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Loneliness, Lack of Social and Emotional Support, and Mental Health Issues — United States, 2022

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Abstract

Loneliness and lack of social connection are widespread and negatively affect physical and mental health and well-being. Data are limited for persons disproportionately affected by social disconnection, especially those who do not identify as heterosexual and cisgender. Using data from the 2022 Behavioral Risk Factor Surveillance System in 26 U.S. states, CDC examined associations of loneliness and lack of social and emotional support to mental health variables. Prevalence estimates for the mental health variables were significantly higher among adults who reported loneliness and lack of social and emotional support than among those adults who did not. The prevalence of loneliness was highest among respondents who identified as bisexual (56.7%) and transgender (range = 56.4%–63.9%). Prevalence of lack of social and emotional support was highest among those who identified as transgender female (44.8%), transgender gender nonconforming (41.4%), and those with household income below $25,000 (39.8%). Prevalences of stress, frequent mental distress, and history of depression were highest among bisexual (34.3%–54.4%) and transgender adults (36.1%–67.2%). Addressing the threat to mental health among sexual and gender minority groups should include consideration of loneliness and lack of social and emotional support. Providing access to health services that are affirming for sexual and gender minority groups and collecting data to address health inequities might help improve the delivery of culturally competent care.

Introduction

Social connection is a social determinant of health associated with significant health benefits (*1*). Social connection reflects the degree to which persons have and perceive a desired number, quality, and diversity of relationships that create a sense of belonging, and of being cared for, valued, and supported. Loneliness and isolation are indicators of social disconnection that can lead to poor mental and physical health outcomes, including increased risk for heart disease, stroke, dementia, type 2 diabetes, depression, anxiety, and premature mortality (*1–3*). Although these risks are well documented, a more comprehensive understanding of the impact of loneliness and lack of social and emotional support on mental health–related outcomes is needed, particularly among persons experiencing the most social disconnection, such as those who do not identify as heterosexual and cisgender. Sexual and gender minority (SGM) data are often not collected in research, resulting in a lack of data on and evidence-based interventions for loneliness and lack of social and emotional support among these groups (*4,5*). The objectives of this study were to assess the association between social connection and mental health among U.S. adults and to determine the prevalence of loneliness, lack of

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social and emotional support, and mental health issues by demographic characteristics, including sexual orientation and gender identity, to guide prevention and intervention efforts.

Methods

Data Source and Definitions

This study examined the association between loneliness and lack of social and emotional support, which are indicators of social disconnection, and mental health measures that included stress, frequent mental distress, and history of depression (Box) and assessed prevalence of these factors by demographic characteristics, including sexual orientation and gender identity, using data from the 2022 Behavioral Risk Factor Surveillance System (BRFSS).* BRFSS is a state-based landline and cellular telephone survey of noninstitutionalized U.S. civilian residents aged ≥18 years; the survey collects data on health-related risk behaviors, chronic diseases and conditions, health care access, and use of preventive services.

Study Participants

Twenty-six states, including 236,866 participants, used both the BRFSS Social Determinants and Health Equity module and the BRFSS Sexual Orientation and Gender Identity module. Participants who responded "don't know/not sure," refused to answer, or had missing responses for demographic variables including age, sex, race and ethnicity, education, marital status, and the number of adults and children living in household were excluded, resulting in an analytic sample of 218,915 participants. Participants with missing information for household income, sexual orientation, and gender identity were included as an unknown group because of high proportions (15.5%–20.1%) of missing responses. Missing responses for social connection and mental health measures were further excluded from respective analyses, ranging from 0.5% for history of depression to 15.2% for stress. Details of the 2022 BRFSS Social Determinants and Health Equity module are described elsewhere (*6*).

Data Analysis

Adjusted prevalence ratios of loneliness and lack of social and emotional support with mental health variables were estimated using log-linear regression analyses with robust variance estimator and adjustment for demographic characteristics. Weighted prevalence estimates for loneliness, lack of social and emotional support, and mental health variables with 95% CIs were calculated, stratified by demographic variables. Statistical significance was determined based on whether there was an overlap between 95% CIs for any two estimates. Analyses were conducted using SAS-callable SUDAAN (version 11.0.3; RTI International) to account for the complex survey design,

* https://www.cdc.gov/brfss

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BOX. Social connection and mental health variables — Behavioral Risk Factor Surveillance System, United States, 2022

Loneliness

- Defined as a response of "always/usually/sometimes" to the question, "How often do you feel socially isolated from others? Is it always, usually, sometimes, rarely, never, don't know/not sure, refused?"
- The Office of the Surgeon General defines loneliness as a subjective distressing experience that results from perceived isolation or inadequate meaningful connections, where inadequate refers to the discrepancy or unmet need between a person's preferred and actual experience.

Lack of social and emotional support

- Defined as a response of "sometimes/rarely/never" to the question, "How often do you get the social and emotional support that you need? Is that always, usually, sometimes, rarely, never, don't know/not sure, refused?"

Stress

- Defined as a response of "always/usually" to the question, "Stress means a situation in which a person feels tense, restless, nervous or anxious, or is unable to sleep at night because their mind is troubled all the time. Within the last 30 days, how often have you felt this kind of stress? Was it always, usually, sometimes, rarely, never, don't know/not sure, refused?"

Frequent mental distress

- Defined as a response of "14" or more days to the question, "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?"

History of depression

- Defined as a response of "Yes" to the question, "Has a doctor, nurse, or other health professional ever told you had a depressive disorder (including depression, major depression, dysthymia, or minor depression)?"

following the procedures listed in the yearly complex sampling weights and module analysis guidelines.[†] This activity was reviewed by CDC, deemed not research, and was conducted consistent with applicable federal law and CDC policy.[§]

[†] https://www.cdc.gov/brfss/annual_data/2022/pdf/Complex-Sampling-Weights-and-Preparing-Module-Data-for-Analysis-2022-508.pdf

[§] 45 C.F.R. part 46.102(l)(2), 21 C.F.R. part 56; 42 U.S.C. Sect. 241(d); 5 U.S.C. Sect. 552a; 44 U.S.C. Sect. 3501 et seq.

Summary

What is already known about this topic?

Loneliness and lack of social connection are widespread and pose a threat to mental and physical health.

What is added by this report?

In 2022, the prevalence of feeling lonely always, usually, or sometimes among adults in 26 U.S. states was highest for bisexual (56.7%) and transgender persons (range = 56.4%–63.9%); these groups also reported the highest prevalence of stress, frequent mental distress, and history of depression (range = 34.3%–67.2%). Prevalence of lack of social and emotional support was elevated among transgender adults.

What are the implications for public health practice?

Addressing the threat to mental health among sexual and gender minority groups should include consideration of loneliness and lack of social and emotional support.

Results

Association of Social Connection with Mental Health Variables

Prevalence estimates for the three mental health measures were significantly higher among adults who reported loneliness and lack of social and emotional support than among those who did not (Table 1). After adjustment for demographic characteristics and sexual orientation and gender identity variables, the adjusted prevalence ratios for stress, frequent mental distress (FMD), and history of depression (depression) among adults who reported loneliness were 3.61, 3.05, and 2.38 times as high, respectively, as were those among adults who did not. Compared with adjusted prevalence ratios among adults who did not report lack of social and emotional support, adjusted prevalence ratios for mental health outcomes were elevated among those who did (3.0 [stress], 2.6 [FMD], and 1.8 [depression]).

Weighted Prevalence Estimates for Social Connection Measures

Overall prevalence estimates were 32.1% for loneliness and 24.1% for lack of social and emotional support (Table 2). Within the corresponding demographic categories, prevalences of loneliness and lack of social and emotional support were respectively highest among those aged 18–34 years (43.3% and 29.7%), those with less than a high school education (41.1% and 36.3%), those who never married (45.9% and 34.7%), and those with household income below $25,000 (47.9% and 39.8%); prevalences were lowest among non-Hispanic White adults (29.6% and 20.1%) and those who had two adults living in a household (27.4% and 19.1%). Loneliness was

TABLE 1. Association between social connection and mental health variables — Behavioral Risk Factor Surveillance System, United States, 2022

	Mental health variables					
	Stress		Frequent mental distress		History of depression	
Social connection variables	% (95% CI)	APR* (95% CI)	% (95% CI)	APR* (95% CI)	% (95% CI)	APR* (95% CI)
Loneliness						
No	6.4 (6.2–6.7)	Ref	8.4 (8.0–8.7)	Ref	13.8 (13.4–14.1)	Ref
Yes	29.6 (28.7–30.4)	3.6 (3.4–3.8)	32.2 (31.3–33.1)	3.0 (2.9–3.2)	38.4 (37.5–39.2)	2.4 (2.3–2.5)
Lack of social and emotional support						
No	8.6 (8.3–8.9)	Ref	10.6 (10.3–11.0)	Ref	17.6 (17.3–18.0)	Ref
Yes	30.9 (29.9–31.9)	3.0 (2.9–3.2)	33.2 (32.1–34.2)	2.6 (2.5–2.7)	34.8 (33.9–35.8)	1.8 (1.8–1.9)

Abbreviations: APR = adjusted prevalence ratio; Ref = referent group.
* Adjusted for age, sex, race and ethnicity, education, marital status, household income, number of persons living in household, sexual orientation, and gender identity.

significantly more common among women than among men (33.5% versus 30.7%), whereas lack of social and emotional support was more common among men than among women (22.3% versus 26.1%).

The prevalence of loneliness was significantly higher among adults who identified as gay (41.2%), lesbian (44.8%), bisexual (56.7%), or something other than gay, lesbian, bisexual, or straight (50.7%), than among those who identified as straight (30.3%). Loneliness was significantly higher among adults who were transgender female (56.4%), transgender male (62.6%), or transgender gender nonconforming (63.9%), than among those who were cisgender (32.1%). Lack of social and emotional support was significantly more prevalent among adults who identified as gay (29.0%), bisexual (36.5%) and something other than gay, lesbian, bisexual, or straight (39.3%), than among those who identified as straight (22.8%); prevalence among adults who were transgender female (44.8%), transgender male (34.4%), or transgender gender nonconforming (41.4%) was significantly greater than among those who were cisgender (23.8%).

Weighted Prevalence Estimates for Mental Health Measures

Overall prevalence estimates were 13.9% for stress, 16.0% for FMD, and 21.3% for depression (Table 2). Within the corresponding demographic categories, prevalences of mental health measures were the highest among those aged 18–34 years (21.6% [stress], 23.2% [FMD], 26.4% [depression]), females (16.0% [stress], 18.8% [FMD], and 27.0% [depression]), and those with less than a high school education (19.1% [stress] and 20.4% [FMD]). Prevalence of depression by education was the highest among those with some college (24.4%). Prevalences were also highest among those never married (20.6% [stress] and 23.0% [FMD]) and those with household income below $25,000 (24.1% [stress], 27.2% [FMD], and 32.0% [depression]). Prevalences were lowest among non-Hispanic Asian persons (9.5% [stress], 10.8% [FMD], and 10.7% [depression]) and those who had two adults living in a household (11.6% [stress], 13.6% [FMD], and 19.4% [depression]).

