Identifying Expert Opinions on the Challenges and Barriers Faced by Iraq's National Plan for Controlling Hepatitis B

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Research Article

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Abstract

Background

This study examined the difficulties and obstacles faced by healthcare professionals in implementing Iraq’s National Plan for Hepatitis B Virus (HBV) Control. This research aims to offer valuable insights into the intricacies of HBV control efforts and identify key areas for improvement.

Methods

In this qualitative study, semi-structured interviews were conducted with a purposive sample of ten physicians, representing diverse medical specialties and healthcare settings, including experts in the fields of medical sciences. Data analysis was conducted using MAXQDA software version 24 to identify recurring themes and gain insights into the challenges encountered during the implementation of the national plan.

Results

Ten physicians participated in the study, providing insights into challenges and barriers hindering the effective implementation of Iraq’s National Plan for HBV Control. Consensus among participants highlighted challenges such as resource constraints, inadequate infrastructure, population ignorance, and vaccine refusal. Documentation challenges, including inaccuracies in reporting HBV-associated mortality, were also noted. Barriers to successful implementation included poor public awareness, inadequate education for healthcare providers, and funding shortages. Unmet needs highlighted the necessity for unified protocols, surveillance systems, and international training programs. The improvement strategies proposed by participants emphasized raising awareness, supporting primary healthcare centers, and enhancing funding allocation.

Conclusion

This study underscores significant challenges in implementing Iraq’s national plan for HBV control, with barriers ranging from resource constraints to communication barriers. Healthcare professionals advocate for targeted interventions, collaborative efforts, and policy measures to address these challenges effectively. The findings contribute to the evidence base for enhancing HBV control efforts in Iraq and emphasize the importance of tailored approaches to public health interventions.

1. Introduction

Hepatitis B virus (HBV) infection remains a significant global health challenge, affecting an estimated 257 million individuals worldwide who live with chronic HBV infection. Complications such as cirrhosis and hepatocellular carcinoma lead to approximately 887,000 deaths annually [1, 2, 3]. In Iraq, hepatitis B poses a substantial burden on public health, necessitating strategic interventions for control and prevention. To address this challenge, Iraq has implemented a national plan that aims to mitigate the impact of hepatitis B through various prevention and control measures [4]. However, the effective implementation of national plans for hepatitis B control is often impeded by numerous challenges and barriers. These obstacles can arise from factors such as limited resources, inadequate infrastructure, socioeconomic disparities, and cultural beliefs that influence healthcare-seeking behaviors[5, 6]. Understanding the intricacies of these challenges is crucial for designing targeted interventions and optimizing the impact of control efforts.

By shedding light on the nuanced challenges faced by healthcare professionals and policymakers, this study provides valuable insights for ongoing efforts to combat hepatitis B in Iraq. Ultimately, the findings of this research have the potential to inform evidence-based strategies and policies tailored to the Iraqi context, thereby advancing the national agenda for hepatitis B control and improving public health outcomes [8].

This study aimed to elucidate the challenges and barriers encountered in the implementation of Iraq’s national plan for hepatitis B control by gathering expert perspectives. Through qualitative interviews with experts in fields such as community medicine, epidemiology, and internal medicine, this research seeks to identify key obstacles and opportunities for enhancing the effectiveness of hepatitis B control initiatives in Iraq [7].

2. Methodology

A. Research Design: This study utilized a qualitative research design to gain in-depth insights into the challenges and barriers associated with the implementation of Iraq’s national plan for HBV control. Qualitative research is well-suited for exploring complex phenomena and understanding the perspectives of key stakeholders. Semi-structured interviews were conducted with experts from various healthcare fields, including community medicine, family medicine, epidemiology and internal medicine.
B. Participant Selection: Participants were chosen based on their expertise and experience in relevant fields, ensuring representation from disciplines essential for understanding the complexities of hepatitis B control. A diverse group of participants from different healthcare settings and professional backgrounds was included to capture a range of perspectives. The targeted sample size of 10 participants aimed to achieve saturation, where no new information or themes emerged from additional interviews [9].

