

## Hepatitis screening in a sampling of US emergency departments, 2022–2023

The US Viral Hepatitis National Strategic Plan centres on every person knowing their status; to achieve this, the Department of Health and Human Services (HHS) calls for improved surveillance data and expanded hepatitis screening in a broad range of clinical environments, including the emergency department (ED).<sup>1</sup> Although a growing amount of all care—including preventive care—is provided in ED settings, little is known about how often EDs screen for viral hepatitis or about ED-specific barriers to implementing preventive health services like routine hepatitis screening.<sup>1–3</sup> We recently completed an updated assessment on the availability of a subset of preventive health services in a sampling of US EDs; this included characterising ED directors' perceived barriers to implementing these services.<sup>4</sup> We found that nearly all US EDs offer at least one preventive health service, many offer multiple and the number of services offered has increased over time; however, among the services studied, we also found that hepatitis was one of the least commonly offered.<sup>4</sup> The primary goals of this work were to characterise US EDs by whether they do (or do not) screen for hepatitis and to explore factors associated with screening.

This study was a planned secondary analysis of a larger cross-sectional survey of preventive health services being offered in US EDs.<sup>4</sup> As described elsewhere, the National Emergency Department

Inventory-USA was used to obtain a random sampling of all US EDs.<sup>4,5</sup> From this 5.4% random sampling, ED directors were surveyed to characterise the availability of, and their preference for, a subset of 11 preventive health services.<sup>4</sup> Given current recommendations for viral hepatitis screening, this included determining whether they offer any form of hepatitis screening, excluding employee needlestick-based screening.<sup>6,7</sup> The survey also obtained information on ED social worker availability, ED-level and patient-level characteristics, and ED directors' perceptions about barriers to implementing preventive health services like hepatitis screening. Data were summarised as counts (proportions) and medians (IQRs) and comparisons were made with  $\chi^2$  and Wilcoxon rank-sum tests, respectively. Multivariable logistic regression was then used to explore factors associated with offering hepatitis screening. Consistent with prior model, results are presented with relative risk (RR) ratios and 95% CIs.<sup>3,4</sup> Analyses were completed in Stata V.15.1 (Stata Corp, College Station, Texas, USA) and R Studio (<https://www.R-project.org>). This study followed the Strengthening the Reporting of Observational studies in Epidemiology guidelines for observational studies.<sup>8</sup>

Among the EDs included (n=290), 58 (20%) reported offering routine hepatitis screening. As demonstrated in the online supplemental table, EDs that do not routinely screen for hepatitis were similar to those that do. This included similar median visit volumes, measures of crowding, and a similar geographical and urban/rural distribution. However, EDs that do not routinely screen had less

24-hour social work coverage and had a higher number of directors express strong worry about the costs associated with implementing preventive health services ( $p < 0.05$  for both). In multivariable regression modelling, only ED directors' strong worry about costs of implementing preventive health services remained significant (0.33 RR (95% CI 0.13 to 0.82)) (table 1).

Overall, most of the EDs studied do not offer routine hepatitis screening and among the variables analysed, ED directors' strong worry about costs was the only factor significantly associated with a reduced rate of screening. These findings are in the context of worsening boarding and crowding in ED settings, EDs being tasked with how to best allocate finite resources and the increasingly complex landscape of providing care in the ED.<sup>9</sup> Although EDs routinely provide care to some of the most vulnerable communities in the USA, there will likely need to be external resources allocated into ED settings before rates of hepatitis screening increase.<sup>10</sup> The strong worry of 'cost' by ED directors supports new economic analyses on the cost-effectiveness of viral hepatitis screening in ED settings.

This study has several limitations. First, this is an observational, cross-sectional exploration of associations. Second, as described in the parent study, we can only comment on the availability of hepatitis screening along with ED-level and population-level characteristics; we cannot comment on the comprehensiveness, effectiveness or specificity (eg, screening limited to just hepatitis B or C compared with routine co-screening) of any individual programme. Although these aspects are important and merit future attention, these are beyond the stated goals of the current work. Despite these limitations, our findings represent the most current assessment of how often hepatitis screening occurs in US EDs. Given HHS's ongoing efforts, it also represents a benchmark against which future implementation efforts can be compared.