Prevalences were significantly higher among those who identified as gay, lesbian, bisexual, and something other than straight than among those who identified as straight. The highest prevalences occurred among those who were bisexual (34.3% [stress], 40.5% [FMD], and 54.4% [depression]). Those who identified as gay had lower prevalences for stress (18.3%), FMD (20.8%), and depression (34.0%) than did those who identified as lesbian, bisexual, or something else. Prevalences were significantly higher among those who were transgender than among those who were cisgender, with the highest prevalence of depression (67.2%) occuring among those who were transgender gender nonconforming.

Discussion

This analysis reinforces existing evidence that loneliness and lack of social and emotional support are associated with depression and stress (*7*). The findings in this report also identified that prevalences of loneliness, lack of social and emotional support, stress, FMD, and depression were significantly higher among bisexual and transgender persons than among heterosexual and cisgender persons. Among demographic categories, prevalences of loneliness and lack of social and emotional support were high in young adults, most racial and ethnic minority groups, and among those with less than a high school education and low income; these results are consistent with previous reports (*7*,*8*).

These findings highlight the importance of integrating standardized measures of social connection into existing data systems and public health frameworks and initiatives (*1*,*7*). Improved surveillance can identify risk factors and help guide interventions to address the impacts of loneliness and lack of social and emotional support. This study offers further evidence of the need to increase access to mental health and social services and address mental health outcomes related to loneliness and lack of social and emotional support, especially among SGM groups, who report the highest prevalence rates.

TABLE 2. Social connection and mental health variables, by demographic characteristics — Behavioral Risk Factor Surveillance System, United States,* 2022

Characteristic	No. of respondents	% (weighted)	Social connection measure % (95% CI)		Mental health measure % (95% CI)		
			Loneliness	Lack of social and emotional support	Stress	Frequent mental distress	History of depression
Overall	**218,915†**	**100.0**	**32.1 (31.7–32.6)**	**24.1 (23.6–24.5)**	**13.9 (13.6–14.3)**	**16.0 (15.6–16.3)**	**21.3 (20.9–21.6)**
Age group, yrs							
18–34	36,479	29.2	43.3 (42.2–44.3)	29.7 (28.7–30.8)	21.6 (20.7–22.5)	23.2 (22.4–24.1)	26.4 (25.6–27.2)
35–49	44,211	23.3	31.9 (31.0–32.9)	24.6 (23.7–25.5)	16.0 (15.3–16.7)	16.3 (15.6–17.0)	22.0 (21.3–22.7)
50–64	59,085	24.8	27.8 (27.0–28.7)	22.0 (21.2–22.8)	11.5 (11.0–12.1)	13.4 (12.9–14.0)	20.0 (19.3–20.6)
≥65	79,140	22.7	23.8 (23.1–24.5)	19.1 (18.4–19.8)	5.4 (5.0–5.9)	9.0 (8.6–9.5)	15.3 (14.8–15.8)
Sex							
Men	103,005	48.4	30.7 (30.0–31.3)	26.1 (25.4–26.7)	11.6 (11.2–12.1)	12.9 (12.5–13.3)	15.1 (14.6–15.5)
Women	115,910	51.6	33.5 (32.8–34.1)	22.3 (21.7–22.9)	16.0 (15.5–16.5)	18.8 (18.3–19.4)	27.0 (26.5–27.6)
Race and ethnicity§							
AI/AN	3,410	1.3	37.9 (31.7–44.5)	28.1 (24.2–32.3)	17.2 (14.3–20.6)	20.9 (17.7–24.5)	25.4 (22.2–28.9)
Asian	5,492	5.1	32.0 (29.1–35.0)	31.6 (28.8–34.4)	9.5 (7.4–12.1)	10.8 (9.1–12.7)	10.7 (9.2–12.4)
Black or African American	15,306	12.2	36.4 (34.7–38.0)	33.6 (32.0–35.2)	13.5 (12.4–14.7)	16.9 (15.9–18.1)	16.2 (15.2–17.2)
Native Hawaiian or Pacific Islander	451	0.4	38.3 (29.2–48.4)	34.0 (25.6–43.6)	22.5 (15.3–31.7)	22.2 (15.8–30.4)	19.7 (14.2–26.8)
White	170,844	62.4	29.6 (29.1–30.1)	20.1 (19.7–20.6)	13.3 (12.9–13.7)	15.6 (15.2–16.0)	23.2 (22.8–23.6)
Hispanic or Latino	19,070	15.4	37.5 (35.9–39.1)	29.9 (28.4–31.4)	16.0 (14.8–17.2)	15.9 (14.8–17.0)	18.1 (17.1–19.2)
Multiracial	4,342	3.2	40.1 (37.2–43.0)	28.6 (26.0–31.3)	22.9 (20.3–25.7)	25.0 (22.6–27.6)	32.3 (29.8–35.0)
Education							
Less than high school diploma	11,912	10.7	41.1 (39.1–43.1)	36.3 (34.4–38.3)	19.1 (17.5–20.8)	20.4 (18.9–21.9)	22.4 (21.0–23.8)
High school diploma or GED	52,899	28.0	34.7 (33.8–35.7)	27.5 (26.6–28.4)	15.1 (14.4–15.8)	18.3 (17.6–19.0)	21.0 (20.3–21.7)
Some college	59,061	30.4	33.0 (32.2–33.9)	24.6 (23.8–25.4)	15.4 (14.8–16.1)	17.7 (17.1–18.3)	24.4 (23.8–25.1)
College and above	95,043	31.0	26.0 (25.4–26.6)	16.5 (16.0–17.1)	9.7 (9.3–10.1)	10.7 (10.3–11.2)	18.0 (17.5–18.4)
Marital status							
Married or unmarried couple	125,349	56.2	24.9 (24.3–25.5)	17.2 (16.7–17.7)	10.5 (10.1–10.9)	11.9 (11.5–12.3)	17.3 (16.8–17.7)
Previously married	55,401	19.4	36.3 (35.3–37.2)	31.1 (30.2–32.1)	15.6 (14.8–16.3)	18.9 (18.2–19.7)	26.1 (25.3–26.8)
Never married	38,165	24.5	45.9 (44.8–47.1)	34.7 (33.6–35.8)	20.6 (19.6–21.6)	23.0 (22.2–23.9)	26.7 (25.8–27.6)
Household income,¶ $							
<25,000	25,556	12.5	47.9 (46.3–49.4)	39.8 (38.3–41.3)	24.1 (22.8–25.4)	27.2 (26.0–28.5)	32.0 (30.7–33.3)
25,000–49,999	43,404	19.8	36.2 (35.2–37.2)	29.6 (28.6–30.7)	16.3 (15.5–17.2)	19.8 (19.0–20.6)	24.1 (23.3–24.9)
50,000–74,999	30,624	12.8	30.4 (29.3–31.6)	22.4 (21.3–23.5)	12.7 (11.9–13.6)	15.3 (14.5–16.2)	21.4 (20.4–22.3)
75,000–99,999	25,783	10.9	27.0 (25.8–28.3)	18.5 (17.4–19.6)	11.4 (10.5–12.5)	12.4 (11.6–13.3)	19.3 (18.3–20.3)
100,000–149,999	27,594	11.9	23.6 (22.5–24.8)	14.6 (13.7–15.5)	9.6 (8.9–10.3)	10.5 (9.8–11.3)	17.6 (16.7–18.5)
≥150,000	25,533	12.0	21.2 (20.2–22.3)	13.8 (12.8–14.7)	8.2 (7.5–8.8)	8.7 (8.0–9.4)	14.2 (13.4–14.9)
Unknown	40,421	20.1	34.7 (33.5–36.0)	25.6 (24.5–26.8)	13.7 (12.7–14.7)	15.3 (14.5–16.1)	19.3 (18.5–20.1)

See table footnotes on the next page.

Limitations

The findings in this report are subject to at least four limitations. First, BRFSS data are self-reported, which can result in recall and social desirability biases. Second, only 26 states reported data from both the Social Determinants and Health Equity module and the Sexual Orientation and Gender Identity module; therefore, results might not be generalizable to the entire U.S. adult population. Third, low response rates in some states (range = 36.9% [Delaware] to 59.6% [Alaska]) could result in nonresponse bias and missing data on household income, sexual orientation, gender identity variables, and stress might introduce information bias; however, the application of sampling weights helps address this bias. Finally, the 2022 BRFSS measured loneliness indirectly by asking persons whether they felt socially isolated, which could be misunderstood as a measure of social isolation. The wording was changed in the 2023 BRFSS to measure loneliness directly (i.e., "How often do you feel lonely?").

Implications for Public Health Practice

Evidence-based interventions and strategies that address social connection as a protective factor for mental health and well-being are needed, especially for persons who face disparities based on race, education, income, and SGM status. Developing environments in communities that are safe spaces for relationship building and support for dealing with loneliness and isolation can be beneficial (*4*).

Providing access to health services that are affirming for SGM groups and collecting data to address health inequities might help improve delivery of culturally competent care. The health care system, including hospital settings, outpatient clinics, emergency departments, and other health care settings,

TABLE 2. (*Continued*) Social connection and mental health variables, by demographic characteristics — Behavioral Risk Factor Surveillance System, United States,* 2022

