

## Hepatitis C among men who have sex with men: knowing your epidemic

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In 2007, UNAIDS issued a report entitled *Knowing your epidemic*,<sup>1</sup> which emphasised the importance of knowing the status of an epidemic to guide preventive and treatment interventions. In 2016, WHO endorsed the Global Health Sector Strategy on viral hepatitis with the aim of achieving elimination by 2030.<sup>2</sup> Planning and monitoring hepatitis C virus (HCV) elimination strategies depends on detailed knowledge of HCV prevalence and incidence in diverse populations. This is particularly important in rapidly evolving and geographically heterogeneous epidemics, such as the HCV epidemic among men who have sex with men (MSM). A surge in HCV infections among MSM associated with sexual risk behaviour was first recognised in the early 2000s in large European cities.<sup>3</sup> At that time, the observation was unexpected because sexual HCV transmission had been rarely reported. However, the findings were soon confirmed in large observational cohort studies. In the Swiss HIV Cohort Study, HCV incidence had markedly increased among MSM from 2005 to the early 2010s, whereas it had decreased steadily among people who injected drugs.<sup>4</sup> Phylogenetic analyses identified large international HCV transmission networks,<sup>5</sup> with spread of the infection being favoured by several risk factors, including the use of drugs during sex, traumatic sexual intercourse causing mucosal lesions, and the presence of concomitant ulcerative sexually transmitted infections. Although the epidemic of sexually transmitted HCV infections was first thought to affect only MSM who were HIV-positive, well-designed cohort studies of people using HIV pre-exposure prophylaxis (PrEP) showed similar trends among individuals who were HIV-negative.<sup>6</sup>

Despite considerable progress in understanding the drivers and dynamics of localised HCV epidemics among MSM, little is known about trends in global HCV prevalence and incidence in this population. An Article by Fengyi Jin and colleagues<sup>7</sup> in *The Lancet Gastroenterology & Hepatology* contributes towards closing this research gap. The authors did a systematic review and meta-analysis of the global prevalence and incidence of HCV infection among MSM, and reported a pooled HCV seroprevalence of 3·4% (95% CI 2·8–4·0), with considerable heterogeneity between countries (estimates ranged from 0% to 28%). Overall, the HCV

prevalence among MSM was significantly higher than in the general population (prevalence ratio 3·04, 95% CI 2·55–3·53), and the difference was more pronounced in HIV-positive MSM (6·22, 5·14–7·29) than in HIV-negative MSM (1·58, 1·14–2·01). As expected, injecting drug use was associated with a higher HCV seroprevalence. HCV incidence was 0·12 per 1000 person-years among HIV-negative MSM, 8·46 per 1000 person-years among HIV-positive MSM, and 14·8 per 1000 person-years among those on PrEP. Although an increase in HCV incidence over time was particularly notable in the WHO Western Pacific region, three important points should be remembered when interpreting these incidence estimates: time trends are difficult to summarise in meta-analyses; few studies reported HCV incidence based on systematic serial screening, the only reliable way to capture true incidence; and HCV re-infections, a hallmark of the HCV epidemic among MSM, were not considered.

The main limitation of the study by Jin and colleagues is the low availability of data from low-income and middle-income countries. The studies from the WHO South-East Asia and African regions provided little information on risk factors such as injecting drug use, and were generally based on serology alone. In a study of 1000 individuals in rural Uganda, Mullis and colleagues<sup>8</sup> showed that none of the 67 patients with a positive screening test had a detectable viral load. The high likelihood of false-positive antibody tests was confirmed in a meta-analysis of studies among HIV-positive individuals in sub-Saharan Africa,<sup>9</sup> and contributed to WHO adapting its most recent global HCV prevalence estimates.<sup>10</sup> The difficulty in gathering robust data on the determinants of HCV infection from the general population, as well as from stigmatised key populations across low-income and middle-income countries remains an important barrier to global and equitable access to HCV elimination efforts.

Overall, Jin and colleagues provide important information on the global burden of HCV among MSM, but the heterogeneity of the results across settings and regions reminds us that, in many cases, pooled estimates are oversimplifications of complex epidemic situations. The availability of effective and safe HCV treatments has opened up unprecedented opportunities towards HCV elimination. However, the availability of optimal treatments alone will not suffice. A thorough understanding of the heterogeneity and dynamics of the global HCV epidemic is paramount to effectively reducing HCV transmissions. There is an urgent need for international standards to assess and report HCV prevalence, incidence, and risk factors across regions, including the systematic confirmation of active infections with HCV viral load measurements. Knowing your epidemic is an indispensable step towards achieving HCV elimination.

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