Summary

Globally, approximately 257 million persons are chronically infected with Hepatitis B Virus (HBV) and 71 million with Hepatitis C Virus (HCV). If the number of people living with hepatitis remains at the current high levels for the next 40-50 years, it is estimated that a cumulative 20 million deaths will occur between 2015 and 2030; therefore a stepped-up global, regional and national response can no longer be delayed.

World Health Organization (WHO) has developed the Global Health Sector Strategy (GHSS) for Viral Hepatitis (VH) 2016–2021 that contributes to the achievement of the 2030 agenda for Sustainable Development Goals (SDGs). The strategy addresses all five hepatitis viruses (hepatitis A, B, C, D and E), with particular focus on hepatitis B and C. The strategy describes the contribution of the health sector in combating viral hepatitis towards its elimination as a public health threat by 2030. The WHO Eastern Mediterranean Regional Office (EMRO) developed a Regional Action Plan 2017-2021 for the implementation of the GHSS for Viral Hepatitis (VH). The regional action plan is intended to guide the Member States and the WHO secretariat on a roadmap towards the achievement of national, regional and global targets.

Pakistan has a high disease burden of hepatitis A to E, with maximum morbidity in hepatitis A & E and maximum morbidity and mortality in hepatitis B, C and D. HBV and HCV are major public health threats in Pakistan.

Recognizing the enormity of the problem and working towards achieving the WHO global elimination targets by 2030, Pakistan has also developed its National Hepatitis Strategic Framework (NHSF) for Hepatitis response 2017-2021 through a participatory process with the involvement of Provincial hepatitis programmes, Federal and Provincial partners, including private sector and NGOs.

The vision of NHSF is “In Pakistan; viral hepatitis transmission is halted and everyone living with viral hepatitis has access to safe, affordable and effective prevention, care and treatment services”. The NHSF goals and targets have been aligned with the SDGs for 2030 and the WHO global goals and targets. This takes into account the country context, including the nature and dynamics of the country viral hepatitis epidemics, populations affected, structure and capacity of the health care and community systems, and the resources that can be mobilized.
Five strategic objectives have been set up to implement the priority areas that have emerged from the epidemiological situation of viral hepatitis and its current National response. These include:

i) Strategic objective 1: To strengthen leadership, governance and advocacy for a coordinated and integrated hepatitis response

ii) Strategic objective 2: To increase the availability and use of strategic information that will enable the development and monitoring of the implementation of evidence-based strategies

iii) Strategic objective 3: To improve the quality, and scale up coverage of the hepatitis B and C prevention

iv) Strategic objective 4: To strengthen the viral hepatitis B and C testing and diagnosis services

v) Strategic objective 5: To improve the quality, and scale up coverage and utilization of comprehensive treatment, care and support for hepatitis B and C patients

Effective implementation of the NHSF depends on concerted Federal and Provincial actions from all stakeholders in the health and other sectors to respond to viral hepatitis. Success requires strong partnerships to ensure policy and programme coherence. Within the health sector, linkages across different disease-specific and cross-cutting programmes need to be established and strengthened. Implementation of the strategic framework needs the development of the Provincial action plan and a strong monitoring and evaluation system to generate the best possible data on the viral hepatitis situation, including trends and responses, and to monitor the hepatitis response through a set of standard and measurable indicators.
# National Hepatitis Strategic Framework (NHSF) for Pakistan 2017-2021

## Vision
The vision of the NHSF 2017-21 is "In Pakistan; viral hepatitis transmission is halted and everyone living with viral hepatitis has access to safe, affordable and effective prevention, care and treatment services".

## Goal
The goal is to eliminate viral hepatitis as a major public health threat by 2030.

## Targets
The NHSF targets are:

1. Reduce viral hepatitis B and C by 10% by 2021.
2. New cases of chronic viral hepatitis B and C infections reduced by 30% by 2021.

### Strategic Objectives (SO)

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<tr>
<th>SO 1: To strengthen leadership, governance and advocacy for a coordinated and integrated hepatitis response;</th>
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<tr>
<td>SO 2: To increase the availability and use of strategic information that will enable the development and monitoring of the implementation of evidence-based strategies.</td>
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<tr>
<td>SO 3: To improve the quality and scale up coverage of the hepatitis B and C prevention.</td>
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<tr>
<td>SO 4: To improve access to the viral hepatitis B and C testing and diagnosis services.</td>
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<tr>
<td>SO 5: To improve the quality and scale up coverage and utilization of comprehensive treatment, care and support for hepatitis B and C patients.</td>
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### Expected Results

1. **Viral hepatitis coordinating body is actively fulfilling its responsibilities at federal and provincial levels.**
2. **Partnership and collaboration of related hepatitis programs, private sector and NGOs/CSOs are developed.**
3. **Advocates from public and private sector, civil society, professional associations have agreed on a joint awareness raising and advocacy strategy and collaborated on its implementation.**
4. **HCV and HBV tests are available and accessible in health care settings and in the community and the HBV and HCV testing is strengthened.**
5. **All diagnosed chronic HCV and HBV infections are treated efficiently and safely.**

### Implementation

- Development of The Hepatitis Provincial Action Plans
- Collaboration with Other Public Health Programs and Partners
- Ensuring Long-Term viability of Hepatitis Programming Through Integration
- Coordination Mechanisms

### Monitoring and Evaluation

1. INTRODUCTION

1.1 Background

Pakistan has the second highest prevalence of HCV (5%) after Egypt, and has the second highest number of people suffering from HCV after China [1]. All the five types of viral hepatitis (A, B, C, D, and E) are prevalent in Pakistan but Hepatitis A and E produce the highest morbidity while hepatitis B and C contribute to highest morbidity and mortality and thus account for a huge disease burden in the country. [2, 3]

Before 2005, there was no National “Hepatitis Prevention and Control Program” in the public sector, Later, as the disease became a major concern for the Ministry of Health and Government of Pakistan, the Prime Minister of Pakistan launched a “Prime Minister’s Program for the prevention and control of hepatitis (2005-2010)” all over the country[4]. The program addressed all important components of disease prevention and control including the hepatitis B vaccination (to children more than 1 year of age), enhancement of diagnostic and treatment services, implementation of infection control, awareness raising and strengthening of the existing infrastructure.

In 2008, Planning Commission of Pakistan, and Pakistan Medical Research Council (PMRC) - now known as Pakistan Health Research Council (PHRC); along with WHO carried out the midterm (2005-08) review of the Program and reported many gaps in the implementation and services of the program[5].

In 2011, the National Ministry of Health was devolved into Provinces; therefore, the Prime Minister’s Program was devolved into four independent Provincial “Chief Minister’s Hepatitis Control Programs”[4].

In 2014 on the request of the Sindh Government, PMRC in collaboration with Division of Viral Hepatitis (DVH) - Centers for Disease Control and Prevention (CDC) and Aga Khan University (AKU) undertook the evaluation of Sindh Hepatitis Prevention and Control Program [4]. The report revealed almost the same gaps as mentioned in the midterm review report[5].

After devolution, the coordinated hepatitis response was lost both at the National and Provincial level, therefore, on the request of the Provincial Hepatitis Control Managers, a National
Technical Advisory Group (TAG) was formulated and gazette notified in 2013 under Ministry of National Health Services, Regulations and Coordination (NHSRC). TAG is chaired by the Secretary of the Ministry of NHSRC[6]. TAG gives technical assistance and strategic advice to Federal Ministry NHSRC and Provincial Hepatitis Control Programs on issues related to diagnosis, treatment, prevention and awareness about viral hepatitis[6]. TAG has been very instrumental in bringing the Provincial Hepatitis Programs on one page regarding setting their diagnostic and treatment priorities. It has played a key role in making Direct Acting Antivirals (DAAs) available in Pakistan at very affordable rates, assisted in the development of National Chronic Hepatitis C Infection treatment guidelines[7] and the treatment monitoring software for the program, undertook awareness campaigns for hepatitis and presently developed the NHSF (2017-21).

1.2 Pakistan’s demography and health profile

Pakistan is situated in the northwestern part of the south Asian subcontinent, comprising a total land area of 796,096 square kilometers[8]. The Indus River flows through the country for about 2,500 kilometers starting from the Himalayas and the Karakoram mountain range in the north to the Arabian Sea in the south. Three mountain ranges meet at a point, creating a unique geographical feature found only in Pakistan.

Administratively, Pakistan has four provinces along with the Federally Administrative Tribal Areas (FATA) and the Gilgit Baltistan region. The country has 134 districts with 10 districts of Azad Jammu and Kashmir and seven tribal agencies[9]. Punjab is the most populous province (56%) followed by Sindh (23%), Khyber PakhtunKhwa (17%) and Baluchistan (4%)[10-13]
Pakistan has a population of 180 million is an agricultural country with almost 21% of its gross domestic product (GDP) coming from agriculture and majority (64%) of its population lives in rural areas[14].

