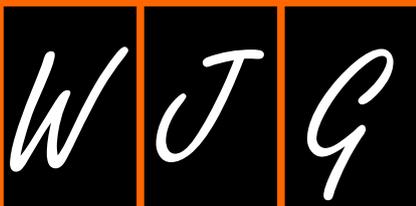


# World Journal of *Gastroenterology*

*World J Gastroenterol* 2018 November 28; 24(44): 4959-5056





### EDITORIAL

- 4959 Hepatitis elimination by 2030: Progress and challenges  
*Waheed Y, Siddiq M, Jamil Z, Najmi MH*

### REVIEW

- 4962 Mononuclear phagocyte system in hepatitis C virus infection  
*Yang Y, Tu ZK, Liu XK, Zhang P*

### MINIREVIEWS

- 4974 Learning curves in minimally invasive esophagectomy  
*van Workum F, Franssen L, Luyer MDP, Rosman C*
- 4979 Glutathione depleting drugs, antioxidants and intestinal calcium absorption  
*Moine L, Rivoira M, Díaz de Barboza G, Pérez A, Tolosa de Talamoni N*

### ORIGINAL ARTICLE

#### Basic Study

- 4989 Different distributions of interstitial cells of Cajal and platelet-derived growth factor receptor- $\alpha$  positive cells in colonic smooth muscle cell/interstitial cell of Cajal/platelet-derived growth factor receptor- $\alpha$  positive cell syncytium in mice  
*Lu C, Huang X, Lu HL, Liu SH, Zang JY, Li YJ, Chen J, Xu WX*
- 5005 Development of a novel rat model of heterogeneous hepatic injury by injection with colchicine *via* the splenic vein  
*Zhang YY, Zhang CX, Li Y, Jiang X, Wang YF, Sun Y, Wang J, Ji WY, Liu Y*
- 5013 Involvement of methylation-associated silencing of formin 2 in colorectal carcinogenesis  
*Li DJ, Feng ZC, Li XR, Hu G*

#### Retrospective Cohort Study

- 5025 Timing of upper gastrointestinal endoscopy does not influence short-term outcomes in patients with acute variceal bleeding  
*Yoo JJ, Chang Y, Cho EJ, Moon JE, Kim SG, Kim YS, Lee YB, Lee JH, Yu SJ, Kim YJ, Yoon JH*

- 5034 Risk factors and prediction score for chronic pancreatitis: A nationwide population-based cohort study  
*Lin YC, Kor CT, Su WW, Hsu YC*

#### Retrospective Study

- 5046 Prognostic value of fibrinogen and D-dimer-fibrinogen ratio in resectable gastrointestinal stromal tumors  
*Cai HX, Li XQ, Wang SF*

**ABOUT COVER**

Editorial board member of *World Journal of Gastroenterology*, Wan-Long Chuang, MD, PhD, Doctor, Professor, Hepatobiliary Division, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung 807, Taiwan

**AIMS AND SCOPE**

*World Journal of Gastroenterology* (*World J Gastroenterol*, *WJG*, print ISSN 1007-9327, online ISSN 2219-2840, DOI: 10.3748) is a peer-reviewed open access journal. *WJG* was established on October 1, 1995. It is published weekly on the 7<sup>th</sup>, 14<sup>th</sup>, 21<sup>st</sup>, and 28<sup>th</sup> each month. The *WJG* Editorial Board consists of 642 experts in gastroenterology and hepatology from 59 countries.

The primary task of *WJG* is to rapidly publish high-quality original articles, reviews, and commentaries in the fields of gastroenterology, hepatology, gastrointestinal endoscopy, gastrointestinal surgery, hepatobiliary surgery, gastrointestinal oncology, gastrointestinal radiation oncology, gastrointestinal imaging, gastrointestinal interventional therapy, gastrointestinal infectious diseases, gastrointestinal pharmacology, gastrointestinal pathophysiology, gastrointestinal pathology, evidence-based medicine in gastroenterology, pancreatology, gastrointestinal laboratory medicine, gastrointestinal molecular biology, gastrointestinal immunology, gastrointestinal microbiology, gastrointestinal genetics, gastrointestinal translational medicine, gastrointestinal diagnostics, and gastrointestinal therapeutics. *WJG* is dedicated to become an influential and prestigious journal in gastroenterology and hepatology, to promote the development of above disciplines, and to improve the diagnostic and therapeutic skill and expertise of clinicians.