Characteristic	No. of respondents	% (weighted)	Social connection measure % (95% CI)		Mental health measure % (95% CI)		
			Loneliness	Lack of social and emotional support	Stress	Frequent mental distress	History of depression
No. of children living in household							
0	161,933	66.3	31.9 (31.4–32.5)	23.5 (23.0–24.0)	12.9 (12.5–13.4)	15.7 (15.3–16.1)	21.5 (21.1–22.0)
1	23,811	13.8	33.5 (32.3–34.8)	25.5 (24.3–26.7)	16.8 (15.8–17.8)	16.9 (16.0–17.9)	21.6 (20.7–22.6)
2	20,125	11.7	31.6 (30.1–33.0)	24.6 (23.3–26.0)	15.1 (14.0–16.3)	15.4 (14.4–16.5)	19.9 (18.9–21.0)
3	8,565	5.2	31.2 (28.9–33.6)	24.6 (22.5–26.8)	14.6 (13.1–16.2)	15.8 (14.4–17.3)	20.6 (19.0–22.4)
4	2,896	1.9	34.5 (30.5–38.7)	26.8 (23.7–30.3)	17.4 (14.7–20.4)	18.9 (16.3–21.7)	19.8 (17.4–22.5)
≥5	1,585	1.1	32.4 (26.8–38.4)	30.5 (25.2–36.5)	17.0 (13.2–21.8)	21.6 (17.2–26.7)	19.8 (16.0–24.2)
No. of adults living in household							
1	62,140	22.8	38.7 (37.8–39.6)	31.6 (30.7–32.5)	15.4 (14.7–16.1)	18.4 (17.7–19.1)	24.3 (23.5–25.0)
2	109,832	47.8	27.4 (26.8–28.0)	19.1 (18.5–19.6)	11.6 (11.2–12.1)	13.6 (13.1–14.0)	19.4 (18.9–19.8)
3	28,544	16.6	34.3 (33.0–35.6)	25.6 (24.4–26.9)	16.2 (15.2–17.3)	17.4 (16.5–18.3)	22.3 (21.3–23.3)
4	12,687	8.7	35.1 (33.1–37.0)	27.0 (25.2–28.9)	15.5 (14.1–17.0)	17.9 (16.4–19.5)	21.3 (19.9–22.7)
≥5	5,712	4.1	37.6 (34.5–40.8)	30.0 (27.4–32.8)	19.9 (17.1–23.1)	20.8 (18.9–23.0)	22.3 (20.2–24.5)
Sexual orientation¶,**							
Gay	2,195	1.0	41.2 (37.5–45.1)	29.0 (25.5–32.7)	18.3 (15.4–21.5)	20.8 (17.9–24.1)	34.0 (30.5–37.7)
Lesbian	1,784	0.8	44.8 (40.5–49.2)	26.0 (22.2–30.1)	27.7 (23.9–31.9)	30.5 (26.7–34.6)	43.2 (39.1–47.5)
Bisexual	6,295	3.8	56.7 (54.1–59.3)	36.5 (33.8–39.3)	34.3 (31.7–37.0)	40.5 (37.9–43.1)	54.4 (51.8–56.9)
Straight	179,201	75.5	30.3 (29.8–30.8)	22.8 (22.4–23.2)	12.6 (12.2–12.9)	14.2 (13.9–14.6)	19.4 (19.0–19.8)
Something else	3,390	1.8	50.7 (47.2–54.2)	39.3 (36.0–42.6)	28.1 (25.4–31.1)	33.0 (30.1–36.1)	39.3 (36.3–42.5)
Unknown	26,050	17.2	31.0 (29.4–32.5)	26.0 (24.6–27.4)	11.4 (10.4–12.4)	15.5 (14.7–16.4)	18.5 (17.7–19.4)
Gender identity¶,**							
Transgender female	372	0.2	56.4 (42.4–69.5)	44.8 (32.0–58.3)	36.1 (25.9–47.6)	37.2 (27.3–48.4)	47.4 (35.9–59.3)
Transgender male	408	0.2	62.6 (54.6–70.0)	34.4 (26.7–43.1)	36.4 (28.8–44.8)	39.8 (32.5–47.6)	48.8 (41.0–56.8)
Transgender gender nonconforming	455	0.3	63.9 (55.9–71.3)	41.4 (34.2–49.0)	37.8 (30.9–45.1)	51.8 (44.0–59.5)	67.2 (59.4–74.1)
Cisgender	194,978	83.8	32.1 (31.6–32.5)	23.8 (23.4–24.3)	13.9 (13.5–14.2)	15.7 (15.4–16.1)	21.4 (21.0–21.7)
Unknown	22,702	15.5	29.7 (28.2–31.3)	25.4 (23.9–26.9)	11.7 (10.7–12.9)	16.1 (15.2–17.0)	19.2 (18.3–20.1)

Abbreviations: AI/AN = American Indian or Alaska Native; GED = general education development certificate; SOGI = sexual orientation and gender identity.

* The following states used both the Social Determinants and Health Equity and SOGI modules: Alaska, Connecticut, Delaware, Georgia, Indiana, Iowa, Kansas, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nevada, New Jersey, New Mexico, North Carolina, Ohio, Oklahoma, Rhode Island, Texas, Utah, Vermont, Washington, West Virginia, and Wisconsin.

† Analytic sample size is 218,915 after excluding those who responded "don't know/not sure," refused to answer, or had missing responses for demographic variables (except for those with unknown income, sexual orientation, and gender identity status).

§ Persons of Hispanic or Latino (Hispanic) origin might be of any race but are categorized as Hispanic; all racial groups are non-Hispanic. Other categories reported as a single race or as multiracial when more than one race was reported.

¶ Because of high proportions of missing responses for household income, sexual orientation, and gender identity, data for these three variables are combined into an "Unknown" group.

** Information on the SOGI module is available at https://www.cdc.gov/brfss/data_documentation/pdf/BRFSS-SOGI-Stat-Brief-508.pdf, and on terminology at https://www.cdc.gov/healthyyouth/terminology/sexual-and-gender-identity-terms.htm.

can play a role in raising awareness, promoting a welcoming environment, using gender-neutral and inclusive language, and reducing the stigma around loneliness (*9*). Worsening mental health among sexual and gender minority SGM populations suggests a need for mental health and primary care providers to address the unique psychosocial needs of these populations (*10*). Collecting data on SGM populations is also essential to providing high-quality, patient-centered care.¶ Lack of information could result in missed opportunities to identify specific health care needs of SGM populations, address the health disparities they experience, and deliver important health care services.

¶ https://snapshot2024.cdc.gov/hiv/clinicians/transforming-health/health-care-providers/collecting-sexual-orientation.html

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Successful Distribution of Tecovirimat During the Peak of the Mpox Outbreak — Los Angeles County, June 2022–January 2023

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Abstract

Tecovirimat is the first-line antiviral treatment recommended for severe mpox or for persons with mpox who are at risk for severe disease; tecovirimat is available in the United States under an expanded access investigational new drug (IND) protocol. During the 2022–2023 mpox outbreak, local U.S. health jurisdictions facilitated access to tecovirimat. In June 2022, Los Angeles County (LAC) rapidly developed strategies for tecovirimat distribution using existing medical countermeasure distribution networks established by the Public Health Emergency Preparedness Program and the Hospital Preparedness Program, creating a hub and spoke distribution network consisting of 44 hub facilities serving 456 satellite sites across LAC. IND patient intake forms were analyzed to describe mpox patients treated with tecovirimat. Tecovirimat treatment data were matched with case surveillance data to calculate time from specimen collection to patients receiving tecovirimat. Among 2,281 patients with mpox in LAC, 735 (32%) received tecovirimat during June 2022–January 2023. Among treated patients, approximately two thirds (508; 69%) received treatment through community clinics and pharmacies. The median interval from specimen collection to treatment was 2 days (IQR = 0–5 days). Local data collection and analysis helped to minimize gaps in treatment access and facilitated network performance monitoring. During public health emergencies, medical countermeasures can be rapidly deployed across a large jurisdiction using existing distribution networks, including clinics and pharmacies.

Introduction

In May 2022, clade II mpox, historically endemic in West and Central Africa, became a widespread outbreak, with a public health emergency declared in the United States in August 2022.* Tecovirimat, an antiviral treatment developed to treat smallpox, is a first-line drug for use in patients with severe mpox or those at risk for severe disease (*1*,*2*).

CDC holds an expanded access investigational new drug (IND) protocol for using tecovirimat to treat mpox (*1*). Patients with mpox are eligible for treatment with tecovirimat if they meet IND eligibility criteria, which have evolved since the start of the outbreak† (*1*). At the start of the outbreak, tecovirimat was available through the Strategic National Stockpile (SNS) and was prepositioned for distribution by state and local health departments (*1*).

Los Angeles County (LAC), with 10 million residents in a 4,058–square mile area, was an epicenter of the mpox outbreak at its peak in the United States; LAC experienced the highest California mpox case count, accounting for 39% of all California cases reported by January 30, 2023 (*3*). During June 2022–January 2023, a cross-sectional study of patients with mpox who received tecovirimat by LAC health care providers during the mpox emergency was conducted. This study describes the tecovirimat distribution network in LAC, characteristics of treated patients, and local surveillance data that measured the time to treatment during the mpox public health emergency.

Methods

The LAC Department of Public Health (DPH) serves all county areas except Pasadena and Long Beach, which have separate health departments. DPH created an mpox treatment unit comprising part-time and full-time clinical and surveillance staff members, with support from existing operations personnel available for after-hours calls, DPH direct clinical care, DPH and independent pharmacy support, and supply management.

Prepositioning and Distribution of Tecovirimat

Tecovirimat supply from SNS was prepositioned at a DPH warehouse facility. LAC recruited health care providers experienced in distributing medical countermeasures to serve as network hubs; these hubs were responsible for distributing tecovirimat to their affiliates (Supplementary Figure, https://stacks.cdc.gov/view/cdc/157468). Hubs were selected based on geographic location, proximity to patients, number of providers, overall patient volume, and availability of extended hours of operation. Hub providers included community clinics, pharmacies, and LAC's Disaster Resource Center hospitals and were supplied with tecovirimat and trained on its use, including IND and reporting requirements. Data reported to DPH were reviewed weekly and used to provide supply and to target

* https://www.cdc.gov/poxvirus/mpox/response/2022/world-map.html

† https://www.cdc.gov/poxvirus/mpox/clinicians/obtaining-tecovirimat.html

additional training and site visits. Hubs received technical assistance for incorporating the dispensing of tecovirimat into their specific patient workflows. Disaster Resource Center hospitals received a single course of intravenous tecovirimat and twenty courses of oral tecovirimat to distribute on-demand to their associate general acute care hospitals through the Hospital Preparedness Program. Health care workers at hub affiliates (spokes) were trained to request tecovirimat from their respective hubs, complete the IND processes, and administer the drug. DPH fulfilled hub tecovirimat orders based on clinical volume and existing inventory. For patients with mpox who did not have a medical home or a provider willing to treat them, DPH provided patient navigation services, coordination through provider and patient consult lines, and public health nurse follow-up of all mpox cases. Consultation was available to all providers at any time.

Data Management

The IND protocol requires intake forms that include demographic information and medical histories for each tecovirimat-treated patient to be sent to CDC. Providers sent a copy of the intake form to DPH, which was entered into a REDCap database (version 14.1.2; Vanderbilt University). Patient intake forms were matched to available mpox case data in DPH's disease surveillance database using SAS statistical software (version 9.4; SAS Institute). A matching process was used to link tecovirimat-treated patients to available hospitalization records, specimen collection data, laboratory results, and death records. The DPH Institutional Review Board judged this secondary analysis to be exempt from institutional review board approval processes.

Results

Tecovirimat Distribution Network

By August 1, 2022, the tecovirimat distribution network comprised 44 hub facilities across LAC, including 23 clinics, 11 hospitals, and 10 independent pharmacies (Figure 1). These hubs served 456 associated spoke facilities. By January 31, 2023, among 2,281 patients with mpox in LAC, approximately one third (735; 32%) had been treated with tecovirimat (Table). The patients with mpox who were not treated with tecovirimat (1,546; 68%) likely did not have severe mpox, were not at risk for severe mpox, or experienced barriers to receiving tecovirimat, resulting in missed treatment opportunities.

