

Awareness, Knowledge, and Care Pathways in Viral Hepatitis: A Narrative Synthesis of Global Evidence

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Abstract

Across the globe, viral hepatitis continues to drive chronic liver disease, cirrhosis, and liver cancer, even though awareness among both the public and health professionals has not kept pace with available vaccines and antiviral treatments. This review draws together findings from nineteen studies spanning Asia, Africa, the Middle East, Europe, and North America to assess how much is known about hepatitis, and how well existing care pathway's function. Community-based surveys repeatedly find only low-to-moderate understanding of how hepatitis spreads, how it can be prevented, and whether vaccination is available, with recurring myths — that the virus passes through casual contact, shared cutlery, or mosquito bites — still widespread. Health workers and trainees typically know that hepatitis exists but often lack detail on transmission routes and what to do after an exposure, and this gap is uneven across medical, dental, and nursing groups. More than gaps in knowledge, it is weak linkage between a positive screening result and actual treatment that most consistently undermines the care cascade. Programmes that embed a facilitator or lay health worker produced real gains in engagement and testing in some contexts, yet elsewhere better knowledge did not translate into more testing. China's decades-long investment in vaccination and antenatal antiviral coverage shows what sustained system-level commitment can achieve, while conflict-affected settings illustrate how quickly gains can reverse once water and sanitation infrastructure collapses. Meeting the World Health Organization's 2030 elimination targets will likely require pairing targeted education with stronger screening-to-treatment linkage and investment tailored to local health-system conditions, rather than counting on awareness campaigns alone.

Keywords: viral hepatitis, hepatitis B, hepatitis C, awareness, knowledge, screening, linkage to care, health education

1. Introduction

Viral hepatitis — caused chiefly by the hepatitis A, B, C, D, and E viruses — continues to impose a heavy toll on health systems, despite vaccines having existed for decades and antiviral treatment having improved substantially. The scale of hepatitis B alone illustrates the problem: each year brings over 1.5 million new infections that vaccination could have prevented, roughly 296 million people currently live with chronic infection, and more than 820,000 deaths

annually are attributed to the cirrhosis and liver cancer that follow [20]. Vaccine access, however, is not uniform across the five hepatitis viruses: hepatitis B vaccination has been available for decades, whereas the hepatitis E vaccine is a more recent development that has yet to be folded into most national immunization programmes, held back by cost, infrastructure, and accessibility barriers [21]. Because hepatitis B and C infections can progress silently for years, many people are never diagnosed until cirrhosis, liver failure, or hepatocellular carcinoma has already set in. The World Health Organization has designated 2030 as the target year for eliminating viral hepatitis as a public health threat, a goal folded into Sustainable Development Goal 3.3. That strategy calls for 90% vaccination coverage, including prompt hepatitis B birth-dose administration, yet global birth-dose coverage sits at just 42%, with sharp variation between countries and regions [20]. Reaching this target depends on more than the biomedical tools already in hand — chiefly hepatitis B vaccination and, for hepatitis C, curative direct-acting antivirals — it also depends on whether at-risk populations and the health workers who serve them understand how the disease spreads and can reach testing and treatment through a coordinated pathway. Today's hepatitis B vaccine, first derived from purified surface antigen and now manufactured through recombinant DNA technology, offers protection lasting more than 30 years after a three-dose course [21].

The studies drawn together here span very different settings and populations: national reviews of the hepatitis B care pathway in Saudi Arabia; cross-sectional knowledge surveys of health-care interns, dental students, and the general public across the Middle East, South Asia, and East Asia; population-based research among pregnant women in sub-Saharan Africa; targeted interventions aimed at people who inject drugs and migrant communities in high-income countries; a systematic meta-analysis of hepatitis B seroprevalence in Sierra Leone; a national progress report from China; coverage of an international hepatitis summit held in India; a study of a hepatitis A outbreak amid the humanitarian crisis in Gaza; and an analysis of how far World Hepatitis Day's message travels on social media. Each study, taken on its own, answers a narrow question about one population. Read as a set, they allow a wider view of where the hepatitis care pathway holds up and where it breaks down — which is the aim of this review.

