



# Who to Screen for Hepatitis C: That is the Question

Hepatitis C virus (HCV) infection is a major cause of chronic liver disease, cirrhosis and hepatocellular carcinoma worldwide. Globally, chronic HCV is likely to be currently present in more than 58 million individuals with 1.5 million additional new infections accrued every year.<sup>1,2</sup> India has one of the highest burdens of chronic HCV in the world after China and Pakistan.<sup>3</sup> A modelling study in 2015 estimated that the prevalence of HCV in India was 0.5%, amounting to an overall burden of 4.7–10.9 million infected individuals.<sup>4</sup> A more recent meta-analysis that incorporated more than 300 studies from India estimated that the pooled seroprevalence of HCV was 0.85% in community-based studies, 0.44% among blood donors and 0.88% among pregnant women.<sup>5</sup> However, it should be appreciated that there is significant heterogeneity in the available data from India. Community-based prevalence studies are only available from Punjab, Maharashtra and West Bengal.<sup>5</sup> Despite these limitations, it is clear that there are certain geographical hot-spots like Punjab where the prevalence of HCV is substantially higher than that of the national average.<sup>6,7</sup>

The management of HCV has been revolutionised over the past decade with the replacement of poorly tolerated low efficacy interferon-based regimens by highly potent, oral, directly acting antivirals (DAAs) that are able to “cure” HCV in more than 95% patients. Indeed, the advent of DAAs has kindled the hope that the World Health Organisation mandated goal of HCV elimination by 2030 may well be attainable. Apart from the exorbitant cost, the need for consultation with subspecialists (gastroenterologist or hepatologist) and genotyping, facilities for which are limited in India, were major limitations to the initial widespread use of DAAs in India after their approval. A decentralised approach for the treatment of HCV by physicians of district hospitals who were regularly trained and monitored by experts at a model treatment centre was successfully implemented in Punjab with the attainment of cure in 91.2% patients under a program funded by the Mukh-Mantri Punjab Hepatitis C Relief Fund.<sup>8</sup> The availability of pan-genotypic regimens that circumvent the need for pre-genotypic testing and generic formulations have also substantially reduced the cost of treatment.<sup>9–11</sup> Since 2018, free diagnosis and treatment of Hepatitis C is being provided in India by the National Viral Hepatitis Control Programs under the aegis of the Ministry of Health and Family Welfare of the Government of India.

While India has made major strides in reducing the barrier to care patients with HCV, the identification of patients who should be screened for HCV remains one of the major

challenges in the holistic control of HCV infection. Screening is important as patients remain asymptomatic till they progress to advanced cirrhosis and develop clinical decompensation. To attain the goal of HCV elimination by 2030, the pool of HCV infection in the community would need to be decreased by 80–90% to break the cycle of re-infection. There is ample evidence to suggest that patients at high-risk including those with HIV or Hepatitis B co-infection, intravenous drug use, on maintenance haemodialysis and those who engage in high-risk sexual practices should be actively screened for HCV.<sup>12–14</sup> However, there are two important caveats in restricting active screening to only these patients at high-risk. Many patients may not disclose their high-risk behaviour due to fear of social stigma. For instance, in a cross-sectional community-based serosurvey conducted in the state of Punjab, only 5 out of more than 5500 individuals surveyed admitted to intravenous drug use.<sup>6</sup> More importantly, despite the relatively higher prevalence of HCV infection in these high-risk groups, they account for only about 12% of the absolute burden of HCV in the country.<sup>5,14</sup> The vast majority of infections (around 88%) are present in patients without traditional high-risk factors. The alternate approach of universal screening is likely to be uneconomical and logistically prohibitive in a country with limited health resources like India. It is thus crucial to identify other risk factors that predict the presence of HCV infection among Indians without the traditional high-risk factors so as to devise screening algorithms and permit linkage to care prior to progression to end-stage liver disease or hepatocellular carcinoma.

In a systematic review published in this edition of the journal, Shalimar *et al.* evaluated the risk factors for HCV among individuals without the aforementioned high-risk factors in India.<sup>15</sup> They extracted and reviewed the data from 25 studies published as full text which incorporated more than 31,000 individuals. The authors identified unsafe injections, obstetrical procedures, body piercing, unsafe dental procedure, unsafe shaving and tattooing as the predominant risk factors for HCV infection in India. A major limitation of this systematic review of available Indian studies is that the data are not representative of the whole country. Indeed, 40% of the studies were from Punjab and there was no data from 73% of the 37 states and union territories of India. Further, although the largest study incorporated in the review had 20,113 patients, the average number of patients in the included studies was only 40. While providing important preliminary information about the risk factors for HCV infection in India, Shalimar *et al.* have aptly pointed out the many glaring deficiencies in the published literature on the

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epidemiology of HCV in India. This hinders the advocacy of screening approaches to be followed in India.

Despite the absence of hard evidence, the authors of this editorial feel that opt-in screening for HCV should be offered to all hospitalised patients as practiced for HIV. It would also be prudent to incorporate HCV screening with antenatal care and extend screening to all patients being planned for out-patient invasive procedures including dental procedures. Since universal screening of blood donors in India was mandated by law in 2001, patients who have received transfusions prior to this period may also be considered for active screening. Another novel approach is the development of screening questionnaires incorporating identified risk factors.<sup>16</sup> While such questionnaires have been used in western populations, they need to be tailor made for risk factors specific to the Indian scenario and should be validated across the length and breadth of the country. As such, multicentric collaboration and large community-based studies are the need of the hour to generate pan-India data to better understand the predominant risk factors for HCV in the country and inform policy makers about evidence-based, cost-effective screening strategies.

It is also pertinent to note that many of the risk factors identified in this review including unsafe shaving, body piercings and tattooing can be controlled by simple behavioural interventions like the use of new razor blades in every client and proper sterilisation of tattooing equipment and needles. Focused health education campaigns and behavioural change communication targeting specific stake holders (barbers, tattoo parlour artists, etc.) and sustained health promotional activities geared toward the general public will greatly help in the primary prevention of HCV. In conclusion, apart from initiatives of the government, active participation and collaboration of non-governmental organisations, civil society, medical community and the mass media are required for eliminating the scourge of HCV by 2030.

## CONFLICTS OF INTEREST

All authors declare that they have no conflict of interest and have no financial disclosures.

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