Overall, 120 (16%) patients who received tecovirimat were treated at pharmacies, 227 (31%) at hospitals, and 388 (53%) at community clinics. The majority of (685; 93%) patients were treated in outpatient settings; only 48 (7%) received inpatient treatment. Seven (1%) patients received intravenous tecovirimat, and the remaining 728 (99%) received oral tecovirimat. The peak treatment period occurred in August 2022 (423; 58%) after the peak in confirmed mpox cases in late July (Figure 2).

Characteristics of Tecovirimat-Treated Patients with Mpox

Among the 735 patients with mpox in LAC who received tecovirimat during June 2022–January 2023, gender was known for 670 (91%), 659 (90%) of whom identified as male (Table). The median patient age was 38 years (range = 9–79 years). Clinician-reported reasons for tecovirimat treatment were lesions in anatomic areas that might result in serious sequelae (549; 75%), pain (404; 55%), and risk for severe outcomes due to immunosuppression (229; 31%); one patient was pregnant. Overall, 375 (51%) patients reported HIV infection as a medical comorbidity. Among all tecovirimat-treated patients, 333 (45%) had 10–100 lesions.

Interval from Diagnosis to Treatment, Empirical Treatment, and Patient Outcomes

Among the 525 (71%) treated patients who were matched to case surveillance records, the median interval from specimen collection or presumptive diagnosis to receipt of dispensed tecovirimat was 2 days (IQR = 0–5 days); this finding did not vary by month from June 2022 through January 2023. The median was 4 days (IQR = 0–5 days) for patients receiving dispensed tecovirimat after laboratory confirmation compared with zero days for those who received dispensed tecovirimat empirically. Among the 485 patients with matched records for whom mpox test results were available, 307 (63%) were treated after receiving a confirmed diagnosis, whereas 155 (37%) were treated empirically; three (2%) of these persons ultimately received a negative mpox test result. Overall, 47 (9%) treated patients with matched surveillance records were hospitalized, and two deaths (0.4%) were reported.

Discussion

DPH streamlined tecovirimat distribution using a hub and spoke distribution model, facilitating provision of tecovirimat to multiple access points. Combining patient intake forms with provider tecovirimat inventory and overall trend data allowed DPH to ascertain supply sufficiency and conduct outreach to restock, preventing access gaps. Whereas resources for emergency preparedness planning, including the distribution of medical countermeasures, have focused on hospitals (*4*), in this setting, approximately two thirds of treated patients received tecovirimat at clinics and pharmacies. This strategy was built on the COVID-19 vaccine rollout, for which clinics and pharmacies were crucial to vaccine distribution networks (*5*).

FIGURE 1. Tecovirimat hub and spoke provider sites — Los Angeles County, California, June 2022–January 2023

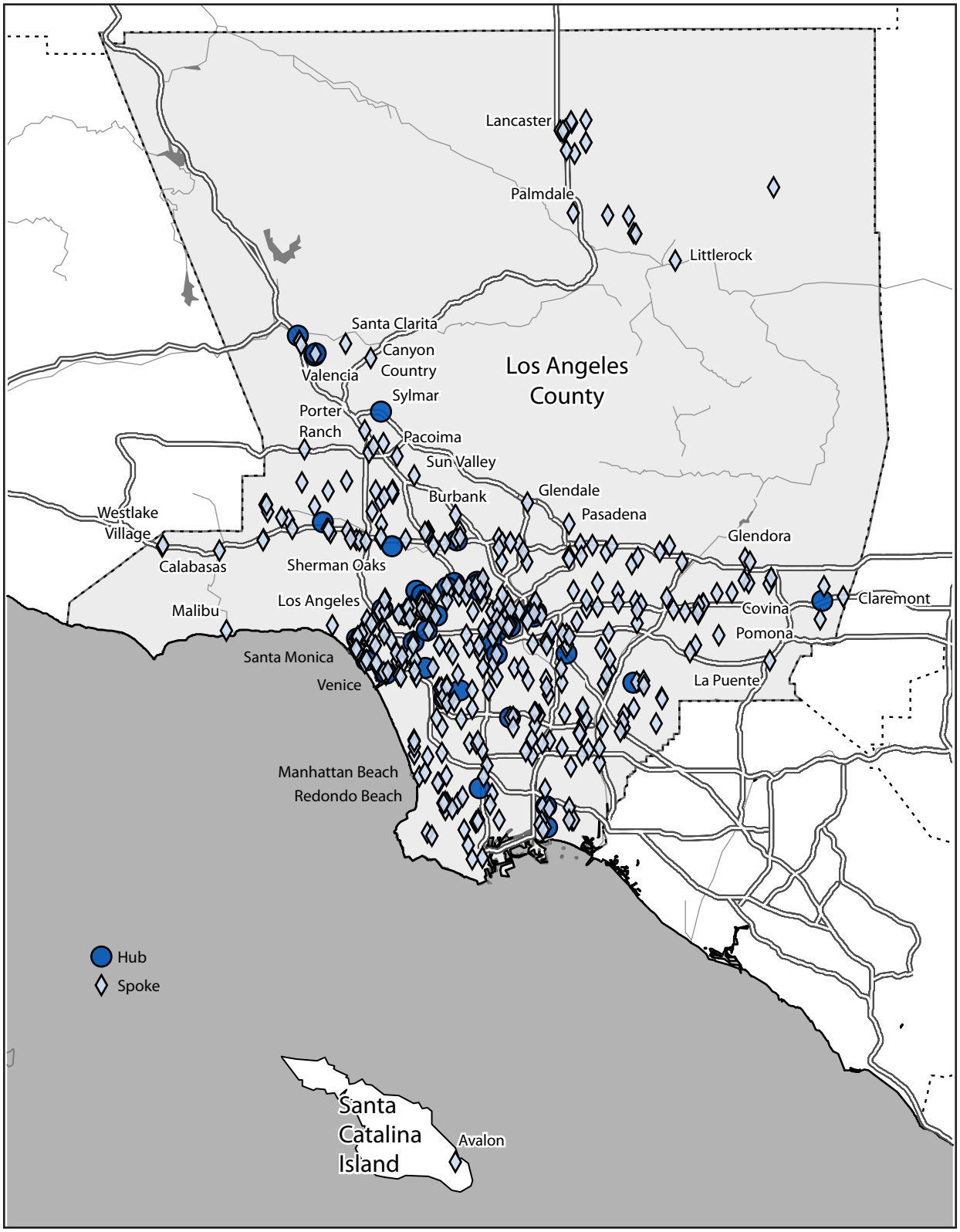


TABLE. Characteristics of total mpox cases and those treated with tecovirimat — Los Angeles County, California, June 2022–January 2023*

Characteristic	No. (column %) All patients (N = 2,281)	Treated with tecovirimat (n = 735)
Gender		
Cisgender male	**2,177 (95)**	659 (90)
Cisgender female	**45 (2)**	11 (2)
Transgender male	**0–10 (<1)**	0–10 (<1)
Transgender female	**28 (1)**	13 (2)
Another gender identity	**23 (1)**	42 (3)
Prefer not to say or unknown	**0–10 (<1)**	NA
Age group, yrs		
0–17	**11 (<1)**	0–10 (<1)
18–29	**551 (24)**	104 (14)
30–39	**980 (43)**	317 (43)
40–49	**487 (21)**	200 (27)
50–59	**208 (9)**	93 (13)
≥60	**44 (2)**	12 (2)
Unknown	**0 (—)**	0–10 (<1)
Race and ethnicity†		
American Indian or Alaska Native	**12 (1)**	0–10 (<1)
Asian	**70 (3)**	24 (3)
Black or African American	**351 (15)**	109 (15)
Native Hawaiian or Pacific Islander	**0–10 (<1)**	0–10 (<1)
White	**567 (25)**	190 (26)
Hispanic or Latino	**1,085 (48)**	298 (41)
Multiple races	**26 (1)**	NA
Other	**33 (1)**	35 (5)
Unknown	**133 (6)**	74 (10)
HIV-positive	**1,026 (45)**	**375 (51)**

Abbreviation: NA = not available.
* Case counts between zero and 10 are suppressed to prevent possible identification based on Los Angeles County Department of Public Health Chief Science Office guidelines.
† Persons of Hispanic or Latino (Hispanic) origin might be of any race but are categorized as Hispanic; all racial groups are non-Hispanic.

Throughout the emergency and during changes in protocol, tecovirimat use rates paralleled disease incidence (*6*). The proportion of reported patients with mpox treated with tecovirimat in LAC (33%) was higher than that reported nationally (23%); however, national data might reflect underreporting (*7*). Other reasons might be that reported patients with mpox treated with tecovirimat in LAC represent a larger proportion of reported patients with severe mpox disease or patients at risk for severe disease, or that patients with treatment indications had better access to treatment. Although tecovirimat treatment training balanced access to care with judicious use to minimize the risk for emergence of tecovirimat resistance, the higher proportion of treated patients could also represent unnecessary antiviral treatment resulting from subjective clinician assessment. The median interval from specimen collection to receipt of tecovirimat by patients with mpox in LAC was 2 days. Local public health and commercial laboratory turnaround times were approximately 2 and 3 days, respectively. Overall, the distribution strategy was effective and sufficient to meet increasing needs. Similar strategies might benefit tecovirimat distribution in different jurisdictions as would other prepositioned therapeutics for mpox or future emerging infections.

Summary

What is already known about this topic?

Tecovirimat is recommended for severe mpox under an expanded access investigational new drug protocol. During the 2022–2023 mpox outbreak, local U.S. health jurisdictions facilitated access to tecovirimat.

What is added by this report?

Using emergency preparedness plans, Los Angeles County developed a hub and spoke tecovirimat distribution network, facilitating treatment of approximately one third of patients with mpox; most were treated in clinics and pharmacies. The median interval from specimen collection to treatment was 2 days.

What are the implications for public health practice?

Medical countermeasures can be deployed during public health emergencies using existing distribution networks and local surveillance data to facilitate treatment access.