Three groups recur throughout this literature: the general public and at-risk populations — including pregnant women, migrants, people who inject drugs, and displaced communities; health workers and trainees responsible for diagnosis, vaccination, and counselling; and health systems or policymaking bodies tasked with coordinating screening, vaccination, and treatment at scale. A fourth theme cuts across the others: communication and advocacy, seen in the studies examining social media reach and international summits. This review first considers awareness and knowledge within each group, before turning to whether improved knowledge actually translates into better access to testing and treatment, and which interventions have shown an effect on that translation.

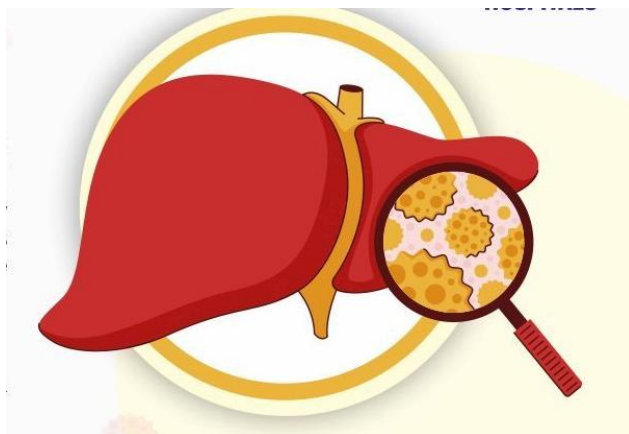


Figure 1: Hepatitis

One study in the original source set — concerning passive range-of-motion outcomes in children with cerebral palsy treated with botulinum neurotoxin-A — falls outside the scope of viral hepatitis and was excluded. Two pairs of studies duplicated the same underlying investigation (a three-state Nigerian HBV knowledge survey and an Egyptian school-based hepatitis knowledge study); each pair was counted once to avoid double-counting. The synthesis that follows is therefore based on nineteen distinct studies.

2. Methods

This review takes a narrative synthesis approach to published abstracts addressing hepatitis awareness, knowledge, or care-pathway performance, identified through a literature search across biomedical databases and supplemented with studies already selected for inclusion. Because the synthesis works from abstracts rather than full texts, a formal risk-of-bias appraisal and PRISMA-style screening flow were not possible; this is acknowledged as a limitation rather than presented as a complete systematic review. Studies were grouped by population (general public, health-care workers and trainees, at-risk or vulnerable groups, and health-system or advocacy initiatives) and by outcome (awareness, knowledge, screening or vaccination uptake, and intervention effect), and this grouping structures the discussion below.

3. Discussion

3.1 Public awareness remains inconsistent and often built on misconception

General-population studies show that most people have heard of hepatitis, but detailed knowledge of how it spreads and how to prevent it is far less common. Respondents surveyed across three Nigerian states scored below the midpoint on a nine-item knowledge scale, and fewer than one in three knew a hepatitis B vaccine existed [4]. In Egypt, over three-quarters of preparatory and secondary school students showed unsatisfactory hepatitis knowledge despite generally sound self-reported prevention habits — suggesting their behaviour may owe more to routine or instruction than to any real grasp of how the disease works [6]. In China, only about a third of surveyed residents in Chongqing

and Chengdu had adequate combined knowledge of hepatitis B and C, and many did not know that legal protections against discrimination existed for infected people [8]. Among Turkish-Dutch respondents in Rotterdam, most had simply never given hepatitis B any thought, and the resulting low rate of self-reported testing tracked with both low awareness and being unmarried [15]. Running through these otherwise unrelated populations is a shared set of misconceptions — that hepatitis spreads through shared utensils, mosquito bites, or casual contact — echoed in a scoping review documenting the same beliefs among Canadian and other lay audiences [3]. This points to a practical conclusion: awareness campaigns not built around the specific misconceptions present in a given population are unlikely to close the knowledge gap efficiently.