The age structure of the population is pyramidal with a large youthful population below the age of 15. The proportion of the population 65 and older is slightly lower in urban areas (4%) than in rural areas (5%). Fertility rates are higher in rural than in urban areas. The literacy rate is highest in men aged 35-39 (74%) with literacy being more in urban (76%) than in rural areas (60%)[8].

All childhood routine immunization vaccines are provided free of cost to all children through public health facilities and few private sector facilities. The percentage of fully immunized children age 12-23 months has improved from 47% in 2006-07 to 54% in 2012-13. Only one-third of children aged 12-23 months have a vaccination card [8].
1.3 Developing the national hepatitis strategic framework (NSHF) 2017-2021

WHO has developed the GHSS on Viral Hepatitis 2016–2021 targeting to achieve 2030 agenda for SDGs [15]. The strategy addresses all five hepatitis viruses (hepatitis A, B, C, D and E), with particular focus on hepatitis B and C. The strategy focuses on the contribution of the health sector in eliminating viral hepatitis by 2030. The strategy targets to reduce the incidence of chronic hepatitis infection from the current 6–10 million cases to 0.9 million, and to reduce the annual deaths from chronic hepatitis from 1.4 million to less than 0.5 million by 2030 [15].

To implement “GHSS On Viral Hepatitis 2016–2021,” WHO EMRO has developed its “Regional Action Plan 2017-2021” which is endorsed by all member states of the region [16]. The regional action plan recommends the member countries to adapt and implement the WHO GHSS on Viral Hepatitis according to their own contextual settings because the Eastern Mediterranean Region (EMR) has a huge disease burden of hepatitis B (17.5 million) and C (16 million) to which Egypt and Pakistan contribute almost 80% of the disease burden[16].

In Pakistan, there is a high disease burden due to all 5 types of viruses i.e. A to E. Water borne hepatitis A and E cause acute illness in large population with no chronic illness and little or no mortality. Blood borne hepatitis B & C becomes chronic in over 80% and thus contributes to maximum morbidity and mortality. Recognizing the enormity of viral hepatitis B and C as a public health in Pakistan, the Ministry of NHSRC and the TAG felt an urgent need to develop the National Hepatitis Strategic Framework (NHSF) for Viral Hepatitis 2017-2021. However, to address water borne hepatitis A and E it is important that disease control measures to prevent them, including surveillance and early warning systems, safe water and sanitation along with promotion of hygiene and vaccination are put in place.

The NHSF was developed by National and Provincial Technical Working Groups (TWGs) that were nominated by the respective Federal and Provincial Governments and endorsed by TAG. The National and Provincial TWGs comprised of gastroenterologists, clinician, Subject Matter Experts (SME) and public health experts from National and Provincial health departments, academicians, researchers and non-government organizations (NGOs). A consultant was hired to work with Federal and Provincial TWGs in developing the NHSF.
Participatory approach was adapted to develop the NHSF where extensive literature search was conducted by the TWG members who used the relevant country specific topics in different sections of the strategic plan with proper references. The drafts were shared with the Provincial TWGs in a series of consultation workshops. Key recommendations from the workshops were incorporated in the final draft which was shared by the Provincial TWGs, in a National Consultation Workshop. Based on the final review of TWG and key experts, the NHSF 2017-21 for Pakistan was developed and was endorsed by the Provincial Health Departments and the Federal ministry of NHSRC.

1.4 Limitations of the development of the NHSF

The hepatitis surveillance system is weak. Federal and Provincial data are often inadequate or not up to date. Accordingly the NHSF is based on limited epidemiological findings of the 2008 National Hepatitis Survey. More accurate data are needed for the implementation of high-impact and targeted interventions.

2. THE EPIDEMIOLOGY OF HEPATITIS IN PAKISTAN

Globally, approximately 257 million persons are chronically infected with HBV and 71 million with HCV, making viral hepatitis the eighth-highest cause of mortality (1.34 million deaths in 2015), a toll comparable to that of Human Immunodeficiency Virus (HIV) and Tuberculosis (TB). Of the deaths, approximately 66% were due to HBV, 30% due to HCV and the remaining due to hepatitis A virus (HAV) and hepatitis E virus (HEV) [17-19]. If the number of people living with hepatitis remains at the current high levels for the next 40-50 years, it is estimated that a cumulative 20 million deaths will occur between 2015 and 2030, therefore a stepped-up global response can no longer be delayed [15].

Viral hepatitis is also a growing cause of mortality among people living with HIV, where 2.7 million persons having HIV were found co-infected with HBV and 2.3 million with HCV infection[17].

In Pakistan, all five hepatitis viruses (A, B, C, D and E) are endemic. Most of the population are infected with hepatitis A (childhood) or E (adulthood) as acute infection. Both viruses have relatively low to moderate morbidity and mortality[2]. On the other hand the country is facing an
epidemic of hepatitis B, C and D [20]. As hepatitis D virus (HDV) is a defective virus, dependent on the presence of HBV, and there are no effective treatments for this virus, therefore, the strategy will only be focused on HBV and HCV.

At present, Pakistan does not have a National hepatitis surveillance system, therefore, epidemiological data are weak. Since 2009, Pakistan Field Epidemiology and Laboratory Training Program (FELTP) has been performing surveillance of acute viral hepatitis for A, B, C and E in 5 public sector tertiary-care hospitals located in Lahore, Peshawar, Karachi, Quetta, & Islamabad. The quarterly reports generated indicate the importance of HCV and HBV as public health threats in Pakistan [21].

A National HBV and HCV prevalence study was conducted in Pakistan in 2008[3]; the findings from this study form the basis for the current understanding of burden of HBV and HCV in the country.

2.1 Hepatitis B, C and D epidemiology

2.1.1 Prevalence of HBsAg in the general Population

The national survey conducted in 2008 showed 2.5% prevalence of HBsAg in the general population with 0.1% having both HBV and HCV. HBsAg positivity in children <5 years were 1.3% and for those between 5-19 years it was 1.8% [3].

![Prevalence of HBsAg in Pakistan by age group](image)

*Figure 2: Prevalence of HBsAg in Pakistan by age group*
Geographical distribution of HBsAg figures varied greatly in the four provinces. Figures were highest in Baluchistan (4.3%), followed by Sindh (2.5%), Punjab (2.4%) and Khyber PakhtunKhwa (KPK) (1.3%). Overall HBsAg was more in males (2.9%) as compared to females (2.0%) [3].

Figure 3&4: Prevalence of HBsAg in Pakistan by gender and area

2.1.2 Prevalence HBeAg in HBsAg positive cases

HBeAg prevalence was checked in HBsAg cases and was found to be 14.5%. Highest HBeAg positive results were seen in Baluchistan (17%) followed by Sindh (15.4%), Punjab (14.2%) and KPK (8.5%). As over 90% of the children born to HBeAg positive mothers shall get the disease, therefore there is a great need to give a birth dose of hepatitis B vaccine to all infants [3].

2.1.3 Prevalence of HCV in the general Population

Pakistan is the second country in the world which has the highest prevalence of HCV (5%) after Egypt, and it also has the highest number of people suffering from HCV after China [1].
Figure 5: Estimated HCV Infection Burden by Country, 2014

The national survey showed HCV prevalence in the general population of 4.9%. With the advancing age the prevalence increased indicating not only aggregation of positive cases but also higher chances of exposure to the virus through different modes of transmission. The HCV positivity reached a peak of 10.4% at 50-59 years age [3].

Figure 6: Prevalence of HCV in Pakistan by age group
The geographical distribution of HCV showed highest prevalence in Punjab (6.7%) followed by Sindh (5.0%), Baluchistan (1.5%) and KPK (1.1%). There was no gender difference in HCV prevalence[3, 22].

![Figure 7: Prevalence of HCV in Pakistan by Provinces](image)

2.1.4 Prevalence of HCV and HBV in some key groups

It is estimated that there are 113,776 People Who Inject Drugs (PWID) in Pakistan[23, 24]. PWID engage in high levels of injecting risk behaviour, specifically sharing of needles and syringes, which expose them to all blood borne infections including HCV infection. Studies among PWID in Pakistan report a high prevalence of HCV. A meta-analysis for 17 studies from Pakistan concluded that the mean HCV prevalence among PWIDs is 61.8% (CI: 45.5-76.8) [25]. Additionally, prevalence above 90% is reported from certain areas of Karachi (94%) [26]. A study conducted by Association of People Living with HIV/AIDS reported 92% prevalence of HCV Prevalence of 92% among PWIDs in Pakistan [25, 27]. Prevalence of HBV in PWIDs was reported to be 28.5% in 2007 [25, 27].