C. Data collection:

1. Semi-structured interviews: The primary method of data collection involved conducting semi-structured interviews with the selected participants. Semi-structured interviews allow flexibility in exploring key topics while also enabling the discovery of emergent themes and responses. The interviews followed a set of open-ended questions designed to cover important areas related to challenges, barriers, opportunities, strengths, and weaknesses associated with the implementation of Iraq's national plan for hepatitis B control.

2. Informed Consent: Prior to the interviews, participants were provided with informed consent forms that outlined the study's purpose, confidentiality measures, and voluntary participation. Participants were assured of their anonymity and confidentiality throughout the study.

D. Interview Guide Development: An interview guide was developed to ensure that key topics were addressed during the interviews. The guide included questions about demographic information, challenges encountered in implementing the national plan, barriers to effective control measures, opportunities for improvement, and strengths and weaknesses of existing strategies.

E. Data Analysis: The analysis of qualitative data was carried out using MAXQDA software version 24, a comprehensive tool designed for organizing, coding, and analyzing interview data. The analysis process commenced by iteratively coding the interview transcripts, systematically assigning labels to segments of text to identify recurring themes, sub-themes, patterns, and insights pertaining to the challenges encountered during implementation. Through a process of constant comparison and refinement, themes were developed to encapsulate the essence of participants' experiences and perspectives.

F. Sample Saturation: Sample saturation, a key aspect of qualitative research, was achieved when no new themes or insights emerged from additional interviews, indicating that the data collection had reached a point of redundancy. This was confirmed through a systematic review of interview transcripts, where all opinion comments were found to be similar, suggesting a comprehensive exploration of the research topic.

3. Result

Ten physicians from diverse medical specialties, including epidemiology, family medicine, internal medicine, and community medicine, were interviewed for this study. The participants had 10 to 40 years of experience and were affiliated with various healthcare settings, such as public health departments, medical colleges, clinics, and hospitals. Their involvement in healthcare programs varied, with some directly engaged in public health initiatives or community outreach programs.

Despite their diverse backgrounds, all participants shared a common goal of addressing the challenges associated with implementing Iraq's national plan for HBV control, as indicated in Table 1. While most participants reported active engagement in healthcare programs, their levels of training on hepatitis B varied. Some participants had received specific training on hepatitis B, while others had not. Interestingly, none of the participants were currently involved in HBV research or publications, although several were actively involved in public health initiatives or community outreach efforts. Furthermore, the majority of participants demonstrated familiarity with national healthcare policies and guidelines related to infectious diseases in Iraq, indicating their awareness of regulatory frameworks and standards governing healthcare practices in the country (see Table 1).

Table 1. Summary of Participant Characteristics and Involvement in Hepatitis B Virus Management and Public Health Initiatives in Iraq, (n=10)
Based on expert opinions and precise insights, a comprehensive analysis was conducted to examine the implementation of the HBV control strategy in Iraq. This analysis systematically explores various themes and sub-themes, providing a detailed understanding of the challenges that impede effective execution. These challenges include resource constraints, documentation deficiencies, inadequate public awareness, and funding shortages. However, the analysis also identified opportunities for improvement, such as enhancing health education and strengthening healthcare infrastructure. By shedding light on the complexities involved in HBV control efforts, this analysis not only serves as a roadmap for addressing critical gaps but also contributes to progress in Iraq’s public health landscape. as demonstrated in Table 2.