**INDEXING/ABSTRACTING**

*World Journal of Gastroenterology* (*WJG*) is now indexed in Current Contents®/Clinical Medicine, Science Citation Index Expanded (also known as SciSearch®), Journal Citation Reports®, Index Medicus, MEDLINE, PubMed, PubMed Central and Directory of Open Access Journals. The 2018 edition of Journal Citation Reports® cites the 2017 impact factor for *WJG* as 3.300 (5-year impact factor: 3.387), ranking *WJG* as 35<sup>th</sup> among 80 journals in gastroenterology and hepatology (quartile in category Q2).

**EDITORS FOR THIS ISSUE**

**Responsible Assistant Editor:** *Xiang Li*  
**Responsible Electronic Editor:** *Shu-Yu Yin*  
**Proofing Editor-in-Chief:** *Lian-Sheng Ma*

**Responsible Science Editor:** *Rao-Yu Ma*  
**Proofing Editorial Office Director:** *Ze-Mao Gong*

**NAME OF JOURNAL**

*World Journal of Gastroenterology*

**ISSN**

ISSN 1007-9327 (print)  
 ISSN 2219-2840 (online)

**LAUNCH DATE**

October 1, 1995

**FREQUENCY**

Weekly

**EDITORS-IN-CHIEF**

**Andrzej S Tarnawski, MD, PhD, DSc (Med), Professor of Medicine, Chief Gastroenterology, VA Long Beach Health Care System, University of California, Irvine, CA, 5901 E. Seventh Str., Long Beach, CA 90822, United States**

**EDITORIAL BOARD MEMBERS**

All editorial board members resources online at <http://www.wjgnet.com/1007-9327/editorialboard.htm>

**EDITORIAL OFFICE**

Ze-Mao Gong, Director  
*World Journal of Gastroenterology*  
 Baishideng Publishing Group Inc  
 7901 Stoneridge Drive, Suite 501,  
 Pleasanton, CA 94588, USA  
 Telephone: +1-925-2238242  
 Fax: +1-925-2238243  
 E-mail: [editorialoffice@wjgnet.com](mailto:editorialoffice@wjgnet.com)  
 Help Desk: <http://www.f6publishing.com/helpdesk>  
<http://www.wjgnet.com>

**PUBLISHER**

Baishideng Publishing Group Inc  
 7901 Stoneridge Drive, Suite 501,  
 Pleasanton, CA 94588, USA  
 Telephone: +1-925-2238242  
 Fax: +1-925-2238243  
 E-mail: [bpgoffice@wjgnet.com](mailto:bpgoffice@wjgnet.com)  
 Help Desk: <http://www.f6publishing.com/helpdesk>  
<http://www.wjgnet.com>

**PUBLICATION DATE**

November 28, 2018

**COPYRIGHT**

© 2018 Baishideng Publishing Group Inc. Articles published by this Open-Access journal are distributed under the terms of the Creative Commons Attribution Non-commercial License, which permits use, distribution, and reproduction in any medium, provided the original work is properly cited, the use is non commercial and is otherwise in compliance with the license.

**SPECIAL STATEMENT**

All articles published in journals owned by the Baishideng Publishing Group (BPG) represent the views and opinions of their authors, and not the views, opinions or policies of the BPG, except where otherwise explicitly indicated.

**INSTRUCTIONS TO AUTHORS**

Full instructions are available online at <http://www.wjgnet.com/bpg/gerinfo/204>

**ONLINE SUBMISSION**

<http://www.f6publishing.com>

## Hepatitis elimination by 2030: Progress and challenges

Yasir Waheed, Masood Siddiq, Zubia Jamil, Muzammil Hasan Najmi

Yasir Waheed, Multidisciplinary Laboratory, Foundation University Medical College, Foundation University Islamabad, Islamabad 44000, Pakistan

Masood Siddiq, Department of Medicine, Jinnah Memorial Hospital, 2-Civil Lines, Rawalpindi 46000, Pakistan

Zubia Jamil, Department of Medicine, Fauji Foundation Hospital, Foundation University Medical College, Foundation University Islamabad, Islamabad 44000, Pakistan

Muzammil Hasan Najmi, Department of Pharmacology and Therapeutics, Foundation University Medical College, Foundation University Islamabad, Islamabad 44000, Pakistan

ORCID number: Yasir Waheed (0000-0002-5789-4215); Masood Siddiq (0000-0003-4072-7282); Zubia Jamil (0000-0003-3144-837X); Muzammil Hasan Najmi (0000-0002-6114-5540).