A review of HBV and HCV in high risk groups was conducted in 2010 [2]. It reported HBs Ag infection in 12% of the commercial sex workers (women) in Lahore while it was only 3.4% among transvestites in Karachi who acknowledged commercial sex with men. In multiple transfused populations like thalassemia, the HBV figures ranged between 7.5-8.4% and for HCV they were between 36-56%. Figures in hemophilia were similarly high (HBsAg 5%, HCV 25%).
In dialysis population HBV figures were 12.4% and HCV 20%. Among the healthy individuals who were screened prior to their induction in the armed forces, HBsAg ranged from 3-7.3% and HCV from 2.2-5.2% and for blood donors, the blood screening data showed higher prevalence of HBs Ag (0.8 - 8%) and HCV (0.2-10%) in blood donors [2].

### 2.2 Risk Factors for the transmission of HCV and HBV in Pakistan

For HBV and HCV, blood transfusion, therapeutic injections, syringe reuse, surgery, and hospitalization and shaving from barbers were the main risk factors for disease transmission [3]. Tables 1 & 2 show main modes of transmission for both HBV and HCV in Pakistan

**Table 1: Main risk factors for disease transmission of HBsAg in Pakistan[28]**

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>No. of Subjects</th>
<th>HBsAg No. (%)</th>
<th>Odd Ratio (95% Confidence Interval)</th>
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</thead>
<tbody>
<tr>
<td><strong>Use of IM Injection</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>10987</td>
<td>198 (1.8)</td>
<td>Reference</td>
</tr>
<tr>
<td>&lt;5</td>
<td>22623</td>
<td>574 (2.5)</td>
<td><strong>1.4 (1.2 - 1.7)</strong></td>
</tr>
<tr>
<td>5-10</td>
<td>10492</td>
<td>291 (2.8)</td>
<td><strong>1.6 (1.2 - 1.9)</strong></td>
</tr>
<tr>
<td>&gt; 10</td>
<td>2941</td>
<td>93 (3.2)</td>
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<tr>
<td><strong>Type of Syringe</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>10987</td>
<td>198 (1.8)</td>
<td>Reference</td>
</tr>
<tr>
<td>New/disposable</td>
<td>15563</td>
<td>325 (2.1)</td>
<td>1.2 (0.9 - 1.4)</td>
</tr>
<tr>
<td>Re-used</td>
<td>17696</td>
<td>538 (3.0)</td>
<td><strong>1.7 (1.4 - 2.0)</strong></td>
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<td><strong>Shaving</strong> (Male adults age 20 years &amp; above)</td>
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<td>476</td>
<td>20 (4.2)</td>
<td>*1.6 (1.0 - 2.7)</td>
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<td></td>
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### Table 2: Main risk factors for disease transmission of HCV in Pakistan

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>No. of Subjects</th>
<th>HCV No. (%)</th>
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<tr>
<td><strong>Use of IM Injection</strong></td>
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<td></td>
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<tr>
<td>None</td>
<td>10987</td>
<td>402 (3.7)</td>
<td>Reference</td>
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<td>22623</td>
<td>1007 (4.5)</td>
<td><strong>1.2 (1.1 - 1.4)</strong></td>
</tr>
<tr>
<td>5 - 10</td>
<td>10492</td>
<td>641 (6.1)</td>
<td><strong>1.7 (1.5 - 1.9)</strong></td>
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<td>&gt; 10</td>
<td>2941</td>
<td>244 (8.3)</td>
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<td><strong>Type of Syringe</strong></td>
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<tr>
<td>None</td>
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<td>402 (3.7)</td>
<td>Reference</td>
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<td>New/disposable</td>
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<td>0.9 (0.8 - 1.1)</td>
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<td>1198 (6.8)</td>
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<td><strong>Shaving</strong> (Male adults age 20 years &amp; above)</td>
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<td>1983</td>
<td>149 (7.5)</td>
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<td>Barbar</td>
<td>5419</td>
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<td><strong>1.8 (1.5 - 2.1)</strong></td>
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<tr>
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OR = Odd Ratio, C.I. = Confidence Interval, Statistically significant ** p<0.01, * p<0.05
### History of Hospitalization

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### History of Surgery

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<td>**2.3 (2.0 - 2.7)</td>
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</tbody>
</table>

OR = Odd Ratio,  C.I. = Confidence Interval, Statistically significant ** p<0.01, * p<0.05

**Conclusion**

Pakistan has a high disease burden of viral hepatitis B and C. HBV prevalence varies at the Provincial level where Baluchistan is the most affected while KPK is the least affected. For HCV, the highest prevalence was in Punjab and the lowest in KPK. With the advancing in age, the prevalence of both HBV and HCV increased indicating the cumulative/aggregate effect along with the higher exposure through different routes of transmission. Men were more affected by HBV while there was no gender difference in HCV. Common risk factors were blood transfusion, reuse of syringes during therapeutic injections, improper sterilization of invasive medical devices, and shaving by barbers. Some groups like injecting drug users and multiple transfused populations like thalassemia and hemophilia patients had high prevalence HBV and HCV.
3. PAKISTAN’S NATIONAL RESPONSE TO HEPATITIS

3.1 Pakistan Hepatitis Response and Structure

To tackle the huge disease burden of viral hepatitis in the country, the Prime Minister launched the “Prime Minister’s Program for the prevention and control of hepatitis (2005-2010)”. The program had clear objectives of preventing the new transmissions of hepatitis, implementing hepatitis B immunization, injection safety, infection control services and providing the standardized diagnosis, testing and treatment services to the hepatitis patients of the country. National Ministry of Health also nominated dedicated National program manager along with four Provincial coordinators as all administrative control of the program was at the Federal Ministry of Health. A National focal person was also nominated to guide the Federal Government on issues related to viral hepatitis.

A National hepatitis B and C seroprevalence survey was also undertaken by the Federal Ministry of Health in 2008 to have baseline information on disease prevalence. This was a community survey where all household members including children were tested for HCV and HBsAg in the field. A questionnaire was also filled for each individual where risk factors for disease transmission were entered.

After the devolution of health in 2011, the Prime Minister’s Program was also devolved to the four provinces and was called as the “Chief Ministers’ Hepatitis Prevention and Control Program”. The Provinces developed, budgeted and implemented their own program with full administrative control. These Provincial Programs also had clear objectives of preventing the acute infections (vaccination), addressing the chronic infections (screening, diagnosis and treatment), raising awareness on the prevention and control of viral hepatitis, change in policy environment (promulgation and implementation of effective health policies and laws) and health system strengthening (improving the infrastructure, capacity building of the staff, improving the diagnostic and treatment services etc.).

In June 2013, as coordination between Federal and Provincial Hepatitis Programs was lost, therefore, the Provincial Hepatitis Control Programs desired that there should be a central committee or Technical Advisory Group (TAG) on viral hepatitis which should give them guidelines and policy decisions. Accordingly the Ministry of NHSRC gazette notified TAG, its
members and its role. TAG is chaired by the Secretary NHSRC and PMRC is its Secretariat. TAG comprises of leading gastroenterologists and subject experts from National and International Organizations like WHO and DVH-CDC. Members from private sector, civil society organizations and patient group organizations are also TAG members. TAG was very instrumental in the introduction new Direct Acting Antivirals (DAAs) in the country at affordable rates which are currently the lowest in the world.

Sindh and Punjab Hepatitis Prevention & Control Programs requested TAG to review their programs and identify the gaps and achievements and recommend the way forward for effective prevention and control of viral hepatitis in their Provinces. TAG recommended PHRC to do the evaluation of these two programs with the technical support from CDC and WHO. Evaluation of Sindh Hepatitis Control Program was done in 2014 while the evaluation of Punjab Hepatitis Control Program will be completed in 2017.