Table 2. Themes and Subthemes Identified in the Study on Implementing Iraq’s National Plan for HBV Control

<table>
<thead>
<tr>
<th>Years of Experience</th>
<th>Healthcare Setting</th>
<th>Medical Specialty</th>
<th>Involvement in Healthcare Programs</th>
<th>Training on Hepatitis B</th>
<th>Involvement in Hepatitis B Research/Publications</th>
<th>Involvement in Public Health Initiatives/Community Outreach</th>
<th>Familiar with National Healthcare Policies/Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 Hosp.</td>
<td>I.M.</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>17 Hosp.</td>
<td>I.M.</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>32 M.C.</td>
<td>F.M.</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>32 PHD</td>
<td>I.M.</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>35 M.C.</td>
<td>C.M.</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>17 PHD</td>
<td>Epid.</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>10 Clinic</td>
<td>F. M.</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>31 PHD</td>
<td>Epid.</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>10 PHD</td>
<td>Epid.</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>40 PHD</td>
<td>Epid.</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Hosp. = Hospital, M.C. = Medical college, PHD= Public Health Department, I.M.= Internal Medicine, F.M. = Family Medicine, C.M.= Community Medicine, Epid. = Epidemiologist
<table>
<thead>
<tr>
<th>No.</th>
<th>Themes and Subthemes</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Challenges</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>· Implementation challenges:</td>
<td>· Resource constraints and limited infrastructure.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Population ignorance and vaccine refusal.</td>
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<td></td>
<td></td>
<td>· Financial issues and difficult communication with patients.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Inaccurate data and incomplete patient addresses.</td>
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<td></td>
<td>· Documentation challenges:</td>
<td>· Registration error of the cause of death-on-death certificates.</td>
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<tr>
<td></td>
<td></td>
<td>· Instances where patients pass away at home without being officially registered.</td>
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<td></td>
<td></td>
<td>· Insufficient orientation of medical students regarding the risks of hepatitis B.</td>
</tr>
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<td></td>
<td></td>
<td>· Limited access to standardized reporting tools and systems.</td>
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<td></td>
<td></td>
<td>· Fragmented electronic systems.</td>
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<td></td>
<td></td>
<td>· Tendency to report most deaths as hepatic failure without specifying the underlying hepatitis.</td>
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<tr>
<td>2</td>
<td><strong>Barriers</strong></td>
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<tr>
<td></td>
<td>· Barriers to Implementation:</td>
<td>· Poor public awareness and response.</td>
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<tr>
<td></td>
<td></td>
<td>· Insufficient education for healthcare providers and the general population.</td>
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<td></td>
<td></td>
<td>· Inadequate funding and a shortage of trained personnel.</td>
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<td></td>
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<td>· Inadequate documentation practices.</td>
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<td></td>
<td></td>
<td>· Lack of media support and health promotion programs.</td>
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<td></td>
<td>· Unmet Needs:</td>
<td>· Availability of unified protocols or guidelines.</td>
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<tr>
<td></td>
<td></td>
<td>· Surveillance and monitoring of laboratories and investigations.</td>
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<td></td>
<td></td>
<td>· International training to enhance healthcare professionals’ experience and knowledge.</td>
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<td></td>
<td></td>
<td>· Ensuring availability of vaccines.</td>
</tr>
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<td></td>
<td></td>
<td>· Adequate resources for comprehensive patient education and access to affordable treatment options.</td>
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<td></td>
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<td>· Implementing mandatory vaccination policies.</td>
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<td></td>
<td></td>
<td>· Regulating or controlling practices such as cupping, tattooing, and piercing.</td>
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<td>· Addressing inadequacies of laboratory tests.</td>
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<tr>
<td>3</td>
<td><strong>Opportunities</strong></td>
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<tr>
<td></td>
<td>· Improvement Strategies:</td>
<td>· Raising awareness about health issues and imposing penalties on violators.</td>
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<tr>
<td></td>
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<td>· Supporting primary health centers, community doctors, GIT centers, blood banks, vaccination programs, and infection control units.</td>
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<td>· Reinstating previous plans and staff.</td>
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<td>· Providing training opportunities for untrained personnel.</td>
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<td></td>
<td></td>
<td>· Boosting financial support for medical institutes.</td>
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<tr>
<td></td>
<td></td>
<td>· Ensuring availability of necessary medication and vaccines.</td>
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<tr>
<td></td>
<td></td>
<td>· Educating patients about various diseases.</td>
</tr>
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<td></td>
<td></td>
<td>· Establishing medical centers within each Department of Health (DOH).</td>
</tr>
<tr>
<td>4</td>
<td><strong>Weaknesses and strengths</strong></td>
<td>· Lack of serial screening for healthcare providers and other high-risk groups.</td>
</tr>
<tr>
<td></td>
<td>· Weaknesses and areas for improvement:</td>
<td>· Inadequate availability of drugs for treatment.</td>
</tr>
</tbody>
</table>
3.1 Challenges:

3.1.1 Implementation challenges: The main challenges that have been encountered in implementing Iraq’s National Plan for Hepatitis B Virus Control in medical practice.

When asked about the main challenges, seven physicians “identified resource constraints, limited resources and infrastructure, population ignorance, lack of international training and stakeholder experience, vaccine refusal, financial issues, difficult communication with patients, and inaccurate data as significant obstacles”. Additionally, two other physicians “emphasized challenges such as incorrect or incomplete patient addresses, lack of community awareness, the spread of cupping and tattooing practices, insufficient commitment by health institutions to preventive measures, and fluctuations in examination materials and medications”. To address these challenges, it is crucial to promote teamwork and prioritize sanitation and preventive measures. Other necessary actions include increasing vaccination rates, conducting regular surveys for hepatitis B virus among food handlers, and providing orientation for healthcare workers.

3.1.2 Documentation challenges: the challenges that have been encountered in accurately documenting and reporting mortality related to hepatitis B virus within medical practice.

Three physicians identified several challenges related to accurately documenting and reporting mortality associated with hepatitis B. “These challenges included the misregistration of the cause of death on death certificates, instances where patients pass away at home without being officially registered, insufficient orientation of medical students regarding the risks of hepatitis B, limited access to standardized reporting tools and systems, fragmented electronic systems, financial issues, decreased healthcare provider knowledge regarding technology, and a tendency to report most deaths as hepatic failure without specifying the underlying hepatitis”.

Additionally, six physicians “highlighted the difficulty of attributing deaths solely to HBV due to the chronic nature of the disease, its complications, and the involvement of other organs”.

3.2 Barriers:

3.2.1 Barriers to Implementation: In participants’ opinions, the key barriers to successful implementation of the national plan in the context of medical practice.

Five physicians “identified several key barriers to the successful implementation of the national plan. These barriers include poor public awareness and response, insufficient education for healthcare providers and the general population, inadequate funding and a shortage of trained personnel, inadequate documentation practices, and a lack of media support and health promotion programs”. Furthermore, four
physicians “emphasized the need for advanced development in primary healthcare centers to ensure effective treatment, vaccination programs, and health education”. They also highlighted the barrier posed by the lack of experience and training among managers.

3.2.2 Unmet Needs: The specific needs or requirements have not been adequately addressed in the context of managing and controlling hepatitis B virus within the healthcare setting.

All ten physicians unanimously agreed on the unmet needs in managing and controlling the hepatitis B virus. These needs include the availability of unified protocols or guidelines encompassing all types of medical care. “They emphasized the importance of the surveillance and monitoring of laboratories and investigations to ensure accurate and reliable results. The physicians also emphasized the need for international training to enhance healthcare professionals’ experience and knowledge in managing hepatitis B”.

Additionally, “they highlighted the necessity of ensuring the availability of vaccines to effectively prevent the spread of the virus. Adequate resources for comprehensive patient education and access to affordable treatment options were also identified as crucial needs”. Furthermore, the physicians stressed “the importance of implementing mandatory vaccination policies, as well as regulating or controlling practices such as cupping, tattooing, and piercing, which may pose a risk for hepatitis B transmission”. Finally, addressing the inadequacies of laboratory tests was highlighted as an essential aspect of managing and controlling the virus effectively.