**Author contributions:** Waheed Y designed study and wrote manuscript; Waheed Y, Siddiq M, Jamil Z, Najmi MH did literature search, data analysis and gave the final approval of the study.

**Conflict-of-interest statement:** The authors have no conflict of interest to declare.

**Open-Access:** This article is an open-access article which was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>

**Manuscript source:** Invited manuscript

**Corresponding author to:** Yasir Waheed, PhD, Assistant Professor, Multidisciplinary Laboratory, Foundation University Medical College, Foundation University Islamabad, Defense Avenue, DHA 1, Islamabad 44000, Pakistan. [yasir.waheed@fui.edu.pk](mailto:yasir.waheed@fui.edu.pk)  
Telephone: +92-300-5338171

Received: August 30, 2018

Peer-review started: August 30, 2018

First decision: October 9, 2018

Revised: October 23, 2018

Accepted: November 2, 2018

Article in press: November 2, 2018

Published online: November 28, 2018

### Abstract

Globally, over 300 million people are living with viral hepatitis with approximately 1.3 million deaths per year. In 2016, World Health Assembly adopted the Global Health Sector Strategy on viral hepatitis to eliminate hepatitis by 2030. Different World Health Organization member countries are working on hepatitis control strategies to achieve hepatitis elimination. So far, only 12 countries are on track to achieve hepatitis elimination targets. The aim of the study was to give an update about the progress and challenges to achieving hepatitis elimination by 2030. According to the latest data, 87% of infants had received the three doses of hepatitis B virus (HBV) vaccination in the first year of their life and 46% of infants had received a timely birth dose of HBV vaccination. There is a strong need to improve blood and injection safety. Rates of hepatitis B and C diagnosis are very low and only 11% of hepatitis B and C cases are diagnosed. There is a dire need to speed up hepatitis diagnosis and find the missing millions of people living with viral hepatitis. Up to 2016, only 3 million hepatitis C cases have been treated. Pricing of hepatitis C virus drugs is also reduced in many countries. The major hurdle to achieve hepatitis elimination is lack of finances to support hepatitis programs. None of the major global donors are committed to invest in the fight against hepatitis. It will be very difficult for the low and middle-income countries to fund their hepatitis control program. Hepatitis elimination needs strong financial and political commitment, support from civil societies, and support from pharmaceutical and medical companies around the globe.

**Key words:** Hepatitis; Global Health Sector Strategy; Hepatitis B virus vaccination; Injection safety; Find

missing millions; Harm reduction

© **The Author(s) 2018.** Published by Baishideng Publishing Group Inc. All rights reserved.

**Core tip:** Viral hepatitis is one of the leading causes of deaths worldwide. World Health Organization has produced a strategy to eliminate hepatitis by 2030. The major hurdle to achieve hepatitis elimination is lack of financial resources. If the targets in Global Health Sector Strategy are achieved, then the millions of lives will be saved from liver related premature deaths.

Waheed Y, Siddiq M, Jamil Z, Najmi MH. Hepatitis elimination by 2030: Progress and challenges. *World J Gastroenterol* 2018; 24(44): 4959-4961 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v24/i44/4959.htm> DOI: <http://dx.doi.org/10.3748/wjg.v24.i44.4959>

## INTRODUCTION

Hepatitis B and C are major causes of liver-related deaths<sup>[1]</sup>. Globally, 257 million and 71 million people are living with hepatitis B virus (HBV) and hepatitis C virus (HCV), respectively<sup>[2]</sup>. In the last 15 years, massive progress has been achieved in the fights against human immunodeficiency virus, malaria and tuberculosis, mainly by heavy commitments by the global donor agencies while viral hepatitis remains neglected<sup>[3]</sup>. In 2015, United Nations included hepatitis in its Sustainable Development Goals.