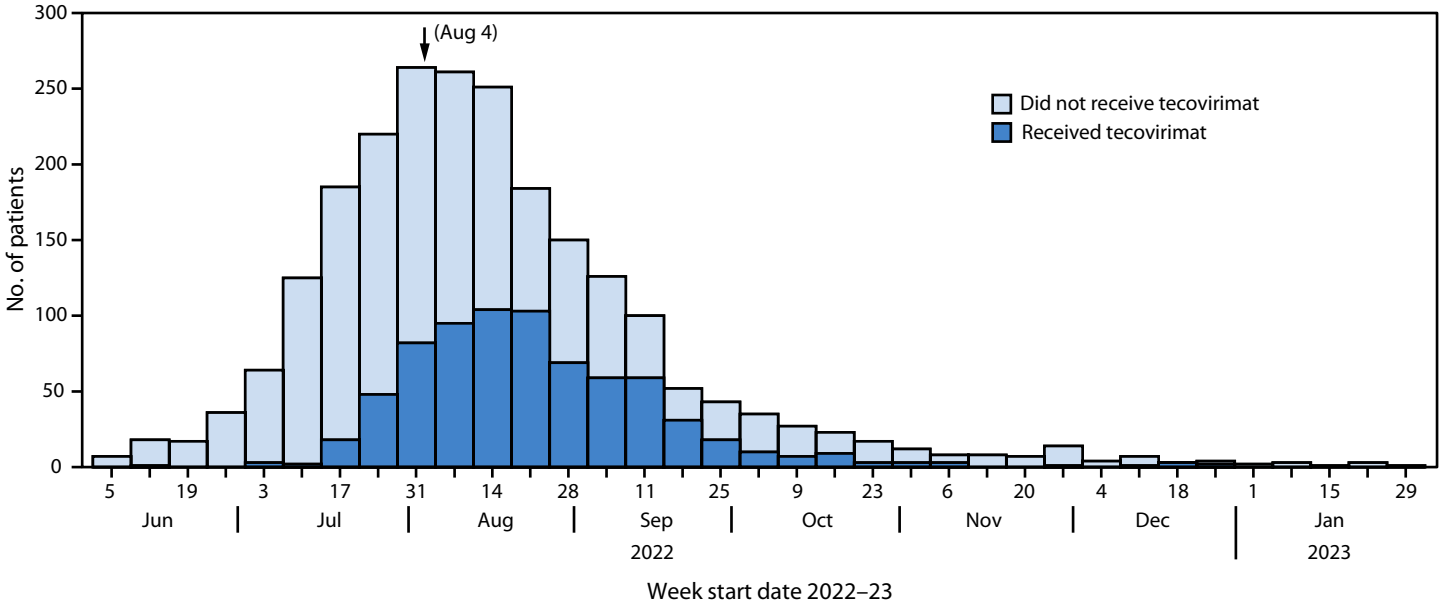
Limitations

The findings in this report are subject to at least two limitations. First, assessment of interval from diagnosis to treatment was precluded among patients who received tecovirimat but whose records were not linked with surveillance data; this finding might increase or decrease the reported interval because 29% of tecovirimat-treated patients were not able to be matched to case surveillance data based on the identifying information provided on their patient intake forms. Second, because intake forms were only completed at the beginning of treatment, no reports were required at completion of treatment, and well-defined endpoints for antiviral treatment of mpox were absent, LAC was unable to assess the effectiveness of the distribution system regarding its contribution to a reduction in morbidity and mortality (*8*).

Implications for Public Health Practice

Local health jurisdictions can rapidly deploy medical countermeasures over a wide area using existing distribution systems created by the Public Health Emergency Preparedness Program and Hospital Preparedness Programs and should include clinics and pharmacies in emergency preparedness planning. Local data collection and analysis can reduce gaps in access to treatment and facilitate monitoring the distribution and program performance. Future preparedness efforts can focus on measuring additional administrative costs associated with a medical countermeasure, such as costs of staff training, work hours, storage of medical countermeasure products, and supporting

FIGURE 2. Number of patients with mpox who received and did not receive tecovirimat, by week (N = 2,281)*,† — Los Angeles County, California, June 2022–January 2023



* A total of 1,546 patients with mpox did not receive tecovirimat; 735 received tecovirimat.
† Public health emergency was declared in the United States on August 4, 2022, in response to the mpox outbreak.

distribution partners. Accurate data to improve case matching and define and collect outcome data are needed.

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Emergency Medical Services Encounters for Firearm Injuries — 858 Counties, United States, January 2019–September 2023

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Abstract

Firearm-related deaths and injuries have increased in recent years. Comprehensive and timely information on firearm injuries and the communities and geographic locations most affected by firearm violence is crucial for guiding prevention activities. However, traditional surveillance systems for firearm injury, which are mostly based on hospital encounters and mortality-related data, often lack information on the location where the shooting occurred. This study examined annual and monthly rates of emergency medical services (EMS) encounters for firearm injury per 100,000 total EMS encounters during January 2019–September 2023 in 858 counties in 27 states, by patient characteristics and characteristics of the counties where the injuries occurred. Overall, annual rates of firearm injury EMS encounters per 100,000 total EMS encounters ranged from 222.7 in 2019 to 294.9 in 2020; rates remained above prepandemic levels through 2023. Rates were consistently higher among males than females. Rates stratified by race and ethnicity were highest among non-Hispanic Black or African American persons; rates stratified by age group were highest among persons aged 15–24 years. The greatest percentage increases in annual rates occurred in urban counties and in counties with higher prevalence of severe housing problems, higher income inequality ratios, and higher rates of unemployment. States and communities can use the timely and location-specific data in EMS records to develop and implement comprehensive firearm injury prevention strategies to address the economic, social, and physical conditions that contribute to the risk for violence, including improvements to physical environments, secure firearm storage, and strengthened social and economic supports.

Introduction

Multiple studies have highlighted recent increases in firearm-related deaths and injuries. For example, the annual firearm homicide rate increased 44% (from 4.4 to 6.3 per 100,000 persons) during 2019–2021 and remained elevated (5.9 per 100,000 persons) in 2022, and the firearm suicide rate increased 11% (from 7.3 to 8.1 per 100,000 persons) during 2019–2022.* Compared with 2019, in 2020, 2021, and 2022 the mean weekly number of firearm injury emergency department (ED) visits were 37%, 36%, and 20% higher, respectively (*1*). Syndromic surveillance of firearm-related injuries assessed in EDs has provided timely monitoring of trends, especially during the COVID-19 pandemic (*1*,*2*). Prehospital services (i.e., emergency medical services [EMS]) data have complemented ED surveillance of other injuries and conditions, including opioid overdoses (*3*). However, use of EMS encounter data to understand trends in firearm injuries is currently limited. EMS encounter data can provide information on the geographic location where firearm injury incidents occur, information that is often unavailable in hospital-based or mortality-related data sources and which could allow more refined analyses of social determinants of health associated with firearm injuries (*4*–*6*). Further, EMS encounter data capture nonfatal firearm injuries in persons who refuse or do not seek hospital-based care. This report describes trends in the rates of firearm injuries by selected patient- and county-level characteristics using EMS encounter data during January 2019–September 2023.

Methods

EMS data collected by biospatial, Inc.† from 858 U.S. counties with consistently high data coverage§ in 27 states¶ during January 2019–September 2023 were analyzed by month and year. A syndrome definition identified firearm injury EMS encounters by querying coded elements and narrative details

* https://wonder.cdc.gov (Accessed April 5, 2024).

† EMS data were collected by biospatial, Inc., which receives EMS data from 44 states (27 full coverage [biospatial receives all records that the state office receives] and 17 partial coverage [biospatial receives some of the data from sources other than the state office, such as through partnerships directly with EMS providers]). Approximately 70% of EMS encounter data are available to data users within 24 hours (median = 11.1 hours). https://www.biospatial.io/

§ Underlying event coverage is a ratio of the records received by biospatial, Inc. compared with the estimated number of all EMS encounters expected for the specified geographic area (e.g., county); this metric is calculated using probabilistic models of historic data and county population characteristics. For this analysis, records from counties with underlying event coverage ≥75% for each quarter during the study period were eligible for inclusion.

¶ The following states that share data with biospatial, Inc. included at least one county that met the sufficient underlying event coverage threshold during the study period and were included in the analysis: Alabama (25/67 counties in the state), Alaska (7/29), Arizona (1/15), Arkansas (52/75), California (2/58), Colorado (35/64), Florida (42/67), Georgia (130/159), Idaho (3/44), Illinois (60/102), Kansas (75/105), Kentucky (90/120), Maine (16/16), Michigan (59/83), Mississippi (6/82), Montana (15/56), New Mexico (27/33), Oregon (1/36), Rhode Island (5/5), South Carolina (42/46), Texas (4/254), Utah (15/29), Virginia (76/133), Washington (1/39), Wisconsin (50/72), and Wyoming (18/23).

of EMS patient care reports.** Firearm injury EMS encounters were calculated as rates per 100,000 EMS encounters. Annual rates and stratified subgroup rates during 2020–2023 were compared to corresponding prepandemic rates from 2019. Subgroups analyzed included patient characteristics (age group, sex, and race and ethnicity††) and characteristics of the county where the incident occurred. County-level characteristics were analyzed by linking EMS incident location information with data from the County Health Rankings and Roadmaps,§§ including unemployment rate,¶¶ income inequality ratio,*** prevalence of severe housing problems,††† and urbanicity.§§§ Annual and monthly rates were calculated, and rate ratios (RRs) with 95% CIs were reported for calendar years 2020–2023 and compared with rates for 2019.¶¶¶ Analyses were conducted using R (version 4.2.2; R Foundation). This activity was reviewed by CDC, deemed not research, and was conducted consistent with applicable federal law and CDC policy.****

** Firearm injury EMS encounters were identified by querying dispatch information, chief complaint, narrative report, and diagnosis elements for gunshot injuries sustained from handguns, rifles, and shotguns classified as unintentional, intentional self-harm, assault, legal intervention, terrorism, and undetermined intent. Injuries from air-powered, gas-powered, BB and pellet guns; nonpenetrating injuries associated with firearms (e.g., "pistol whipping"); and aftercare for a firearm injury were excluded. Coded data elements were queried for relevant *International Classification of Diseases, Ninth Revision, Clinical Modification* diagnosis codes (including E965.0, E985.0, and E955.0) and *International Classification of Diseases, Tenth Revision* diagnosis codes (including W32–W33, W34.00, W34.09, W34.10, W34.19, X72, X73, X74.8, X74.9, X93, X94, X95.8, X95.9, Y22, Y23, Y24.8, Y24.9, Y35.01, Y35.02, Y35.09, and Y38.4).

†† One racial and ethnic designation for each person was recorded. Persons of Hispanic or Latino (Hispanic) ethnicity, regardless of race, were classified as Hispanic. For the remaining categories, persons who were non-Hispanic are reported by their indicated single race classification (i.e., Black or African American or White). All persons of Asian, American Indian or Alaska Native, and Native Hawaiian or Pacific Islander classification were included in "Other" to overcome suppression of low cell counts. Persons with unknown or missing race or ethnicity were excluded.

§§ Values were stratified into quartiles and analyzed using data from the County Health Rankings & Roadmaps 2023, University of Wisconsin Population Health Institute. http://www.countyhealthrankings.org

¶¶ Percentage of population aged ≥16 years who were unemployed but seeking work.

*** Defined as the ratio of county income at the 80th percentile to that at the 20th percentile. Upper quartile represents the greatest inequality.

††† Reported as the percentage of households experiencing severe housing problems. A household is defined as experiencing severe housing problems if the residence lacks functional plumbing or functional kitchen facilities, has overcrowding, or costs >50% of the household's income.