3.3 Opportunities:

3.3.1 Improvement Strategies: the improvements or additional support that enhance the implementation of Iraq’s National Plan for Hepatitis B Virus Control in the healthcare setting.

All ten physicians unanimously agreed on several improvement strategies for the implementation of Iraq’s National Health Plan. These strategies include raising awareness about health issues and imposing penalties on violators. “They emphasized the importance of supporting primary health centers, community doctors, GIT centers, blood banks, vaccination programs, and infection control units”. To enhance primary healthcare services, they recommended the reinstatement of previous plans and staff, providing training opportunities for untrained personnel, and giving more attention to junior doctors.

Furthermore, the physicians stressed the need for additional support and resources, such as comprehensive training programs and increased funding allocation. “They emphasized the importance of boosting financial support for medical institutes, ensuring the availability of necessary medication and vaccines, providing healthcare provider training, and educating patients about various diseases. They also suggested that laws and legislation mandate full vaccination for all high-risk groups. Additionally, it was recommended to establish a medical center within each Department of Health (DOH) to address the comprehensive medical needs of patients”.

3.4 Weaknesses and strengths

3.4.1 Weaknesses and areas for improvement: the participants’ opinions, weaknesses or areas requiring improvement in the current implementation of Iraq’s National Plan for Hepatitis B Virus Control within medical practice.

Five physicians identified several weaknesses and areas for improvement in the current implementation of healthcare for Hepatitis B. These include “the lack of serial screening for healthcare providers and other high-risk groups, inadequate availability of drugs for treatment, weak training of healthcare providers on sterilization practices and post needle stick actions, the absence of mandatory requirements for individuals to adopt prevention strategies, instances of fraudulent or inaccurate results in premarital investigations, insufficiently established and consistent protocols for both private and governmental healthcare settings, inadequate recording and reporting systems, discontinuity of services, insufficient public awareness campaigns about hepatitis B, limited access to treatment options, decreased patient awareness about the disease, low vaccination rates among healthcare workers, and inadequate support for healthcare workers”. Addressing these weaknesses and areas for improvement is crucial to enhancing the overall provision of healthcare patients with hepatitis B and ensuring better outcomes.

3.4.2 Strengths and positive experiences: strengths or successful experiences observed in the context of implementing Iraq’s National Plan for Hepatitis B Virus Control in medical practice.

Four physicians highlighted “several effective interventions for addressing hepatitis B infection. These interventions included promoting good personal hygiene practices, implementing effective vaccination and screening programs, providing training and education for healthcare providers, ensuring proper sterilization protocols for health authorities, offering premarital health services, establishing robust recording and reporting systems, making vaccines readily available, implementing early detection initiatives, conducting patient education programs, and promoting health education and awareness”. These interventions have demonstrated positive outcomes in controlling the spread of the hepatitis B virus.
Three physicians "acknowledged the successful implementation of Iraq's National Immunization Schedule for Children Under 5. They noted that the hepatitis B vaccine is readily available free of charge at primary healthcare centers". The Ministry of Health (MOH) has provided support for this initiative, resulting in increased awareness among healthcare professionals and patients regarding disease and preventive measures. Additionally, medical care related to hepatitis B is provided free of charge. The presence of a clear action plan and the availability of vaccines have facilitated the screening of high-risk groups.

3.5 Mortality and Treatment Related to HBV:

The text passages discuss mortality and treatment related to hepatitis B virus (HBV). "This highlights that physicians sometimes fail to register the cause of liver cirrhosis or liver failure in death certificates, resulting in a lack of research data". To improve data collection, electronic registration and standardized reporting protocols are recommended. Access to affordable medication and specialized care is crucial for effective treatment. Prevention measures, such as vaccination, controlling sources of infection, and implementing effective screening in blood banks, are emphasized. Patient education and awareness play a vital role in improving treatment outcomes and reducing complications. Overall, enhancing healthcare providers' knowledge, technology, and training is necessary for effective HBV management.