3.2 Health-care worker knowledge is better than the public's but still incomplete

Health workers and trainees are best placed to close these public knowledge gaps through counselling and vaccination, yet several studies find real gaps in their own understanding. Among Saudi dental, medical, and nursing interns, nearly everyone knew hepatitis B and C existed, but grasp of transmission routes and vaccination schedules was noticeably weaker, and nursing interns scored below their dental and medical peers despite comparable exposure to blood-borne pathogens on the job [2]. A study of dental students in Karachi similarly found generally favourable knowledge and attitudes, with awareness, knowledge, and attitude all positively correlated — suggesting that adequate knowledge tends to bring favourable practice with it [14]. In Namibia, and at a federal medical centre in Nigeria, health workers understood the general burden of hepatitis B but applied national guidelines and infection-control practices inconsistently, and were often not well informed about vaccination available to protect themselves [17,18]. Taken together, these studies suggest that professional knowledge gaps sit less in whether hepatitis exists and more in specific procedural detail — post-exposure protocols, vaccine availability, guideline adherence — precisely the areas that determine whether a health worker can interrupt transmission or refer a patient into care.

3.3 Regional, educational, and demographic disparities shape knowledge distribution

Several studies point to who is, and isn't, likely to know much about hepatitis. In the Nigerian three-state survey, working-class respondents outperformed other occupational groups, while risk behaviours such as having multiple sexual partners clustered among those affiliated with public institutions [4]. A study of pregnant women at antenatal clinics in two sub-Saharan African regions found a stark regional gap — close to half of women in one region had never heard of hepatitis B, versus only sixteen percent in the other — with secondary education and region of residence both independently predicting adequate knowledge [13]. A similar pattern of under-recognition shows up in United States surveillance data: national hepatitis B prevalence is put at roughly 0.4%, but that figure comes from surveys in which foreign-born minority populations are under sampled, and voluntary screening within these same groups has found prevalence above 15% — suggesting the population-level estimate, and any education or screening effort built on it, may significantly understate the burden carried by particular migrant communities [22]. These patterns show that hepatitis knowledge is not evenly distributed but instead follows existing inequities in education and health-system access — meaning that one-size-fits-all education campaigns risk deepening rather than closing these gaps unless they are deliberately weighted toward under-resourced regions and less-educated groups.

3.4 Screening exists, but linkage to sustained care is the weaker link

A parallel vaccination-coverage gap sits alongside this screening-to-treatment problem: by the end of 2018, 189 countries had introduced universal childhood hepatitis B vaccination, and this brought global HBsAg prevalence in children under five down from 4.7% before vaccines were available to 1.3% in 2015 — yet, as already noted, timely birth-dose vaccination is still applied unevenly worldwide [21]. A recurring structural finding — most explicit in the Saudi Arabian care-pathway review — is that national screening structures are frequently already established, but protocols for what happens after a positive result, and the resulting linkage into treatment, remain inadequate [1]. The Sierra Leone meta-analysis tells a similar story: it estimated a pooled chronic hepatitis B seroprevalence of thirteen percent nationally — around 870,000 cases — rising above a third among Ebola survivors and to roughly sixteen percent among people living with HIV, yet found no reliable national data linking these prevalence figures to treatment coverage [21]. China offers a partial exception: three decades of sustained investment have pushed three-dose infant vaccination coverage above ninety-nine percent and cut mother-to-child transmission to about a quarter of one percent, consistent with evidence that combining hepatitis B immunoglobulin with vaccine can bring mother-to-child transmission close to zero for infants of e-antigen-negative carriers, though transmission risk stays at 5–10% for infants of e-antigen-positive mothers even with prophylaxis [21]. Even so, only around fifty-nine percent of HBV-positive individuals in China knew their status in 2020, and only seventeen percent were on antiviral therapy — evidence that even a health system capable of near-universal vaccination has not closed the gap between diagnosis and treatment for those already infected [22]. Together, these findings suggest that screening capacity alone says little about programme success; the more telling measure is how many of those who test positive stay engaged in care through to treatment.

3.5 Targeted interventions can move specific outcomes, but knowledge gains do not automatically produce behaviour change

Two intervention studies here offer a useful contrast. In England, placing a half-time facilitator inside drug and alcohol treatment clinics — to train staff, engage clients directly, and introduce dried blood-spot testing — produced a substantial rise in engagement with hepatitis C treatment among people who inject drugs, compared with untreated control clinics, along with clear gains in testing, referral to hepatology, and treatment initiation [12]. This suggests the active ingredient was embedding a dedicated care-coordination role within an existing service, not education on its own. By contrast, a randomized trial of a lay health worker intervention among previously untested Chinese Americans and Canadians found a modest but real increase in confirmed hepatitis B testing and better knowledge of specific transmission routes — yet the overall effect on testing uptake stayed limited despite those knowledge gains [16]. Set side by side, these two studies suggest that interventions built around direct system navigation and removing practical barriers to testing — as in the English facilitator model — shift behaviour more reliably than interventions built mainly around passing on information, even when that information transfer clearly succeeds in raising knowledge scores.