§§§ Urbanicity analyzed according to the six strata specified by the National Center for Health Statistics Urban-Rural Classification Scheme for Counties. https://www.cdc.gov/nchs/data_access/urban_rural.htm

¶¶¶ For all purposes throughout the study, data from January–September 2023 were compared with data from the same period in 2019.

**** 45 C.F.R. part 46.102(l)(2), 21 C.F.R. part 56; 42 U.S.C. Sect. 241(d); 5 U.S.C. Sect. 552a; 44 U.S.C. Sect. 3501 et seq.

Results

Annual and Monthly Firearm Injury EMS Encounter Rates

Compared with the annual firearm injury EMS encounter rate in 2019 (222.7 per 100,000 EMS encounters), the rate in 2020 was 32% higher (294.9), in 2021 was 27% higher (283.4), in 2022 was 17% higher (261.4), and in 2023 was 14% higher (252.8) (Table). After the declaration of COVID-19 as a national emergency in March 2020, a sharp increase in the monthly rate of firearm injury EMS encounters occurred among multiple demographic groups (Figure 1). An increase in the monthly rate of firearm injury EMS encounters was also observed across all levels of the county-level factors studied; increases were most pronounced in large central metropolitan counties and counties with a high prevalence of severe housing problems, high income inequality, and high unemployment (Figure 2). The total number of monthly EMS encounters decreased briefly during April and May 2020 before returning to prepandemic levels in June.††††

Firearm Injury EMS Encounter Rates by Patient Characteristics

By age group, annual rates of firearm injury EMS encounters were consistently highest among persons aged 15–24 years. The largest age group–specific increases in annual rates compared with rates in 2019 occurred among children and adolescents aged 0–14 years (Table). Annual rates were higher among males than among females (Table), but rate increases compared with rates in 2019 were larger among females. By race and ethnicity, the highest rates were observed among non-Hispanic Black or African American (Black) persons throughout the study period. Across all racial and ethnic groups and all study years, the largest single annual rate increase occurred among Hispanic or Latino (Hispanic) persons from 2019 to 2020. Annual rates among Black and Hispanic persons remained elevated through 2023; by 2023 rates in other racial and ethnic groups returned to prepandemic levels.

Firearm Injury EMS Encounter Rates by County Characteristics

Annual rates of firearm injury EMS encounters were consistently highest during the study period in counties where severe housing problems were more prevalent (Table). Further, counties in the upper quartile of prevalence of severe

†††† A total of 11,606,344 EMS incidents occurred in the included jurisdictions in 2019; 11,580,929 in 2020 (99.8% of the 2019 total); 12,821,365 in 2021 (110.5% of 2019); 13,101,173 in 2022 (112.9% of 2019); and 9,778,920 in 2023 (114.6% of 2019, annualized for January–September). Monthly EMS volumes were 16.5% lower in April 2020 than in April 2019, and 10.4% lower in May 2020 than in May 2019.

TABLE. Annual rate of firearm injury–related emergency medical service encounters* per 100,000 emergency medical service encounters, by patient- and county-level characteristics — 858 U.S. counties, January 2019–September 2023

Characteristic	2019	2020		2021		2022		2023	
	Rate	Rate	RR (95% CI)†	Rate	RR (95% CI)†	Rate	RR (95% CI)†	Rate§	RR (95% CI)¶
Total firearm injury EMS encounters**	**222.7**	**294.9**	**1.32 (1.30–1.35)**	**283.4**	**1.27 (1.25–1.29)**	**261.4**	**1.17 (1.15–1.19)**	**252.8**	**1.14 (1.12–1.16)**
Patient-level characteristics									
Age group, yrs									
0–14	148.5	290.6	1.96 (1.77–2.16)	256.8	1.73 (1.57–1.91)	226.2	1.52 (1.38–1.68)	235.0	1.52 (1.36–1.70)
15–24	875.7	1,277.7	1.46 (1.42–1.50)	1,161.6	1.33 (1.29–1.37)	1,094.2	1.25 (1.21–1.29)	1,045.0	1.21 (1.17–1.26)
25–34	667.5	931.1	1.39 (1.35–1.44)	890.1	1.33 (1.29–1.38)	822.6	1.23 (1.19–1.27)	758.0	1.15 (1.11–1.19)
35–44	413.0	552.3	1.34 (1.28–1.39)	552.9	1.34 (1.29–1.39)	543.0	1.31 (1.26–1.37)	507.7	1.24 (1.19–1.30)
45–64	164.0	200.8	1.22 (1.18–1.27)	203.8	1.24 (1.19–1.29)	197.7	1.21 (1.16–1.25)	201.4	1.23 (1.17–1.29)
≥65	48.0	53.8	1.12 (1.05–1.19)	54.1	1.13 (1.06–1.20)	49.2	1.03 (0.97–1.09)	49.1	1.02 (0.95–1.10)
Sex									
Female	81.7	112.5	1.38 (1.32–1.43)	110.0	1.35 (1.29–1.40)	104.3	1.28 (1.23–1.33)	99.7	1.22 (1.17–1.28)
Male	449.3	589.4	1.31 (1.29–1.34)	568.4	1.27 (1.24–1.29)	518.9	1.15 (1.13–1.18)	500.0	1.12 (1.10–1.14)
Race and ethnicity††									
Black or African American	537.0	770.4	1.43 (1.40–1.47)	758.5	1.41 (1.38–1.45)	692.4	1.29 (1.26–1.32)	656.3	1.23 (1.19–1.26)
White	151.0	181.7	1.20 (1.17–1.24)	170.1	1.13 (1.09–1.16)	156.6	1.04 (1.01–1.07)	152.2	1.00 (0.97–1.04)
Hispanic or Latino	262.1	393.8	1.50 (1.41–1.60)	348.1	1.33 (1.25–1.42)	336.6	1.28 (1.21–1.37)	332.5	1.32 (1.23–1.42)
Other	153.4	179.4	1.17 (0.98–1.40)	220.6	1.44 (1.22–1.70)	202.9	1.32 (1.12–1.56)	171.8	1.15 (0.94–1.41)
County-level characteristics§§									
Prevalence of severe housing problems, %¶¶									
≤10	145.1	166.0	1.14 (1.04–1.26)	164.9	1.14 (1.03–1.25)	147.2	1.01 (0.92–1.12)	151.7	1.04 (0.93–1.16)
11–12	178.3	205.9	1.15 (1.10–1.21)	193.8	1.09 (1.03–1.14)	179.7	1.01 (0.96–1.06)	179.0	1.01 (0.96–1.07)
13–14	213.0	277.4	1.30 (1.26–1.35)	253.6	1.19 (1.15–1.23)	230.9	1.08 (1.05–1.12)	214.3	1.02 (0.98–1.07)
≥15	242.7	333.4	1.37 (1.35–1.40)	326.3	1.34 (1.32–1.37)	302.7	1.25 (1.22–1.27)	293.9	1.21 (1.19–1.24)
Income inequality ratio***									
≤3.9	170.0	200.3	1.18 (1.11–1.25)	184.3	1.08 (1.03–1.14)	176.5	1.04 (0.98–1.10)	165.6	0.98 (0.92–1.05)
4.0–4.3	169.5	207.7	1.22 (1.18–1.27)	185.8	1.10 (1.06–1.14)	183.3	1.08 (1.04–1.12)	175.6	1.05 (1.01–1.10)
4.4–4.8	185.2	259.2	1.40 (1.36–1.44)	246.4	1.33 (1.29–1.37)	218.4	1.18 (1.14–1.22)	210.5	1.16 (1.11–1.20)
≥4.9	313.9	421.8	1.34 (1.31–1.38)	425.5	1.36 (1.32–1.39)	392.2	1.25 (1.22–1.28)	383.7	1.22 (1.19–1.25)

See table footnotes on the next page.

housing problems experienced the most substantial increases in annual rates of firearm injury EMS encounters compared with rates in 2019. Similarly, annual firearm injury EMS encounter rates throughout the study period were highest in counties with the most income inequality, and rate increases compared with rates in 2019 were highest in counties in the upper quartiles of income inequality. Annual rates of firearm injury EMS encounters were highest in counties with higher unemployment rates; counties with the highest unemployment rates experienced the largest rate increases compared with rates in 2019. By urbanicity, annual rates and rate increases were highest in large central metro counties during 2020–2023 compared with 2019.

Discussion

This study highlights the unequal distribution of firearm injury EMS encounters by individual- and county-level characteristics. At the onset of the COVID-19 pandemic, the rate of firearm injury EMS encounters increased overall and across most patient- and county-level characteristics, a trend observed elsewhere in prehospital data for penetrating trauma (*7*) and ED data on firearm injury (*1*). Overall and in most subgroups, annual rates of firearm injury EMS encounters remained higher during 2020–2023 compared with 2019; by 2023, however, rates generally decreased from their 2020 peak. The subgroup with the largest persistent elevation in 2023 was children and adolescents aged 0–14 years. Potential explanations for increased firearm injury rates during the COVID-19 pandemic and associated mitigation measures (e.g., stay-at-home orders) have been cited elsewhere and include increased firearm purchasing; changes in intimate partner violence patterns; changes in social support systems; and disruptions in health (e.g., limited access to mental health services), social, and emergency services (*8*,*9*).

The highest firearm injury EMS encounter rates occurred among persons aged 15–24 years, males, and Black persons; these findings align with previous findings from ED data on firearm injury (*1*), EMS data on penetrating injuries (*7*), and data on firearm-related deaths.[§§§§] The highest rates and most substantial annual rate increases of firearm injury

[§§§§] https://www.cdc.gov/injury/wisqars (Accessed April 5, 2024).

TABLE. (*Continued*) Annual rate of firearm injury–related emergency medical service encounters* per 100,000 emergency medical service encounters, by patient- and county-level characteristics — 858 U.S. counties, January 2019–September 2023

	2019	2020		2021		2022		2023	
Characteristic	**Rate**	**Rate**	**RR (95% CI)†**	**Rate**	**RR (95% CI)†**	**Rate**	**RR (95% CI)†**	Rate§	RR (95% CI)¶
Unemployment rate, %†††									
5.1	198.1	226.9	1.15 (1.08–1.22)	218.6	1.10 (1.04–1.17)	203.1	1.03 (0.96–1.09)	197.6	1.01 (0.94–1.08)
5.2–6.4	216.2	258.8	1.20 (1.15–1.24)	248.9	1.15 (1.11–1.19)	234.4	1.08 (1.04–1.12)	227.8	1.04 (1.00–1.09)
6.5–7.9	210.9	289.7	1.37 (1.34–1.41)	276.1	1.31 (1.28–1.34)	254.8	1.21 (1.18–1.24)	246.9	1.19 (1.15–1.23)
≥8.0	248.9	343.6	1.38 (1.34–1.42)	333.2	1.34 (1.30–1.37)	303.1	1.22 (1.18–1.25)	291.7	1.18 (1.14–1.21)
Urbanicity¶¶¶									
Large central metro	261.2	382.3	1.46 (1.43–1.50)	371.2	1.42 (1.39–1.46)	332.7	1.27 (1.24–1.31)	314.7	1.22 (1.18–1.25)
Large fringe metro	185.5	247.9	1.34 (1.28–1.39)	235.9	1.27 (1.22–1.32)	227.0	1.22 (1.18–1.27)	213.5	1.18 (1.12–1.23)
Medium metro	218.2	271.0	1.24 (1.20–1.28)	262.1	1.20 (1.16–1.24)	245.7	1.13 (1.09–1.16)	244.4	1.12 (1.08–1.17)
Small metro	215.4	255.8	1.19 (1.13–1.25)	236.1	1.10 (1.04–1.15)	222.0	1.03 (0.98–1.08)	218.4	0.98 (0.93–1.04)
Micropolitan	205.0	250.3	1.22 (1.15–1.30)	243.4	1.19 (1.12–1.26)	223.9	1.09 (1.03–1.16)	223.0	1.12 (1.04–1.20)
Noncore	191.9	224.9	1.17 (1.09–1.26)	213.4	1.11 (1.04–1.19)	198.9	1.04 (0.97–1.11)	197.2	1.04 (0.96–1.12)

Abbreviations: EMS = emergency medical services; RR = rate ratio.