3.2 National hepatitis response

3.2.1 Hepatitis Surveillance & Monitoring and Evaluation

Monitoring, evaluation and surveillance for hepatitis is lacking at National and Provincial levels. Field Epidemiology and Lab Training Program (FELTP) has established the sentinel sites for the surveillance of acute hepatitis in one major public sector hospital of each Provincial and one Federal capital of the country but this does not capture the data from the whole Province or from the private sector and their case definition is different from WHO’s definition causing issues of usage of the data by international organizations. There is a need to modify their case definition and also establish more acute and chronic surveillance sites to calculate the incidence and prevalence of hepatitis and make policy decisions.
3.2.2 Prevention

Vaccination

In Pakistan, Expanded Program on Immunization (EPI) was launched in 1978 [29]. All vaccines in EPI are given using auto-disable syringes. In 2002, the program introduced hepatitis B vaccine with support from the Global Alliance for Vaccines and Immunization (GAVI) as a monovalent vaccine. In 2006, a tetravalent vaccine comprising of diphtheria, tetanus, pertussis (DTP3) and hepatitis B vaccine was introduced replacing monovalent hepatitis B vaccine. Later in 2008, pentavalent vaccine (DTP-Hep B-Hib) with the addition of the new hemophilus influenza b vaccine was introduced. Pentavalent vaccine is given to the infants at age 6, 10 and 14 weeks [29] but studies have shown a 56% coverage of all three doses of hepatitis B vaccine [29, 30]. To date birth dose of HBV vaccine is not implemented.

There is a policy for preventing hepatitis B infection in health-care workers, they need to be vaccinated against hepatitis B but 20% of health care staff is still not vaccinated against HBV [30].

Injection safety and infection control

Pakistan has the highest rates for therapeutic injections which vary from 13 to 14 injections per person per year[2,30]. Studies have reported that 20% of therapeutic injections administered annually in Pakistan in health-care settings are unnecessary [3, 30] and syringe reuse [3] is one of the major risk factors for the spread of blood borne infections including hepatitis B and C but still there is no national policy on injection safety in health-care settings. Single-use or auto-disable syringes are a low priority in most healthcare facilities [30].

Improper sterilization of invasive medical devices and poor disposal of hospital waste are also contributing to high hepatitis B and C exposure in health staff and hospitalized population[3]. Reducing unnecessary injections, along with staff training in safe injections practices and effective sharps and waste management remains a vital challenge for health departments [31-37].

Hepatitis C infection has been a serious problem in health care settings, hemodialysis and thalassemia centers [32, 33]. Many steps have been taken by these centers to prevent the infection, which include: adherence to infection-control practices, prevention of syringe reuse,
avoiding the use of multi dose vials, non-sharing of dialysis filters and regular vaccination of hepatitis B in HCV infected patients[32].

**Blood transfusion safety**

In Pakistan, every year about 3 million units of blood are transfused (170 public and 450 private blood banks) yearly [38, 39]. Nearly 40% of these transfusions are unscreened while the rest 60% are screened mostly by sub-standard screening methods [40]. Nearly 99% of the blood donation in Pakistan are from family/replacement donors which are considered as un-safe donor population [41]. Moreover most blood is collected by unregulated blood banks in the private sector where quality is compromised [40]. Almost 6% population suffering from thalassemia requires frequent blood transfusions all their life [42]. Most of them get infected with blood borne infections including hepatitis because of poor screening and blood banking procedures.[43].

The Government of Pakistan through support of German Government has initiated the Safe Blood Transfusion Program (SBTP) in the Federal capital and 4 Provinces. In this project, a network of fully equipped regional/divisional blood centers shall be established throughout the country[44-46]. It is envisaged that a safe blood transfusion program would lead to prevention of new HBV and HCV cases in the country through promotion of voluntary non remunerated blood donation, optimal use of blood and blood products, quality assured blood collection and its component separation and development and practice of standards in blood banking [39, 44-46]

**Harm reduction**

National & Provincial AIDS Control Programs and some civil society organizations are playing a major role in providing harm reduction services to PWIDs in Pakistan. The primary focus of the harm reduction services is to prevent transmission of HIV, HBV & HCV viruses through syringe exchange services and linkages have been developed for referral to public and private health sector. However there is no HBV vaccination and HBV and HCV testing and treatment services for the PWID. Work is being done with provincial and district public sector, administration, health, law enforcement and social sectors for medical care, rights based services and an enabling environment for PWID.
3.2.3 Testing
In Pakistan, 86% [47] of people infected with HBV or HCV remain unaware of their infection and its consequences, and they risk transmitting the disease to their families, partners and community. These people do not have timely access to testing; or to care and effective treatment services to delay disease progression and prevent morbidity, mortality or disability. Ensuring the continued engagement of hepatitis patients with health services along the continuum of care is another challenge.

3.2.4 Treatment
According to the Polaris Observatory, Pakistan has made an appreciable progress in treating HCV by expanding the number of patients treated annually from 65,000 in 2015 to 160,000 in 2016. The treatment scale-up has been possible due to the availability and accessibility of highly effective oral therapy i.e. DAAs which have an over 90% cure rate (sustained virological response) [15-17]. However, in order to meet the GHSS targets a large scale increase of diagnosis and treatment must be planned and implemented.

Currently HCV patients are treated with Sofosbuvir and Ribavirin in the public and private sectors. As DAAs were procured by the public sector in 2016-17, therefore, majority of the HCV cases have been treated in the private sector. Efforts should be taken to make other DAAs (e.g. Daclatasvir) or a combination of DAAs (e.g. Sofosbuvir and Velpatasvir) available and accessible in the public sector.

4. KEY CHALLENGES AND OPPORTUNITIES FOR AN EFFECTIVE FUTURE RESPONSE

4.1 Key Challenges

- Lack of collaboration and coordination of viral hepatitis prevention, testing and treatment services at Federal and Provincial levels
- Lack of timely and reliable data to identify; the main modes of transmission and risk factors, at risk and affected populations, disease burden in terms of cirrhosis and hepatocellular carcinoma, and the coverage and quality of essential hepatitis services.
Many chronically infected persons are unaware of their infection and its consequences, and are at risk of transmitting the disease to their families and partners.

Reducing unnecessary injections remains a vital challenge in Pakistan, along with the capacity building of the healthcare staff on injection safety and waste management.

Unregulated blood transfusions and inadequate screening are the main challenges in a safe blood supply. Nearly 99% of the blood donations in Pakistan are from family/replacement donors which are considered as unsafe donor population.

Very low coverage of harm reduction services for PWIDs

Limited access to the new DAAs treatment in the public sector

4.2 Key Opportunities

Opportunities exist for enhancing and expanding the national hepatitis response by investing more in the following:

Strategic information – existence of strong Field Epidemiology and Lab Training Program (FELTP) and already established sentinel sites for acute viral hepatitis surveillance at Federal and Provincial levels. Strengthening the sentinel surveillance with improved case definitions following the WHO guidelines will help to generate more appropriate strategic information on viral hepatitis.

Vaccines – existence of Expanded Program on Immunization (EPI). This needs to be strengthened to improve the vaccination coverage. The significant public health benefits can be achieved by focusing efforts on reducing deaths by introducing and rapidly scaling up HBV birth-dose and childhood vaccination.

Injection, blood and surgical safety – transmission of viral hepatitis B and C in health care settings can be stopped through the rigorous application of universal precautions of infection control on all invasive medical devices, promotion of injection safety measures and securing the safe supply and screening of blood and blood products.

Harm reduction for PWID – existence of a strong harm reduction for HIV, which can be extended. Testing and treatment of viral hepatitis B and C among PWIDs - their spouses and partners, in addition to vaccination against HBV for those who test HBsAg negative should be integrated as part of the comprehensive harm reduction package of HIV AIDS Program.
Treatment – commendable efforts have been made in Pakistan on the availability of oral DAAs along with drastic price reduction. Provincial Hepatitis Control Programmes should be strengthened to improve the HBV and HCV treatment coverage. To have greatest impact, effective interventions should be combined and tailored for the specific population, location and setting.

5. PRIORITY ISSUES EMERGING FROM SITUATION AND RESPONSE ANALYSIS

Priorities are set by assessing the situation and response analysis and are established on the basis of the following criteria:

- Having an impact on the transmission of HBV / HCV and be able to change the trajectory of the epidemic
- Ensuring necessary reinforcement measures to achieve the expected results and impacts.

The interventions include:

- Set up a strategic information system that generate the necessary data on viral hepatitis to create awareness and advocate for action and resources, to set national targets, to plan for a focused response, to implement programmes most efficiently in order to achieve maximum impact, and to monitor and improve quality and outcomes.
- Ensuring the availability of safe blood and blood products
- Implementing injection safety and infection control practices in health care and community settings
- Escalating interventions to prevent mother-to-child transmission of hepatitis B Virus.
- Link hepatitis and harm reduction services to facilitate integrated prevention, treatment and care for PWID.
- Strengthening Hepatitis B and C testing
- Enhancing hepatitis B and C treatment and care
6. NATIONAL STRATEGIC FRAMEWORK AND EXPECTED RESULTS OF THE NATIONAL RESPONSE 2017-2021

The framework outlines the vision, goals, and a set of targets that are aligned with the WHO global goals and targets and with the 2030 Agenda for Sustainable Development. It also outlines the country priority interventions and actions to reach the 2021 targets and to contribute to the WHO global elimination targets by 2030.