3.6 Public communication and advocacy reach large audiences but their effect on the care pathway is unmeasured

Large-scale awareness campaigns clearly reach big audiences: an analysis of Twitter activity around World Hepatitis Day 2022 recorded hundreds of millions of impressions on related hashtags and higher tweet volume than the previous year, driven largely by a small cluster of influential accounts [11]. Likewise, the first Indian Hepatitis Summit, held in Chennai in January 2025, drew several hundred delegates from government, international bodies, and hospitals over two days, and launched a dedicated hepatitis mobile app and online training course [9]. Both efforts show real capacity to reach professional and public audiences, but neither study reports whether that reach produced any measurable downstream change in testing, vaccination, or treatment uptake — which limits what can be said about their actual contribution to closing the awareness-to-care gap seen elsewhere in this review.

3.7 Health system disruption reverses hepatitis control gains

Hepatitis A endemicity tracks closely with hygiene and sanitation: as early-childhood exposure declines with rising living standards, the pool of susceptible adolescents and adults grows, raising the severity and outbreak potential of any later exposure [23]. The clearest example of context overwhelming individual knowledge comes from a study of internally displaced people in the southern Gaza Valley during the 2023–2024 conflict, where reported hepatitis A infection rose from around thirteen percent before displacement to nearly a third during it — driven by contaminated water, collapsed sanitation, overcrowding, and disrupted access to care — even though most respondents had heard of hepatitis A [19]. Had it been available before the crisis, universal childhood hepatitis A vaccination could plausibly have helped: two-dose regimens show around 95% effectiveness over 3–5 years and antibody persistence of up to 15 years, a protection this displaced population simply did not have [24]. This finding cuts against the rest of the literature reviewed here, which largely treats hepatitis control as a function of individual knowledge and health-system design under stable conditions; it shows instead that infrastructural collapse can drive transmission on its own, faster than any education-based intervention could plausibly counter.

3.8 Synthesis across populations

Taken as a whole, the evidence points to layered gaps rather than one single failure. At the population level, knowledge of transmission and prevention remains inconsistent, shaped by education and region, and built around specific, recurring misconceptions that targeted campaigns could address directly. At the provider level, general awareness is high, but procedural knowledge — especially around vaccination and post-exposure management — is not, and this gap falls unevenly across professional groups. At the system level, the binding constraint is less whether screening exists than how strong the linkage is from a positive test to sustained treatment, a weakness visible even in a health system like China's that has achieved near-universal vaccination coverage. Interventions that restructure how care is delivered — such as embedding a care-coordination role in existing clinics — show more consistent effects on testing and treatment uptake than interventions built mainly around passing on information, and infrastructural stability itself turns out to be a precondition for any of these interventions to work. A credible path toward the World Health Organization's 2030 elimination target would therefore need to combine population-specific education, procedural training for providers, and structural investment in the screening-to-treatment cascade — rather than treating awareness-raising alone as sufficient.