* Encounters associated with firearm injuries were identified by querying dispatch information, chief complaint, narrative report, and diagnosis elements, according to a categorical syndrome definition based on the CDC Firearm Injury version 2 definition for Electronic Surveillance System for the Early Notification of Community-based Epidemics (https://www.cdc.gov/nssp/php/onboarding-toolkits/essence.html), which includes gunshot injuries sustained from handguns, rifles, and shotguns, and classification of injuries as unintentional, intentional self-harm, assault, legal intervention, terrorism, and undetermined intent. Injuries from air-powered, gas-powered, BB and pellet guns, and nonpenetrating injuries associated with firearms (e.g., "pistol whipping") are excluded.

† RRs reported for 2020–2023 are calculated with respect to the rate in 2019. An RR of 1 means that the rates were identical; an RR >1 reflects a rate higher than the rate in 2019.

§ The rate reported for 2023 reflects encounters during January–September 2023.

¶ RR reported for 2023 is calculated with respect to January–September 2019.

** Reported per 100,000 EMS encounters.

†† One racial and ethnic designation for each person was recorded. Persons of Hispanic or Latino (Hispanic) ethnicity, regardless of race, were classified as Hispanic. For the remaining categories, persons who were non-Hispanic are reported by their indicated single race classification (i.e., Black or African American or White). All persons of Asian, American Indian or Alaska Native, and Native Hawaiian or Pacific Islander classification were included in "Other" to overcome suppression of low cell counts. Persons with unknown or missing race or ethnicity were excluded.

§§ Values were stratified into quartiles and analyzed using data from the County Health Rankings & Roadmaps 2023, University of Wisconsin Population Health Institute. http://www.countyhealthrankings.org

¶¶ Reported as the percentage of households experiencing severe housing problems. A household is defined as experiencing severe housing problems if the residence lacks functional plumbing or functional kitchen facilities, has overcrowding, or costs >50% of the household's income. Values were stratified into quartiles and analyzed using data from the County Health Rankings & Roadmaps 2023, University of Wisconsin Population Health Institute.

*** Defined as the ratio of county income at the 80th percentile to that at the 20th percentile. Upper quartile represents the greatest inequality.

††† Percentage of population aged ≥16 years who were unemployed but seeking work.

¶¶¶ Urbanicity analyzed according to the six strata specified by the National Center for Health Statistics Urban-Rural Classification Scheme for Counties. https://www.cdc.gov/nchs/data_access/urban_rural.htm

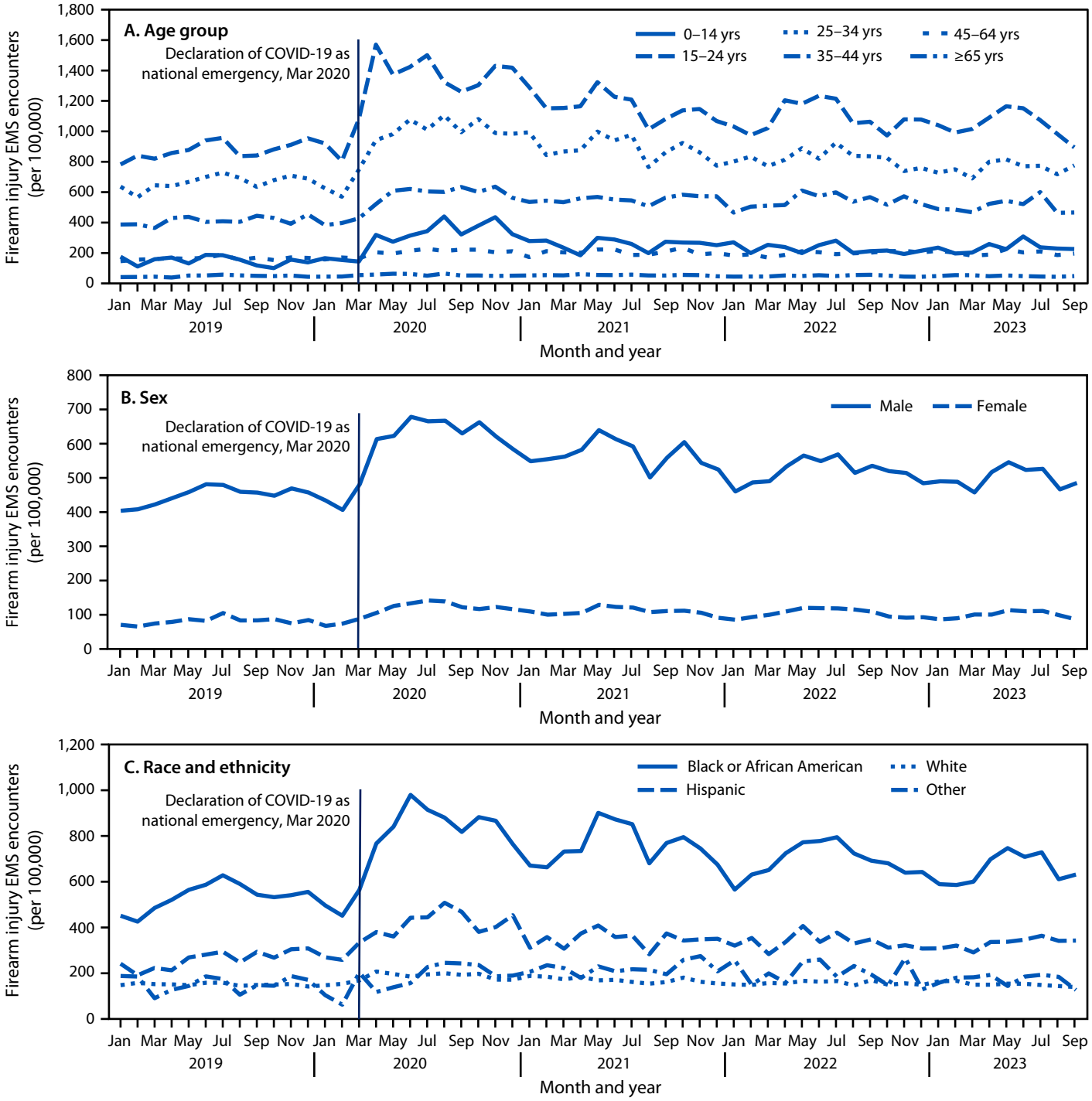
EMS encounters were observed in more urban counties and among counties with the highest prevalence of severe housing problems, largest income inequality, and highest rates of unemployment. These findings are consistent with a recent study using ED data on firearm injury from 10 U.S. jurisdictions, which found that rates of firearm injury ED visits were highest in communities facing greater social and economic disadvantages (*2*).

EMS encounter data, which can provide detailed information on the location of a firearm injury incident not typically available from ED visit data, could be paired with other data sources to help states and communities implement a comprehensive approach to firearm injury prevention, including strategies that promote financial security, economic opportunities, safe and stable housing, and resilient community infrastructure, and to evaluate the effects of prevention measures on firearm injuries over time (*10*). Future research linking injury location information from EMS data and treatment facility or patient residence information from other data sources could help further contextualize place-based risk and protective factors of firearm injury, assess the continuum of care for firearm injuries, and monitor patient outcomes.

Limitations

The findings in this report are subject to at least six limitations. First, the data are not nationally representative; therefore, findings cannot be generalized beyond the 858 studied counties. Second, changes in health care use behaviors during 2020 might complicate interpretation of firearm injury rates during this period. Total EMS encounters decreased briefly early in the COVID-19 pandemic, which might have inflated the rate of firearm injury EMS encounters during this time; however, EMS use patterns rapidly returned to prepandemic levels. Third, the case definition used in this study captures firearm injuries overall and does not differentiate by intent, limiting the ability to understand whether encounters involved assaults, unintentional injury or self-directed violence. Developing intent-specific case definitions could improve research,

FIGURE 1. Monthly rate* of firearm injury–related emergency medical service encounters,† by age group (A), sex (B), and race and ethnicity (C)§ — 858 U.S. counties, January 2019–September 2023



