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### **HCC Surveillance in Cirrhosis Patients: Room for Improvement**

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In our recent systematic review and meta-analysis, we found that HCC surveillance continues to be underused in clinical practice, with a pooled surveillance of 24.0%.<sup>1</sup> In subgroup analyses, the highest surveillance receipt was reported in studies that enrolled patients from Gastroenterology subspecialty clinics and lowest in studies including population-based cohorts, in which many patients were followed in primary care clinics. The letter from Drs. Huang and Nguyen regarding our study raises some points that warrant further discussion.<sup>2</sup>

Dr. Nguyen notes that currently available data potentially have a selection bias, including higher proportions of patients who are insured, non-Hispanic White, and who have hepatitis C-related cirrhosis. As highlighted in our subgroup and correlates analyses, surveillance utilization is higher in each of these populations, and we agree that surveillance utilization in clinical practice is potentially, if not likely, lower than our pooled surveillance estimate. Although several studies have highlighted surveillance underuse, further data are needed in understudied patient populations including racial/ethnic minorities, socioeconomically disadvantaged individuals, those followed by primary care providers outside of academic centers, and those with non-viral cirrhosis. Further data are also needed to identify steps in the screening process that directly contribute to HCC surveillance underuse.<sup>3</sup> Our group has demonstrated both patient- and provider-level barriers that will need to be addressed to improve surveillance utilization.<sup>4,5</sup>

We believe the more important aspect of our study is the comprehensive review of intervention studies aimed at improving HCC surveillance utilization. We identified eight studies evaluating interventions ranging from patient and provider education to electronic health record reminder systems to population health outreach strategies. All of these interventions appeared to be efficacious, with improvements in surveillance utilization ranging from 9.4% – 63.6%. Overall, we hope that our systematic review demonstrating continued underuse of HCC surveillance provides a call-to-action and health systems adopt these efficacious interventions in routine clinical practice to improve HCC surveillance uptake.

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