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**Table 1** Multivariable model of factors associated with hepatitis screening availability

Characteristic	RR	95% CI	
Teaching hospital	0.74	0.20	2.14
Crowded by CDC criteria	0.98	0.56	1.61
Social worker available in ED 24 hours/day	1.80	0.94	2.92
ED director strongly worried about cost	0.33	0.13	0.82
Located in an EHE HIV priority jurisdiction	1.40	0.76	2.31
Proportion of ED patients uninsured $\geq 35\%$	1.58	0.71	2.86

As described previously,<sup>3,4</sup> an ED was classified as (1) crowded if it had at least one of three CDC criteria: average waiting time of 1 hour or greater, left without being seen rate of 3% or more, or any time on ambulance diversion; and (2) in an EHE priority jurisdiction if it was located in any of the jurisdictions identified in HHS's 'Ending the HIV Epidemic: A Plan for America'. Worry about costs corresponds to ED directors' responses on a Likert scale (1–5; strongly disagree–strongly agree) to 'I worry that implementing preventive services would lead to increased financial costs to my ED due to lack of reimbursement for added tests, vaccines and/or counselling.' Data missingness was 4.1% and 5.9% for ED directors' worry about costs of implementing preventive health services and information on proportion of their patients who were uninsured, respectively. Missing data were not imputed; only available data were analysed.

CDC, Centers for Disease Control and Prevention; ED, emergency department; EHE, Ending the HIV Epidemic; HHS, Department of Health and Human Services; RR, relative risk.

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**Supplemental Table:** Emergency Department and Population Characteristics, Stratified by Hepatitis Screening Status

	EDs that do NOT Routinely Screen for Hepatitis (n=232)		EDs that Routinely Screen for Hepatitis (n=58)		P
	n	column %	n	column %	
<b>ED Characteristics</b>					
Median Annual Visit volume (IQR)	232	13,300 (5,097-36,914)	58	17,328 (4,300-40,000)	0.80
Teaching Hospital Status					0.76
Nonteaching hospital	219	94.4	54	93.1	
Teaching hospital	13	5.6	4	6.9	
Crowding Status (by CDC criteria)*					0.88
Crowded	101	43.5	24	41.4	
Not crowded	131	56.5	34	58.6	
Urban Influence code					0.54
Urban	118	50.9	30	51.7	
Large rural	32	13.8	5	8.6	
Small rural	82	35.3	23	39.7	
Region					0.36
Northeast	26	11.2	10	17.2	
Midwest	83	35.8	15	25.9	
South	75	32.3	22	37.9	
West	48	20.7	11	19.0	
Social Worker Availability in ED					0.02
None	84	36.2	21	36.2	
Some part of the day	126	54.3	24	41.4	
24 hours/day	22	9.5	13	22.4	
ED Director Strongly Worried About Cost*					<0.01
Strongly Not Worried	10	4.4	10	18.9	
Not Worried	29	12.9	8	15.1	
Neutral	52	23.1	8	15.1	
Worried	73	32.4	21	39.6	
Strongly Worried	61	27.1	6	11.3	
<b>Population characteristics</b>					
EHE Priority Jurisdiction Status*					0.45
Non-Priority Jurisdiction	185	79.7	43	74.1	
Priority Jurisdiction	47	20.3	15	25.9	
Proportion of ED patients uninsured*					0.06
<15%	127	57.5	21	40.4	
15%-34%	73	33.0	22	42.3	
≥35%	21	9.5	9	17.3	

**Abbreviations:** CDC (Centers for Disease Control and Prevention), ED (emergency department), EHE (Ending the HIV Epidemic), IQR (interquartile range)

**Legend\*:** As described previously,<sup>3,4</sup> an ED was classified as (1) crowded if it had at least one of three CDC criteria: average waiting time of one hour or greater, left without being seen rate of 3% or more, or any time on ambulance diversion and (2) in an EHE priority jurisdiction if it was located in any of the jurisdictions identified in HHS's "Ending the HIV Epidemic: A Plan for America." Worry about costs corresponds to ED directors' responses on a Likert scale (1-5; strongly disagree-strongly agree) to "I worry that implementing preventive services would lead to increased financial costs to my ED due to lack of reimbursement for added tests, vaccines, and/or counseling." Data missingness was 4.1% and 5.9% for ED directors' worry about costs of implementing preventive health services and information on proportion of their patients who were uninsured, respectively. Missing data were not imputed; only available data were analyzed.