6.1 Guiding principles

The following guiding principles will direct the implementation of the NHSF in order to achieve the greatest impact of the national response to Viral Hepatitis (VH).

➤ Guiding principle1: Data for Decision Making
Strong surveillance system will generate adequate data to understand the true public health dimensions and impact of hepatitis epidemic and to plan for focused action and prioritize the allocation of resources.

➤ Guiding principle2: Universal health coverage
Ensuring financial security and health equity are key concerns in the 2030 Agenda for Sustainable Development, and universal health coverage provides a framework for addressing them. Universal health coverage is achieved when all people receive the health services they need, which are of sufficient quality to make a difference, without those people incurring financial hardship. Universal health coverage comprises of three major, interlinked objectives: i) Expanding the range of services provided ii) Covering the populations in need of services and iii) Reducing the direct costs of services.

➤ Guiding principle3: The continuum of hepatitis services – an organizing framework
The continuum of hepatitis services that are needed to curb the epidemic provides the organizing framework for the specific actions to be taken. That continuum spans the entire range of interventions that is needed to achieve the NHSF’s targets from reducing vulnerability, preventing and diagnosing infection, linking people to health services by providing treatment and chronic care.
Figure 8: The continuum of viral hepatitis services and the retention cascade

- **Guiding principle 4: Public Health approach**

  The public health approach aims to ensure the widest possible access to high-quality services at the population level, based on simplified and standardized interventions and services that can readily be taken to scale and decentralized, including in resource-limited settings. A public health approach aims to achieve health equity and promote gender equality, engage communities, and leverage public and private sectors in the response.

- **Guiding principle 5: Equitable access to services and conservation of the human rights**

  The NHSF is supported by internationally agreed frameworks of ethics and human rights, which recognizes the right of all persons to the highest attainable standards of health, including sexual, reproductive and mental health and builds on existing protective religious and cultural values and practices. All people including the populations that may be criminalized and marginalized and who are at higher risk of hepatitis infection, including people who inject drugs, Men Who Have Sex with Men (MSM), prisoners and sex workers receive the health services they need.
Guiding principle 6: Partnership and multisectoriality

The NHSF emphasizes broad engagement of all sectors, including the public and private sectors and civil society, in order to expand access to effective prevention and care as widely as possible. The restructuring of the national response to VH will be relevant only if it considers the involvement of all stakeholders and partners according to their mandate and commitment in the National hepatitis response.

Guiding principle 7: Accountability

Well-functioning and transparent accountability mechanisms, with strong civil society participation, are vital, given the range of partners and stakeholders needed for an effective viral hepatitis response. Important building blocks include nurturing strong leadership and governance that involves full engagement with all relevant stakeholders, setting clear provincial targets, using appropriate indicators to track progress, and establishing transparent and inclusive assessment and reporting processes at Federal and Provincial levels.

6.2 Vision, goal, targets and strategic objectives

6.2.1 Vision

The vision of the NHSF 2017-21 is “In Pakistan; viral hepatitis transmission is halted and everyone living with viral hepatitis has access to safe, affordable and effective prevention, care and treatment services”.

6.2.2 Goals and targets

The NHSF goals and targets have been aligned with the WHO global goals and targets while taking into account the country context, including the nature and dynamics of country viral hepatitis epidemics, populations affected, structure and capacity of the health care and community systems, and resources that can be mobilized.

Goal:
The goal is to eliminate viral hepatitis as a major public health threat by 2030.

Targets:
The NHSF targets by 2021 are:

a. Reduce viral hepatitis B and C related deaths by 10%
b. Reduce incidence (new cases) of chronic viral hepatitis B and C infections by 30%

These targets are in line with the SDGs for 2030 and the 2016-2021 GHSS on Viral Hepatitis (VH) and will require a radical change in the hepatitis response, and will mean that hepatitis is elevated to a higher priority in public health.

The Center for Disease Analysis (CDA) in collaboration with the Subject Matter Experts (SMEs) within Pakistan undertook the hepatitis C disease burden analysis and modeled a disease management strategy to achieve the 2021 NHSF targets as well as the GHSS targets for elimination of viral hepatitis by 2030. The mathematical model is an Excel based disease progression model which was calibrated using reported, Pakistani specific epidemiologic data [48-54]. The modelling analysis showed that the number of people in Pakistan with viremic HCV infection (RNA positive) in 2016 was at 7,088,000 (3.7% of the population) with an estimated 8,110,000 (4.2% of the population) having HCV antibody (ever exposure).

Efforts to achieve the NHSF/ global targets for elimination in Pakistan will have the following results:

- Total HCV infections will decline by 21% or 600,000 between 2016 and 2021
- Liver-related deaths will decline by 26%, saving almost 7,000 lives well-exceeding the NHSF target of 10%

The impact of national strategy is magnified by 2030.

- The total HCV infections will decline by 60% or 4,000,000 between 2016-2030
- Liver-related deaths will decline by 65% in 2030, matching the WHO target

Figure 9 shows the results of the efforts that are to be made to achieve the NHFS and the global elimination targets (-->) versus if no efforts are made in Pakistan. (--)
Figure 9: Graphs showing HCV modeling results

Using the modeling estimates of CDA, this strategy calculated the following numbers of people who need to be screened and treated for HCV to achieve its targets by 2021:

**Table 3: Yearly Treatment & Testing Targets for Pakistan**

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Treated</strong></td>
<td>160700</td>
<td>208000</td>
<td>208000</td>
<td>260000</td>
<td>400000</td>
<td>400000</td>
<td>475000</td>
</tr>
<tr>
<td><strong>New Infections</strong></td>
<td>211000</td>
<td>211000</td>
<td>211000</td>
<td>105000</td>
<td>21000</td>
<td>21000</td>
<td>21000</td>
</tr>
<tr>
<td><strong>Newly Diagnosed</strong></td>
<td>101000</td>
<td>202000</td>
<td>202000</td>
<td>323000</td>
<td>430000</td>
<td>430000</td>
<td>509000</td>
</tr>
<tr>
<td><strong>Fibrosis Stage</strong></td>
<td>≥FO</td>
<td>≥FO</td>
<td>≥FO</td>
<td>≥FO</td>
<td>≥FO</td>
<td>≥FO</td>
<td>≥FO</td>
</tr>
<tr>
<td><strong>Treated Age</strong></td>
<td>15-74</td>
<td>15-74</td>
<td>15-74</td>
<td>15-74</td>
<td>15-74</td>
<td>15-74</td>
<td>15-74</td>
</tr>
<tr>
<td><strong>SVR</strong></td>
<td>67%</td>
<td>83%</td>
<td>83%</td>
<td>83%</td>
<td>90%</td>
<td>90%</td>
<td>90%</td>
</tr>
</tbody>
</table>

In order to meet the National targets, a large scale increase in the number of cases that need to be diagnosed and treated must occur.
Following WHO guidance, the prevention targets are given in table 4. These targets will be accomplished by highly prioritizing:

- **hepatitis B vaccination for infants**
- **birth dose of hepatitis B vaccine**
- **blood safety**
- **safe injections**
- **harm reduction services**

### Table 4: Prevention Targets for the elimination of hepatitis B & C

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Intervention</th>
<th>2021 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Three-dose hepatitis B vaccine for infants (coverage %)</td>
<td>90%</td>
</tr>
<tr>
<td>2.</td>
<td>Prevention of mother-to-child transmission of HBV: hepatitis</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>B birth-dose vaccination or other approaches (coverage %)</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Blood safety: donations screened with quality assurance</td>
<td>95%</td>
</tr>
<tr>
<td>4.</td>
<td>Injection safety: use of engineered devices</td>
<td>50%</td>
</tr>
<tr>
<td>5.</td>
<td>Harm reduction (sterile syringe/needle set distributed per</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>person per year for people who inject drugs [PWID])</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Combating Hepatitis B And C To Reach Elimination By 2030. WHO Advocacy Brief 2016*

The hepatitis B modeling exercise should be conducted to set treatment and testing targets for hepatitis B. This modeling exercise should take place before the Provincial action plans are developed.