In a detailed discussion of this topic, several questions arise, including the following:

Q1: How do you perceive the current level of access to treatment for hepatitis B virus patients in your healthcare setting, and what improvements do you think are necessary in this area?

"The current level of access to treatment for hepatitis B virus patients in our healthcare setting is inadequate. There are challenges in ensuring a consistent supply of medication to healthcare institutions, and the availability of specialized care is limited. Improvements are necessary in terms of making medication more affordable and accessible to patients. Additionally, there is a need for better availability of laboratory investigations and medication in healthcare settings".

Q2: In your experience, what measures or systems do you believe would facilitate the accurate registration and documentation of mortality related to HBV within the healthcare system?

"To facilitate accurate registration and documentation of mortality related to HBV within the healthcare system, several measures and systems can be implemented. First, the adoption of electronic registration and standardized electronic database systems would streamline the process and ensure accurate data collection. Capacity building within health systems is also crucial for enhancing the knowledge and skills of healthcare providers in accurately documenting and reporting mortality cases. Standardized reporting protocols should be established to ensure consistent and comprehensive reporting. The use of electronic medical records can further improve the accuracy and efficiency of documentation. Additionally, providing training for accurate completion of death certificates and utilizing recent technology for documentation would contribute to better registration and documentation practices. Central surveillance and monitoring of guidelines and protocols by the Ministry of Health are also necessary to ensure accurate reporting".

Q3: What challenges have you encountered in accurately documenting and reporting mortality related to hepatitis B virus within your medical practice?

"In our medical practice, we have encountered several challenges in accurately documenting and reporting mortality related to hepatitis B virus. One challenge is that physicians often fail to register the specific cause of liver disease on death certificates, which leads to incomplete documentation. Inconsistent reporting standards and a lack of integration with national databases also pose challenges in obtaining accurate data. Financial constraints may affect healthcare providers' access to technology and training, which can impact the accuracy of documentation. Additionally, "some patients may pass away before receiving a diagnosis, making it difficult to document the cause of death accurately".

Q4: What strategies or interventions have you found effective in ensuring the effective management and treatment of patients with hepatitis B virus in your clinical practice?

"In our clinical practice, we have found several strategies and interventions effective in ensuring the effective management and treatment of patients with hepatitis B virus. The implementation of an efficient vaccination program has been crucial for preventing new infections. Controlling sources of infection, especially in illegal places, has also been effective in reducing the spread of HBV. Utilizing recent and advanced laboratory techniques for screening in blood banks helps identify infected individuals and prevent transmission through blood transfusions. Providing effective management after accidental needlestick incidents is essential to protect healthcare workers. Regular monitoring, early intervention, and patient education programs have been successful in managing the disease and preventing complications. Patient education about the disease and the availability of antiviral medication are important components of effective management and treatment".

4. Discussion
Hepatitis B virus (HBV) infection presents a significant global public health challenge, and Iraq is no exception to its impact. This study provides insights into the challenges and barriers faced in implementing Iraq's National Plan for Hepatitis B Virus Control from the perspective of healthcare professionals. Through qualitative interviews with experts from various medical specialties, this study offers valuable insights into the complexities of HBV control efforts and identifies areas for improvement.

Challenges in Implementation: This study reveals several challenges that hinder the effective implementation of Iraq's National Plan for HBV Control. These challenges include limited resources, inadequate infrastructure, population ignorance, and cultural beliefs influencing healthcare-seeking behaviors. Additionally, issues such as vaccine refusal, financial constraints, communication difficulties with patients, and inaccurate data pose significant obstacles to control efforts [10, 11, 12, 2].

Documentation challenges: Documentation challenges related to accurately reporting HBV-associated mortality highlight the limitations of current healthcare systems in capturing precise data. Issues such as misregistration of causes of death, unregistered deaths, and inadequate surveillance systems necessitate investments in healthcare infrastructure, training programs, and digital health solutions to enhance data collection and analysis [13, 14, 15, 16, 17].