In 2016, World Health Assembly has adopted the Global Health Sector Strategy (GHSS) on viral hepatitis to eliminate hepatitis by 2030. The goal of the World Health Organization (WHO) GHSS is to reduce hepatitis incidence from 6-10 million cases to 0.9 million cases, and to reduce annual hepatitis deaths from 1.4 million to 0.5 million, by 2030<sup>[4]</sup>.

The WHO is helping different countries to develop hepatitis control programs<sup>[5]</sup>. By November 2017, 84 countries had developed hepatitis control programs<sup>[6]</sup>. Due to lack of international investment in viral hepatitis programs, only a few countries included hepatitis treatment and prevention strategies for all patients in their national hepatitis programs<sup>[1]</sup>. According to Polaris data, only 12 countries, namely Australia, Iceland, Switzerland, Italy, Mongolia, Spain, Egypt, France, Georgia, Japan, Netherlands, and United Kingdom are on track to achieve the WHO hepatitis elimination targets<sup>[7]</sup>.

## GLOBAL HEALTH SECTOR STRATEGY ON VIRAL HEPATITIS: TARGETS AND PROGRESS

World Health Organization's GHSS document showed the five areas, in which efforts are required to eliminate hepatitis by 2030. These five core intervention areas are

(1) HBV vaccination; (2) prevention of mother to child transmission of HBV; (3) injection and blood safety; (4) harm reduction; and (5) test and treatment of HBV and HCV<sup>[4]</sup>.

In 2015, the global coverage of 3<sup>rd</sup> dose infant HBV vaccination was 82%, which is close to the target of 90% HBV vaccine coverage by 2030<sup>[4]</sup>. According to the latest data, 87% of infants had received the three doses of HBV vaccination in the first year of their life<sup>[8]</sup>. There are many countries in the European Union who have not included the HBV vaccination into their routine immunization schedule<sup>[9]</sup>. There is a dire need to speed up HBV vaccination and reach every child for vaccination, to save the future generations from HBV.

Mother to child transmission of HBV is prevented by the timely administration of HBV birth dose vaccine (within 24 h of birth)<sup>[9]</sup>. In 2015, only 38% of children were administered the birth dose of HBV vaccine in a timely manner and the target is to administer the timely HBV vaccine to 90% of children<sup>[4]</sup>. According to the latest data, 46% of infants were administered the birth dose of HBV vaccine in a timely manner<sup>[8]</sup>.

Blood and injection safety is very important to achieve the global hepatitis elimination target. In 2015, 39 countries were not routinely screening all blood donations for transfusion transmitted infections and 89% of donations underwent a quality control check<sup>[4]</sup>. There is a strong need to improve injection safety and also reduce the use of unnecessary injections, especially in the low and middle-income countries (LMICs).

The prevalence of HBV and HCV are very high in People who inject drugs (PWID)<sup>[4]</sup>. In 2015, only 20 sterile syringes were provided to per PWID per year and the target is to provide 300 syringes per PWID per year<sup>[4]</sup>. A lot of financial effort is needed to reach the 2030 target of harm reduction.

Only 11% of HBV and HCV cases are diagnosed. The target in GHSS is to diagnose 90% of HBV and HCV positive cases by 2030<sup>[4]</sup>. Observing the miserable condition of hepatitis diagnosis, World Hepatitis Alliance has started an initiative named "Find the Missing Millions", to find the millions of undiagnosed people living with viral hepatitis<sup>[10]</sup>.

Current hepatitis B and C treatment rates are very low. According to Global Hepatitis Report 2017, 1.7 million HBV and 1.1 million HCV patients were on treatment in the year 2015<sup>[2]</sup>. In 2016, 1.76 million additional HCV patients received treatment and the cumulative 2015-2016 HCV treatment number reached 3 million<sup>[6]</sup>. To eliminate hepatitis, the goal is to treat 80% of HBV and HCV patients by 2030<sup>[4]</sup>. Highly effective HCV drugs are available in the market. The price of HCV drugs has been reduced in over 100 countries, but drug pricing is still a problem in many developed countries. There is a strong need to find a highly effective treatment for hepatitis B virus.