#### 6.2.3 Strategic Objectives

The analysis of the epidemiological situation and the national response to viral hepatitis revealed five main priority areas that will be considered as five strategic objectives to achieve NHSF targets by 2021:

- **Strategic objective1:** To strengthen leadership, governance and advocacy for a coordinated and integrated hepatitis response
- **Strategic objective 2:** To increase the availability and use of strategic information that will enable the development and monitoring of the implementation of evidence-based strategies
Strategic objective 3: To improve the quality, and scale up coverage of the hepatitis B and C prevention

Strategic objective 4: To improve access to the viral hepatitis B and C testing and diagnosis services

Strategic objective 5: To improve the quality, and scale up coverage and utilization of comprehensive treatment, care and support for hepatitis B and C patients

6.3 Key Priority interventions and actions for the NHSF for Hepatitis response 2017-2021

Implementation of the priority interventions and actions are required to achieve key results for each strategic objective. Some priority actions that are suggested by the NHSF to produce the desired results are listed below.

6.3.1 Interventions and main actions for attaining Objective 1: Strengthening the leadership, governance and advocacy for a coordinated and integrated hepatitis response

Eliminating viral hepatitis will require commitment from top leadership along with notification of a National viral hepatitis coordination body/person that coordinates between and within departments and beyond, evidence-based policies, consensus between stakeholders on National and Provincial targets, determination to achieve the targets and allocation of funds to undertake National and Provincial action plans.

Expected key results for Strategic Objective 1:

1.1 Viral hepatitis coordinating body is actively fulfilling its responsibilities at the Federal and Provincial levels.

1.2 Partnership and collaboration of related hepatitis programs, private sector and NGOs/CSOs are developed.
1.3 Advocates from public and private sector, civil society, professional associations have agreed on a joint awareness raising and advocacy strategy and collaborated on its implementation

The following interventions are to be implemented to produce the above outcomes.

1. Strengthening mechanisms for coordination and governance of the hepatitis response at Federal level and establishing mechanisms for coordination and governance at Provincial levels
2. Establishing partnership and collaboration with the related hepatitis programs and NGOs
3. Increasing awareness of policy makers, communities and health care providers on the public health importance of viral hepatitis, to generate resources and to mobilize action.

**Intervention 1: Establishing mechanisms for coordination and governance of the hepatitis response at Federal, Provincial and District levels**

The NHSF will be successfully implemented only when all stakeholders are involved and given appropriate tasks to achieve the NHSF’s targets. This requires the highest level of coordination. In this context, the following actions should be implemented:

- Establish a National Coordinating Body/Person with clear responsibility to lead and to coordinate the NHSF in the country;
- Establish synergies and linkages among viral hepatitis program, vaccination (EPI) program, National AIDS program and services, blood transfusion program and services, infection control program, thalassemia program, hemophilia and hemodialysis services, sexual and reproductive health program/services, maternal and child health program, cancer care services at Federal, Provincial and District levels;
- Establish synergies and linkages of the hepatitis program with prevention, testing, care and treatment services at Federal, Provincial and District levels;
- Review the current roles and responsibilities of TAG and enable the TAG secretariat to report to the Prime Minister through the secretary NHSRC on the implementation of the NHSF at Federal and Provincial levels;
✓ Establish Provincial Technical Advisory Groups (TAGs) on viral hepatitis in all the 4 Provinces with clear Terms of References and linkages with the Federal TAG. The Provincial TAGs should provide a platform for planning, target setting, resource mobilization and progress in implementation of the Provincial hepatitis plans;

✓ Establish a Regional/Divisional TAG on viral hepatitis in each province with clear terms of reference and linkages with the Provincial and Federal TAG. At district level, a district coordination committee will be established to provide a platform for planning, target setting, resource mobilization and progress in implementation at district level;

✓ Establish a focal unit or person in each district of provinces to ensure follow up on implementation of the district hepatitis plans by various actors in the district. The size of the unit will vary in provinces depending on the capacity needed for this purpose

### Intervention 2: Strengthening partnership and collaboration with the related hepatitis programs and NGOs/CSOs

The following actions should be implemented:

✓ Develop and implement a partnership policy with civil society to strengthen the community contribution and active participation of people infected by hepatitis;

✓ Strengthen the institutional, organizational and managerial capacities of partner associations;

✓ Involve the people living with hepatitis in the development and implementation of strategies through a participatory approach;

✓ Develop partnerships with governmental, development agencies, donors for the implementation of the NHSF at the Federal, Provincial and District levels.

### Intervention 3: Increasing awareness of policy makers, communities and health care providers about the public health importance of viral hepatitis, to generate resources and to take action.
Concerted advocacy efforts, particularly towards political and community leaders, is required to increase political and public awareness on public health importance of viral hepatitis.

Intervention 3 comprises of the following main actions:

✓ Develop a sound communication strategy tailored to the country context.
✓ Use an investment case to advocate for priority interventions to prevent new cases and chronic disease.
✓ Seize National and International occasions, including the World Hepatitis Day, to raise public awareness and generate the interest required to elevate and accelerate the hepatitis response to reach the NHSF targets.

6.3.2 Interventions and main actions for attaining Objective 2: To increase the availability and use of strategic information that will enable the development and monitoring of the implementation of evidence-based strategies

With limited resources for health, the interventions, services and investments are required to be strategically targeted to tackle the local epidemic. Timely and reliable data, with an adequate level of “granularity”, are essential to identify “hotspots”, the main modes of transmission and risk factors, the specific populations that are vulnerable, at risk and affected population, the health burden in terms of cirrhosis and hepatocellular carcinoma, and the coverage and quality of essential hepatitis services. Such data would make it possible to proactively focus high-impact interventions more precisely and effectively, and to deploy or adapt services to reach greater numbers of people in need.

The key results expected in the context of strategic objective 2 include:

2.1 The National Health Information System strengthened to measure key disease burden and service coverage indicators;
2.2 Accurate, strategic information is available and accessible to all stakeholders, and used for evidence-informed policy and program planning, and resource allocation.
The following interventions are proposed to produce the above key results;

1. Integrating viral hepatitis strategic information activities and indicators within National Health Information Systems and tools, including for outbreak surveillance, and monitoring and evaluation of the National hepatitis response.
2. Assessing the National hepatitis burden, including the numbers of persons with chronic hepatitis and hepatocellular carcinoma and cirrhosis attributable to hepatitis B virus and hepatitis C virus, assessing trends over time.
3. Monitoring coverage and quality of a continuum of viral hepatitis services.
4. Carrying out economic analysis of viral hepatitis prevention and control in order to build an investment case

**Intervention 1: Integrating viral hepatitis strategic information activities and indicators within National Health Information Systems and tools, including for outbreak surveillance, and monitoring and evaluation of the national hepatitis response**

Data sources will include various components of the National Health Information System including the viral hepatitis data reporting system, the immunization and liver disease reporting (cirrhosis cases and cancer registry) systems, inventory management systems, hospital information systems and antiviral prescribing or ordering data systems, surveys among special population groups at higher risk.

The hepatitis information system should be fully integrated into the broader National Health Information System to ensure standardized and coordinated reporting and to maximize efficiencies.

Intervention 1 comprises of the following main actions:

- ✓ Assess existing data, data sources and capacity for viral hepatitis epidemiological surveillance;
- ✓ Define a manageable list of National indicators to monitor epidemiological trends - depending on the capacity of the National Surveillance System;
- ✓ Adapt the WHO global surveillance guidance to the National context to ensure that standard case definitions are used;
Gradually build up capacity of the National Health Information System to enable estimation of the viral hepatitis disease burden including existing (prevalent) and new (incident) hepatitis cases, cases of chronic liver disease and cancer.

**Intervention 2: Assessing the National hepatitis burden, including the numbers of persons with chronic hepatitis and hepatocellular carcinoma and cirrhosis attributable to hepatitis B virus and hepatitis C virus, assessing trends over time.**

Most of the morbidity and mortality attributable to viral hepatitis occur in persons with chronic hepatitis B and C. Estimating the number of persons with chronic HBV and HCV infection is thus necessary for planning care and treatment services. In addition, use of prevalence estimates done by modelling help to estimate; the burden on the health-care system, future treatment needs (including liver transplant needs), and mortality associated with cirrhosis and HCC. Information on the prevalence of chronic infection is obtained from three types of data sources: i) Healthcare facilities or laboratories ii) Regular biomarker surveys generate population-based estimates of disease burden iii) Biological specimens such as serum, plasma, dried blood spots collected for various purposes and tested for viral hepatitis may be used to generate some estimation of prevalence. Data from these three sources may be analyzed together to generate information on the cascade of care for chronic viral hepatitis infection (i.e. testing followed by prevention, care and treatment) and elucidate patient outcomes after treatment.

Monitoring the occurrence of cirrhosis and HCC contributes to the measurement of the disease burden of chronic hepatitis B and C, and assesses the impact that these have on the health care system.