Table 1: OVERVIEW OF KEY DOMAINS IN HEPATITIS

Sr.no	Domain	Key focus	Key finding / summary
01	Virology	Hepatitis A, B, C, D, E viruses; structure, genome, genotypes	Different hepatitis viruses vary in genome, stability, and resistance; HBV and HCV show high genetic variability.
02	Pathogenesis	Viral entry, replication, immune response, liver injury mechanisms	Liver damage results from direct viral cytopathic effect and host immune response leading to inflammation, fibrosis, and cirrhosis.
03	Epidemiology	Global and regional prevalence, incidence, risk factors, burden	Hepatitis B and C remain a major global health burden, with higher prevalence in low- and middle-income countries.
04	Prevention	Safe practices, infection control, harm reduction strategies	Safe blood handling, sterile injection practice, hand hygiene, and harm reduction can substantially cut transmission.
05	Diagnosis	Serological markers, PCR, rapid tests, imaging, liver biopsy	Serology (HBsAg, anti-HCV), NAT/PCR, and non-invasive imaging have improved early detection.
06	Treatment strategies	Antivirals, interferon therapy, supportive care, management of complications	DAAs have transformed HCV treatment; HBV typically requires long-term suppression to slow disease progression.
07	Vaccines	HBV vaccine (recombinant), HAV vaccine, immunization schedules	HBV vaccination is highly effective (>95%); the HAV vaccine reduces disease burden in endemic regions.
08	Drug development & novel therapies	Direct-acting antivirals (DAAs), entry inhibitors, immunomodulators, therapeutic vaccines	Newer agents targeting the viral life cycle and host pathways show promise for cure and resistance management.
09	Liver health	Liver function, fibrosis, cirrhosis, HCC risk, monitoring	Chronic hepatitis can progress to fibrosis, cirrhosis, and hepatocellular carcinoma; regular monitoring is essential.
10	Nutritional & herbal interventions	Dietary approaches, micronutrients, herbal extracts (e.g., silymarin), antioxidants	Adequate nutrition and certain herbal agents may support liver health and reduce oxidative stress and inflammation.
11	Public health	Health education, screening, safe blood supply, sanitation	Public awareness and accessible screening improve early detection and reduce transmission.
12	Awareness & elimination programs	WHO elimination targets, national programs, community outreach	The WHO aims to eliminate viral hepatitis by 2030 through integrated programs and policy implementation.
13	AI in hepatitis care	AI for diagnosis, risk prediction, treatment response prediction	AI and machine-learning models are improving diagnostic accuracy and predicting treatment outcomes.
14	Digital health & innovation	Telemedicine, mobile apps, electronic health records, data analytics	Digital tools support patient follow-up, adherence, and real-time surveillance.
15	Translational research	Biomarkers, genomics, proteomics, clinical trials	Translational studies bridge laboratory findings and clinical practice, supporting personalized therapy.

16	Clinical studies	Efficacy, safety, real-world evidence, cohort studies	Clinical studies confirm treatment effectiveness and help update guidelines.
17	Future perspectives	Gene editing, pan-genotypic drugs, long-acting antivirals, universal vaccines	Future therapies aim for complete cure, shorter duration, fewer side effects, and universal protection.

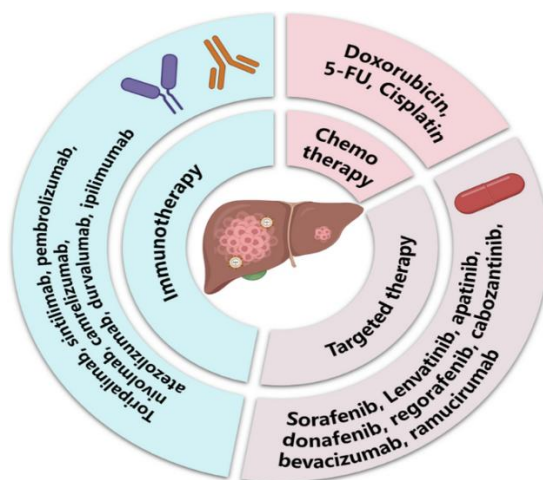


Figure 2: Care pathway in Hepatitis

4. Conclusion

This review of nineteen studies across the Middle East, sub-Saharan Africa, South and East Asia, Europe, North America, and a conflict-affected setting finds a consistent picture: awareness that viral hepatitis exists is now widespread, but detailed knowledge of transmission, prevention, and treatment access remains uneven, among both the general public and health workers. The more consequential gap, though, is not awareness itself but the strength of the pathway connecting screening to sustained treatment — a weakness visible even in health systems with high vaccination coverage. Interventions that restructure care delivery around dedicated coordination roles appear more effective at improving testing and treatment uptake than education alone, and gains built through sustained system investment can unravel quickly under infrastructural or humanitarian crisis. Future efforts toward global hepatitis elimination targets should prioritize strengthening the screening-to-treatment cascade, closing the global gap in timely hepatitis B birth-dose coverage [20,21], and tailoring education to the specific misconceptions and demographic disparities documented in each population — rather than relying on general awareness campaigns as a primary strategy.

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