## CONCLUSION

There is a dire need to strengthen the health care sys-

tems in different LMICs. There are many low-income countries in which a large proportion of births are not taking place in health care settings. The major obstacle to eliminate hepatitis by 2030 is lack of financial resources. None of the major global donors gave a financial commitment to eliminate viral hepatitis. There is also a strong need to provide funds to The Global Alliance for Vaccines and Immunisation to support the HBV birth dose vaccination scheme. Donors are also needed to develop and support the national hepatitis plans in LMICs<sup>[1]</sup>. Hepatitis elimination needs strong financial and political commitment, support from civil societies, and support from pharmaceutical and medical companies around the globe<sup>[1]</sup>.

## REFERENCES

- 1 **Gore C**, Hicks J, Deelder W. Funding the elimination of viral hepatitis: donors needed. *Lancet Gastroenterol Hepatol* 2017; **2**: 843-845 [PMID: 29100843 DOI: 10.1016/S2468-1253(17)30333-3]
- 2 **World Health Organization**. Global Hepatitis Report 2017. Available from: URL: <http://apps.who.int/iris/bitstream/handle/10665/255016/9789241565455-eng.pdf;jsessionid=A1E5CF10018D99C7C1291A9BCA6F05A9?sequence=1>
- 3 **Waheed Y**. Transition from millennium development goals to sustainable development goals and hepatitis. *Pathog Glob Health* 2015; **109**: 353 [PMID: 26924344 DOI: 10.1080/20477724.2015.1126035]
- 4 **World Health Organization**. Global Health Sector Strategies on Viral Hepatitis 2016-2021. Available from: URL: [http://apps.who.int/gb/ebwha/pdf\\_files/WHA69/A69\\_32-en.pdf?ua=1](http://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_32-en.pdf?ua=1)
- 5 **Waheed Y**, Siddiq M. Elimination of hepatitis from Pakistan by 2030: Is it possible? *Hepatoma Res* 2018; **4**: 45 [DOI: 10.20517/2394-5079.2018.58]
- 6 **World Health Organization**. Progress report on access to Hepatitis C treatment, focus on overcoming barriers in low and middle income countries. Available from: URL: <http://apps.who.int/iris/bitstream/10665/260445/1/WHO-CDS-HIV-18.4-eng.pdf?ua=1>
- 7 **Polaris Observatory**. Center for Disease Analysis. Available from: URL: <http://cdafound.org/polaris/>
- 8 **Polaris Observatory Collaborators**. Global prevalence, treatment, and prevention of hepatitis B virus infection in 2016: a modelling study. *Lancet Gastroenterol Hepatol* 2018; **3**: 383-403 [PMID: 29599078 DOI: 10.1016/S2468-1253(18)30056-6]
- 9 **Hutin YJ**, Bulterys M, Hirschall GO. How far are we from viral hepatitis elimination service coverage targets? *J Int AIDS Soc* 2018; **21** Suppl 2: e25050 [PMID: 29633520 DOI: 10.1002/jia2.25050]
- 10 **World Hepatitis Alliance**. Find the Missing Millions. Available from: URL: <http://www.worldhepatitisalliance.org/find-missing-millions>
- 11 **Waheed Y**. Hepatitis C eradication: A long way to go. *World J Gastroenterol* 2015; **21**: 12510-12512 [PMID: 26604658 DOI: 10.3748/wjg.v21.i43.12510]

**P- Reviewer:** Mihaila RG, Said ZN, Zhao HT **S- Editor:** Wang XJ  
**L- Editor:** A **E- Editor:** Yin SY





Published by **Baishideng Publishing Group Inc**  
7901 Stoneridge Drive, Suite 501, Pleasanton, CA 94588, USA  
Telephone: +1-925-223-8242  
Fax: +1-925-223-8243  
E-mail: [bpgoffice@wjgnet.com](mailto:bpgoffice@wjgnet.com)  
Help Desk: <http://www.f6publishing.com/helpdesk>  
<http://www.wjgnet.com>



ISSN 1007-9327