Intervention 2 comprises of the following main actions:

- Strengthen the case reporting of patients with chronic hepatitis B and C infections from the health-care facilities and from the laboratories;
- Conduct the Viral hepatitis biomarker survey in the general population and specific population subgroups;
- Integrate the hepatitis B and C data in the specific or regular surveys: these include the Demographic and Health Surveys (DHS), the Multiple Indicators Cluster Surveys
(MICS), Blood Transfusion Survey, Malaria Indicator Survey (MIS), AIDS Indicator Surveys (AIS) and Population-Based HIV Impact Assessment (PHIA) survey or the impact survey for universal infant immunization against hepatitis B;

✓ Strengthen the collection of disease outcome data through the cancer registries, death registries and the administrative health data and hospital surveys.

**Intervention 3: Monitoring coverage and quality of a continuum of viral hepatitis services.**

The hepatitis service continuum provides a useful framework of a national hepatitis monitoring and evaluation system. Indicators measure coverage and performance along each step of the cascade. Lost opportunities to engage people with viral hepatitis in the service continuum, therefore should be identified so that resources can be directed towards closing these gaps.

Intervention 3 comprises of the following key actions:

✓ Define a list of national key indicators to monitor coverage of the hepatitis service continuum.
✓ Gradually building capacity of the health information system to address data gaps.
✓ Make use of WHO monitoring and evaluation guidance to ensure that national indicators are in line with standard global indicators.
✓ Review performance across the viral hepatitis prevention and care continuum and identify access barriers and factors associated with leakage in the continuum.

**Intervention 4: Build an investment case**

The economic analysis will help to estimate the net cost of different scenarios of viral hepatitis prevention and control, i.e. the difference between (i) the cost of interventions and (ii) the savings gained as a result of the interventions (such as the cost per case or death prevented; the cost per Disability Adjusted Life Year-DALY). An investment case can be built on this analysis and will highlight the cost of action
Mani Action:

- Carry out economic analysis of viral hepatitis prevention and control

6.3.3 Interventions and main actions for attaining Objective 3: To improve the quality, and scale up coverage of the hepatitis B and C prevention

The NHSF is prioritizing the key prevention areas that will have the impact on the transmission of HBV and HCV and to change the trajectory of the epidemic.

The key results expected in the context of strategic objective 3 include:

<table>
<thead>
<tr>
<th>3.1 National policies and practices for priority interventions are established and implemented including:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1.1 A policy for Hepatitis B vaccination of all health care workers</td>
</tr>
<tr>
<td>3.1.2 A policy for mandatory screening of all blood donations for Hepatitis B and C</td>
</tr>
<tr>
<td>3.1.3 A policy for registration of all donors who are hepatitis B or C positive and referral of positive donors for confirmatory testing and case management</td>
</tr>
<tr>
<td>3.1.4 A policy for use of safe injections (or safety engineered devices) in health care settings to prevent transmission of blood borne infections</td>
</tr>
<tr>
<td>3.1.5 A policy to integrate Hepatitis B vaccination in HIV services, chronic renal failure cases, hemodialysis units and services targeting people who inject drugs, men who have sex with men and sex workers</td>
</tr>
</tbody>
</table>

3.2 A comprehensive hepatitis B virus immunization program is implemented

3.3 Hepatitis prevention and control measures are strengthened as an integral part of the National Infection Control and Prevention Programme in healthcare settings

3.4 Safe blood supply is guaranteed

3.5 The hepatitis transmission is minimized among PWID through mainstreaming hepatitis B&C prevention, diagnosis and treatment in the provision of harm reduction services
The following interventions are proposed to produce the above key results:

1. Improving Hepatitis B vaccination coverage and ensuring hepatitis B birth dose delivery
2. Strengthening the prevention of mother-to-child transmission of hepatitis B
3. Implementing the infection control practices, including safe injection measures in health care settings
4. Ensuring safe blood supply
5. Minimizing hepatitis transmission among PWID through the provision of harm reduction services

**Intervention 1: Improving Hepatitis B vaccination coverage**

Key actions include:

- Enhance routine immunization and Implement birth dose
- Vaccinate the population groups who are at increased risk of getting Hepatitis B infection; such as healthcare workers, family members of people having hepatitis B, people who inject drugs, men who have sex with men, sex workers, prisoners and prison personnel.

**Intervention 2: Strengthening the prevention of mother-to-child transmission of hepatitis B**

Sustaining the hepatitis B control in the population requires effective control of perinatal transmission by achieving high levels of immunity in children and adolescents through universal immunization.

Priority actions include:

- Introduce routine screening of pregnant women for hepatitis B surface antigen to ensure high coverage. Ensure that all infants born in health facilities receive a birth dose of hepatitis B within 24 hours of birth. The immunization program must work with maternal and child health care and obstetric staff to integrate the birth dose into essential neonatal care. The discharge certificate of the mother/infant should be linked to the certification of the birth dose of hepatitis B vaccine;
- Develop strategies to timely administer the birth dose of hepatitis B vaccine to newborns who are delivered at home.

## Intervention 3: Implementing the infection control practices, including safe injection measures in health care settings

Consistent implementation of infection control practices including injection safety will reduce the transmission of viral hepatitis and other infections to patients and health care workers.

Key actions include:

- Implement evidence based guidelines for infection control in all health care settings
- Develop and disseminate evidence based guidelines for the prevention and management of viral hepatitis
- Develop content of training programs on Infection Prevention and Control (IPC) to prevent the transmission of all infections including viral hepatitis in all healthcare settings
- Address preventive measures that reduce the risk of transmission of viral hepatitis to healthcare workers
- Establish/strengthen National Infection Control regulating authority with the ability to:
  - Investigate infection outbreaks in healthcare settings
  - Oversee the implementation of safe therapeutic injection practices
  - Ensure compliance with correct sterilization procedures and medical waste management in both the public and private sectors and the informal health care sector.
  - Promote injection safety through exclusive use of Safety Engineered Devices or Reuse Prevention devices
  - Ensure adequate funding for single use disposable injection equipment (Safety Engineered Devices or Reuse Prevention devices) in all public health facilities and adherence measures to prevent the re-use of such equipment
  - Promote IPC/injection safety practices with a learning culture
Ensure adoption of standard infection control precautions in all health facilities, including training and monitoring of health care workers on adherence to standard precautions

**Intervention 4: Ensuring safe blood supply**

The World Health Assembly has endorsed three resolutions regarding the safety, quality and availability of blood and blood products in 1975 (WHA28.72), 2005 (WHA58.13) and 2010 (WHA63.12). These resolutions call for Member States to promote the development of National Blood Services based on voluntary non-remunerated donation of blood and take all the necessary steps to update their national regulations on testing. Member states should establish quality systems including the use of diagnostic devices to prevent transfusion-transmissible diseases with highest sensitivity and specificity. Ensuring the availability of safe blood and blood products is a vital public health duty for the government where national blood transfusion service should be integrated into the National Health System.

Key actions include:

- Develop and strengthen nationally coordinated blood transfusion service.
- Promote voluntary non-remunerated donation of blood and blood donor care including referral of blood donors with reactive HBV and HCV screening results for confirmatory testing, evaluation, treatment and care.
- Preventing HBV and HCV transmission through quality-assured screening for HBV and HCV of all blood collected from voluntary unpaid donors

**Intervention 5: Minimizing hepatitis transmission among PWID through the provision of harm reduction services**

Coordination with the HIV control program at National and Provincial levels to mainstream hepatitis interventions and scale up harm reduction services is necessary to build on and strengthen the existing harm reduction services. A package of harm reduction services for people who inject drugs can be highly effective in preventing the transmission of viral hepatitis B and C, as well as HIV and other blood-borne infections.
The package should include:

- Effective opioid substitution therapy for opium dependent PWID including those in closed settings
- High intensity community and facility based needle and syringe programs, awareness raising on and promotion of low dead space syringes and other paraphernalia
- Set up infrastructure and service delivery models to reach PWID, their spouses and partners to support easier access to hepatitis screening, care and treatment;
- Ensuring PWID have access to hepatitis B vaccines
- Ensuring PWID have access to condoms

### 6.3.4 Interventions and main actions for attaining Objective 4: To improve access to the viral hepatitis B and C testing and diagnosis services.

Testing and diagnosis of chronic HBV and HCV infection is the gateway for prevention as well as care and treatment services. Early identification of persons with chronic HBV or HCV infection enables them to receive the necessary care and treatment to prevent or delay progression of liver disease.

Pakistan will need to intensify the HBV and HCV testing to reach the testing targets of the NHSF.