Barriers to Successful Implementation: This study identifies barriers to successful implementation that align with common challenges observed in healthcare systems in resource-limited settings. These barriers include poor public awareness and response, inadequate education for healthcare providers and the general population, and funding shortages. Furthermore, insufficient media support and health promotion programs exacerbate this situation, emphasizing the need for multisectoral collaboration and effective communication strategies [18, 19, 20, 21].

Unmet Needs: This study identified unmet needs in HBV control efforts, including the need for unified protocols, surveillance systems, and international training programs. Additionally, there is a focus on vaccine availability, resources for patient education, and regulatory frameworks to address both supply-side and demand-side factors influencing healthcare delivery [22, 23].

Improvement Strategies: Participants in the study proposed improvement strategies that emphasize raising awareness, supporting primary healthcare centers, and increasing funding allocation for HBV control efforts. These strategies align with global health frameworks such as the Sustainable Development Goals and stress the importance of policy interventions, mandatory vaccination policies, and the regulation of risky practices [24, 25, 26].

Implications for Policy and Practice: The findings underscore the need for targeted interventions that address the specific challenges identified by healthcare professionals. Policymakers are urged to prioritize investments in healthcare workforce development, capacity building, and collaborative efforts involving government agencies, nongovernmental organizations, and community stakeholders to implement comprehensive HBV control strategies [27, 28, 21].

5. Conclusion
A study on Iraq's national plan for HBV control revealed significant challenges in its implementation, including resource constraints, communication barriers, and documentation issues. Healthcare professionals identify barriers such as poor public awareness, funding shortages, and inadequate education. Improvement strategies focus on raising awareness, supporting healthcare centers, and enhancing funding allocation. Unmet needs highlight the importance of unified protocols, surveillance systems, and international training. This study underscores the necessity for targeted interventions, collaborative efforts, and policy measures to enhance HBV control in Iraq and effectively address the identified challenges.

Declarations

1. Ethical considerations
The study protocol was approved by the ethics review board of Shahid Beheshti University of Medical Sciences (Approval ID: IR.SBMU.PHNS.REC.1404.044). Moreover,
A formal letter was sent to the Research Committee of the National Center for Training and Human Development, Iraq Ministry of Health (MOH), according to the (Approval ID: IRAQ.MOH. FORM NUMBER 04/2012. DECISION NUMBER:24).
We obtained necessary approval from relevant institutions, as mentioned earlier, to utilize previously collected data for our study. Our research specifically examines the implementation of the Iraq National HBV Control Plan and does not involve any application or experimentation (not applicable) on human subjects or human tissues.

2. The human data:
The data collected for this study did not include any personally identifiable information or human data. However, it focused on issues pertaining to the implementation of the Iraq National HBV Control Plan.

Participants (healthcare professionals) were informed that by agreeing to participate in the interview, they provided informed consent for the utilization of their responses solely for research purposes. The confidentiality of their identity and personal information will be maintained.

3. **Consent for Publication:**

Not Applicable

4. **Availability of data and materials:**

The datasets generated and analyzed during the current study are not publicly available due to ethical and privacy constraints imposed by the Iraqi Ministry of Health. However, they are available from the corresponding author upon reasonable request.

5. **Conflicts of interest**

The authors declare that there are no conflicts of interest.

6. **Funding**

This study is derived from a part of a PhD thesis conducted in the field of epidemiology at the School of Public Health and Safety, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

7. **Author Contributions**

*Mohammed A. Jalal* played a significant role in various aspects of the study, including conceptualization, data curation, formal analysis, investigation, methodology, project administration, resources, and writing. Other authors, including *Koorosh Etemad, Manoochehr Karami, Mahshid Namdari, Faris H. Al-lami, and Taqi Mohammed Jawad Taher*, contributed to supervision, writing, review and editing, and provided guidance throughout the research process.

8. **Acknowledgments**

The authors extend their gratitude to all the physicians who contributed to the completion of this work

**References**