The key results expected in the context of strategic objective 4 include:

**4.1 HCV and HBV testing is strengthened and tests are available and accessible in health care settings and in the community.**

There are many facility- and community-based opportunities and approaches to deliver viral hepatitis testing. There is a need to consider a strategic mix of these testing approaches to reach different populations, identify people who are unaware that they are infected in the early stages of infection, and support the timely linkage to prevention, care and treatment services for those who test positive or negative.

The following interventions are proposed to produce the above key result;

1. Developing a National and Provincial testing strategy;
2. Implementing, monitoring and evaluating the testing plan to adjust testing activities at Federal and Provincial levels

**Intervention 1: Developing a National and Provincial testing plans**

Key actions include:

- Review the effectiveness of existing testing services and identify gaps,

This will include the following:

- Mapping of existing services, including location of all current testing sites, uptake and coverage rate (by sex, age and population), and funding source.
- Identifying gaps in current hepatitis testing coverage in relation to burden, by geographical location and population, focusing on areas of highest prevalence or incidence, which are not being reached by available services;
- Assessing barriers to testing, including social, cultural and geographical factors, psychosocial and behavioral factors, stigma and discrimination, gender and legal factors (including age-of-consent requirements), and structural and health system factors that may impede access;
- Assessing the linkage between hepatitis testing and existing care and treatment programs, in particular, following a positive diagnosis;
- Assessing laboratory site performance, including the quality of test performance;
- Assessing commodity and human resource needs, their availability, and policies to identify barriers to and opportunities for expanding testing;
- Assessing available financial resources for hepatitis testing, including investments by the government and funding partners.
- Revisit and revise National targets for and approaches to hepatitis testing so as to better reach those who are undiagnosed, taking into account linkage and enrolment in treatment.
- Develop and follow a National consensus plan for expanding and refocusing hepatitis testing at the Federal and Provincial level.

**Intervention 2: Implementing, monitoring and evaluating the testing plan to adjust testing activities at Federal and Provincial levels**
Key actions include:

- Evaluate the implemented plans through routine program monitoring, programme-specific evaluations, surveillance and population-based surveys.
- Testing services will require their own monitoring and evaluation framework using the WHO monitoring and evaluation framework for hepatitis B and C that proposes ten core indicators.

### 6.3.5 Interventions and main actions for attaining Objective 5: To improve access to the comprehensive treatment, care and support for hepatitis B and C patients

The primary reason for diagnosing people with chronic hepatitis B and C is that they can benefit from treatment; therefore, it is important to directly link testing and treatment. Plans for major scale up of treatment services will not succeed without scaling up testing. Similarly, major scale up of testing will create a demand for treatment.

The key results expected in the context of strategic objective 5 are:

#### 5.1 All diagnosed chronic HCV and HBV infections are treated efficiently and safely

The following interventions are proposed to produce the above key result;

1. Developing a National and Provincial treatment plans;
2. Implementing, monitoring and evaluating the treatment plan.

### Intervention 1: Developing National and Provincial treatment plans

Key actions include:

- Review the effectiveness of existing treatment services and identify gaps

This will include the following:
Mapping of existing services, including location of all current treatment sites, uptake and coverage rate (by sex, age and population), and funding source.

Identifying gaps in current hepatitis treatment coverage in relation to burden, by geographical location and population, focusing on areas of highest prevalence or incidence, which are not being reached by available services;

Assessing barriers to treatment, including social, cultural and geographical factors, psychosocial and behavioral factors, stigma and discrimination, gender and legal factors (including age-of-consent requirements), and structural and health system factors that may impede access;

Assessing the linkage between hepatitis treatment and existing care and treatment programs, in particular, following a positive diagnosis;

Assessing commodity and human resource needs, their availability, and policies to identify barriers to and opportunities for expanding treatment;

Assessing available financial resources for hepatitis treatment, including investments by the government and funding partners.

✓ Revisit and revise National treatment targets to reach all those who are HCV and HBV positive,

✓ Develop a National consensus plan for expanding HCV and HBV treatment at Federal and Provincial levels.

**Intervention 2: Implementing and monitoring and evaluating the implementation of the treatment plan to adjust treatment activities at Federal and Provincial levels**

Key actions include:

✓ Evaluate the implemented plans through routine program monitoring, programme-specific evaluations, surveillance and population-based surveys.

✓ Treatment services will require their own monitoring and evaluation framework using the WHO monitoring and evaluation framework for hepatitis B and C that proposes ten core indicators, and includes the proportion of persons living with HBV or HCV infection.
7. IMPLEMENTATION OF THE NATIONAL HEPATITIS STRATEGIC FRAMEWORK

Effective implementation of National Hepatitis Strategic Framework (NHSF) depends on concerted Federal and Provincial actions from all stakeholders in the health and other sectors to respond to viral hepatitis. Success requires strong partnerships to ensure policy and programme coherence. Within the health sector, linkages across different disease-specific and cross-cutting programs need to be established and strengthened. Implementation of the strategic framework needs the development of the Provincial action plan and a strong monitoring and evaluation system to generate the best possible data on the viral hepatitis situation, trends and responses, and to monitor the hepatitis response through a set of standard and measurable indicators.

7.1 Development of the hepatitis provincial action plans

The National Hepatitis Strategic Framework should be translated into the hepatitis Provincial plans with a well-defined governance and management structure that can ensure a coordinated and efficient response and clear accountability.

Provincial action plans will help to mobilize political commitment, define budget for tailored packages of interventions and services at Provincial level, define responsibilities and allocate resources through the PC1s across the different levels of the health system, and identify potential and reliable sources of funding. Regular reviews of the Provincial action plans are essential in order to ensure that the Provincial plans are current and “fit for purpose”.

7.2 Collaboration with other public health programs and partners

Responses to hepatitis can learn from successful public health programs in other areas, including those for HIV, tuberculosis and immunization. Innovative HIV service delivery approaches can be adapted to reach specific populations. Quality improvement and price-reduction strategies that have enabled rapid expansion of HIV treatment coverage provide lessons for increasing access to
affordable hepatitis C virus treatment. Immunization programs can demonstrate how a range of strategies can be used to reach all communities and ensure access to effective, safe and affordable vaccines. Communities, and leverage public and private sectors should be engaged in the response to focus interventions for maximum impact.

7.3 Ensuring long-term viability of hepatitis programming through integration

Viral hepatitis prevention and control should be integrated within the Federal and Provincial Ministries of Health, structures and programs to ensure the long term viability of hepatitis interventions. Integration of policies and service delivery is required at different levels of the health system, with the relative contributions and roles of primary health care, referral care and hospital care well defined.

7.4 Coordination mechanisms

This hepatitis response will be implemented through a multisectoral approach. Civil society, private sector and all stakeholders will be involved in the implementation of response. The responsibilities of the various stakeholders for the NHSF implementation will be clearly defined and can be reviewed and reorganized during the whole process of the implementation.

- National and Provincial Technical Working Groups
  The TAG will play a key role in the implementation of the Federal and Provincial response in the public sector. TAG will develop policies and technical guidelines necessary for the implementation of the hepatitis response in Pakistan. It will coordinate activities among the various stakeholders at the Federal and Provincial levels.

- NGOs
  Leadership in the health sector needs to foster partnerships with the civil society to advocate
supportive policies. NGOs will be involved in the implementation of community activities, particularly interventions for the most affected populations. Organizational and operational mechanisms will be developed for the contribution of NGOs in the national hepatitis response.

- **Private sector**

Private sector is playing an important role in Pakistan specifically in the viral hepatitis treatment. Mechanisms for enhancing the coordination and collaboration with the private sector will be put in place, including those inherent in advocacy and data collection on the hepatitis patients managed by the private sector.

8. **MONITORING AND EVALUATING THE HEPATITIS RESPONSE**

Progress in implementing the hepatitis response to viral hepatitis should be assessed at the Federal and Provincial levels with indicators on availability, coverage outcome and impact. The Federal and Provincial plans will adopt the global framework for monitoring and evaluation of the response to viral hepatitis. The global framework emphasizes 10 core indicators to monitor progress towards the achievement of the targets set out in the plans. In addition 27 indicators are proposed. Of these, 10 indicators are specific to viral hepatitis and 17 have been used in the past by other programs, including HIV/sexually transmitted infection (STI), immunization, blood safety, injection safety and infection control, harm reduction and non-communicable diseases, cancer.

Data sources for these indicators will include biomarker surveys (specific or combined), cancer registries, vital registration statistics, health-care facility surveys, surveillance and estimates through mathematical modelling.
Figure 10: Global monitoring and evaluation framework for the health sector response to viral hepatitis B and C
9. REFERENCES


5. PC. Monitoring of National Programme for the Prevention and Control of Viral Hepatitis; 2008.


47. Public health impact of a population based approach to HCV treatment in Pakistan.