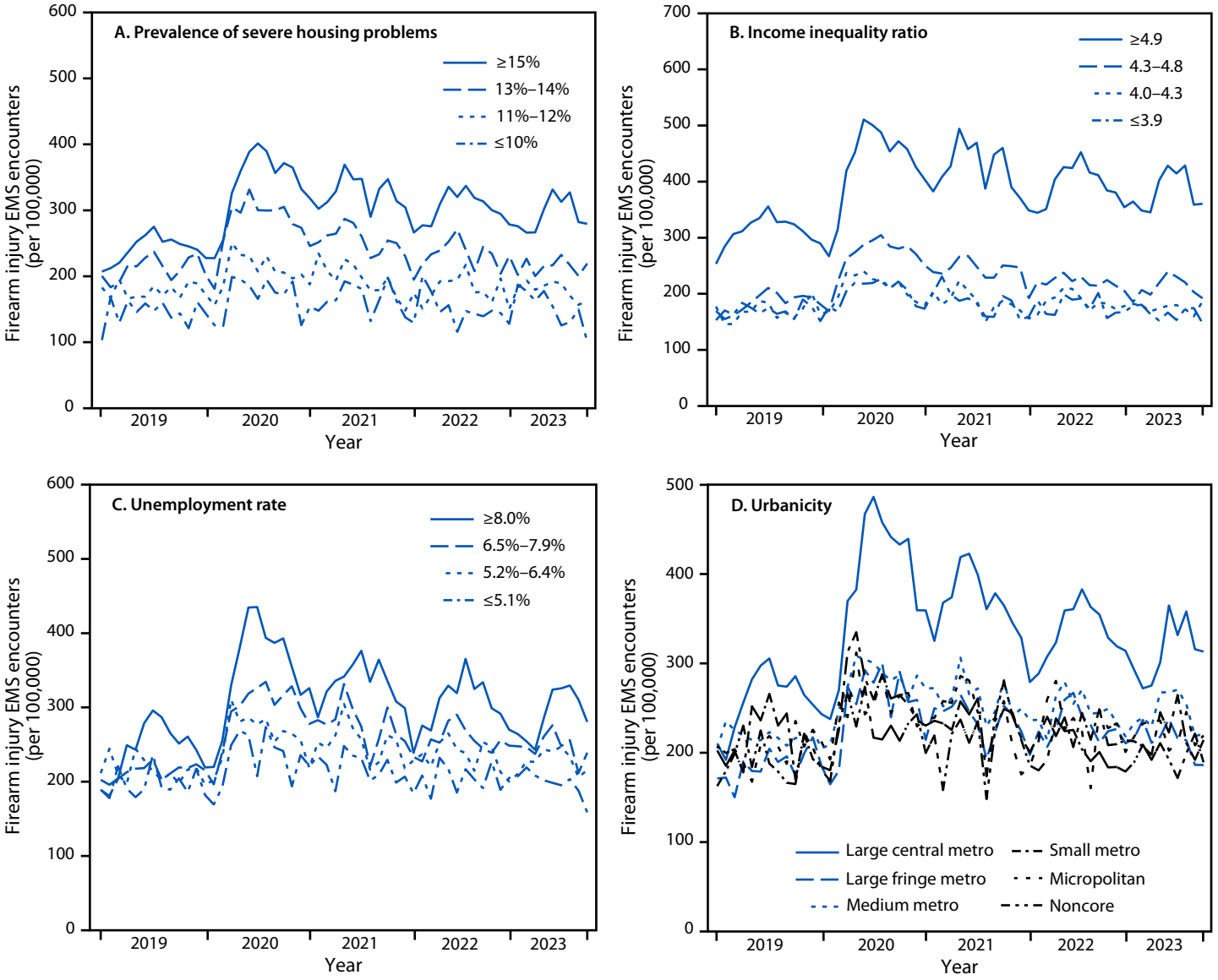
Abbreviation: EMS = emergency medical services.

* Rates are reported per 100,000 total EMS encounters.

† Encounters associated with firearm injuries were identified by querying dispatch information, chief complaint, narrative report, and diagnosis elements, according to a categorical syndrome definition based on the CDC Firearm Injury version 2 definition for Electronic Surveillance System for the Early Notification of Community-based Epidemics (https://www.cdc.gov/nssp/php/onboarding-toolkits/essence.html), which includes gunshot injuries sustained from handguns, rifles, and shotguns, and classification of injuries as unintentional, intentional self-harm, assault, legal intervention, terrorism, and undetermined intent. Injuries from air-powered, gas-powered, BB and pellet guns, and nonpenetrating injuries associated with firearms (e.g., "pistol whipping") are excluded.

§ One race and ethnicity designation for each person was recorded. Persons of Hispanic or Latino (Hispanic) ethnicity, regardless of race, were classified as Hispanic. For the remaining categories, persons who were non-Hispanic are reported by their indicated single race classification (i.e., Black or African American or White). All persons of Asian, American Indian or Alaska Native, and Native Hawaiian or Pacific Islander classification were included in "Other" to overcome suppression of low cell counts. Persons with unknown or missing race or ethnicity were excluded.

FIGURE 2. Monthly rate* of firearm injury–related emergency medical services encounters,† by county-level prevalence of severe housing problems (A),§,¶ income inequality ratio (B),§, unemployment rate (C),§,†† and urbanicity (D)§,§§ — 858 U.S. counties, January 2019–September 2023**



Abbreviation: EMS = emergency medical services.

* Rates are reported per 100,000 total EMS encounters.

† Encounters associated with firearm injuries were identified by querying dispatch information, chief complaint, narrative report, and diagnosis elements, according to a categorical syndrome definition based on the CDC Firearm Injury version 2 definition for Electronic Surveillance System for the Early Notification of Community-based Epidemics (https://www.cdc.gov/nssp/php/onboarding-toolkits/essence.html), which includes gunshot injuries sustained from handguns, rifles, and shotguns, and classification of injuries as unintentional, intentional self-harm, assault, legal intervention, terrorism, and undetermined intent. Injuries from air-powered, gas-powered, BB and pellet guns, and nonpenetrating injuries associated with firearms (e.g., "pistol whipping") are excluded.

§ Values were stratified into quartiles and analyzed using data from the County Health Rankings & Roadmaps 2023, University of Wisconsin Population Health Institute. www.countyhealthrankings.org

¶ Reported as the percentage of households experiencing severe housing problems. A household is defined as experiencing severe housing problems if the residence lacks functional plumbing or functional kitchen facilities, has overcrowding, or costs>50% of the household's income.

** Defined as the ratio of county income at the 80th percentile to that at the 20th percentile. Upper quartile represents the greatest inequality.

†† Percentage of population aged ≥16 years who were unemployed but seeking work.

§§ Urbanicity analyzed according to the six strata specified by the National Center for Health Statistics Urban-Rural Classification Scheme for Counties. https://www.cdc.gov/nchs/data_access/urban_rural.htm

Summary

What is already known about this topic?

Firearm-related deaths and injuries have increased in recent years.

What is added by this report?

During January 2019–September 2023, rates of emergency medical services (EMS) encounters for firearm injury were highest among males, non-Hispanic Black or African American persons, and persons aged 15–24 years. Annual rates during 2020–2023 exceeded the 2019 rate. The most substantial rate increases occurred in more urban counties and counties with greater income inequality, higher unemployment, and those with more severe housing problems.

What are the implications for public health practice?

The unequal distribution of high rates and increases in firearm injury EMS encounters highlight the need for states and communities to develop and implement comprehensive firearm injury prevention strategies to address the economic, social, and physical conditions that contribute to the risk of violence.

surveillance, prevention, and response measures. Fourth, data used for this analysis do not represent injuries that were immediately fatal and did not involve EMS evaluation. Fifth, although the underlying EMS encounter data used for this analysis provided more detailed injury location information, County Health Rankings and Roadmaps data are reported at the county level, which required aggregation of EMS encounter data to the county level. Research examining variation in firearm injury EMS encounters at more geographically detailed levels is needed. Finally, data quality and completeness vary by EMS provider, reporting agency, location, and period.

Implications for Public Health Practice

The unequal distribution of high rates and increases in firearm injury EMS encounters highlight the need for states and communities to develop and implement comprehensive firearm injury prevention strategies. Such strategies could include addressing underlying disparities in housing and economic security, creating protective community environments, implementing hospital and community-based outreach and violence interruption programs, and promoting secure firearm storage.[¶¶¶¶]

[¶¶¶¶] https://www.cdc.gov/violence-prevention/php/resources-for-action/index.html

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Findings from the First Year of a Federally Funded, Direct-to-Consumer HIV Self-Test Distribution Program — United States, March 2023–March 2024

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Abstract

In September 2022, CDC funded a nationwide program, Together TakeMeHome (TTMH), to expand distribution of HIV self-tests (HIVSTs) directly to consumers by mail through an online ordering portal. To publicize the availability of HIVSTs to priority audiences, particularly those disproportionately affected by HIV, CDC promoted this program through established partnerships and tailored resources from its Let's Stop HIV Together social marketing campaign. The online portal launched March 14, 2023, and through March 13, 2024, distributed 443,813 tests to 219,360 persons. Among 169,623 persons who answered at least one question on a postorder questionnaire, 67.9% of respondents were from priority audiences, 24.1% had never previously received testing for HIV, and 24.8% had not received testing in the past year. Among the subset of participants who initiated a follow-up survey, 88.3% used an HIVST themselves, 27.1% gave away an HIVST, 11.7% accessed additional preventive services, and 1.9% reported a new positive HIVST result. Mailed HIVST distribution can quickly reach large numbers of persons who have never received testing for HIV or have not received testing as often as is recommended. TTMH can help to achieve the goal of diagnosing HIV as early as possible and provides a path to other HIV prevention and care services. Clinicians, community organizations, and public health officials should be aware of HIVST programs, initiate discussions about HIV testing conducted outside their clinics or offices, and initiate follow-up services for persons who report a positive or negative HIVST result.

Introduction

Distributing HIV self-tests (HIVSTs) is an effective (*1*) and cost-effective (*2*,*3*) means of providing HIV testing for persons who could be living with undiagnosed HIV infection, including gay, bisexual, and other men who have sex with men (MSM). HIV self-testing is recommended as a testing strategy for diverse populations worldwide (*4*) and is considered an important strategy in the Ending the HIV Epidemic in the US (EHE) initiative (*5*,*6*). HIVSTs can also facilitate access to antiretroviral treatment, HIV preexposure prophylaxis (PrEP), and other prevention services (*1*,*7*). In September 2022, CDC funded Emory University and its partners, Building Healthy Online Communities (BHOC), OraSure Technologies, Signal Group, and NASTAD to expand a nationwide HIVST distribution program with a goal of distributing at least 1 million HIVSTs over 5 years.* CDC's national Let's Stop HIV Together campaign† designed tailored promotions for priority audiences (i.e., persons disproportionately affected by HIV, including MSM, transgender women [of any race], and cisgender non-Hispanic Black or African American [Black] women)§ to order HIVSTs. This report describes the first year of the program, Together TakeMeHome (TTMH),¶ which launched March 14, 2023.

Methods

The TTMH program mails up to two Food and Drug Administration–approved HIVSTs at no cost to the participant to persons aged ≥17 years in the United States (including Puerto Rico) who place an order through the site, irrespective of health insurance or immigration status. After ordering and indicating whether they are willing to receive future communication, program participants are asked to describe themselves by answering a brief postorder questionnaire. Participants who opted into future communications received follow-up evaluation surveys 10 and 60 days after their order. Participants may reorder HIVSTs every 90 days. Demographic characteristics and previous HIV testing history were summarized for all persons who provided any postorder information after their first order from the program.** Among those who responded

* https://www.cdc.gov/nchhstp/director-letters/launch-of-together-takemehome.html

† https://www.cdc.gov/stophivtogether/index.html

§ In the first year, program marketing was developed for MSM; transgender women (of any race); and cisgender Black women. For MSM, imagery was designed specifically to appeal to Black and Hispanic or Latino (Hispanic) men, but messages were placed on social media and dating apps inclusive of all MSM. In this report, these population groups are referred to as priority audiences for program marketing efforts.

¶ https://together.takemehome.org

** For persons who ordered from the program more than once, only demographic data reported when the first order was placed are considered.

to a follow-up evaluation survey, percentages[††] of respondents who used an HIVST themselves, shared an HIVST with others, accessed other HIV and sexually transmitted infection (STI) prevention services, or received a positive HIV test result on an HIVST they used, were stratified by participant demographic characteristics and geographic information collected to process the order. All analyses were conducted using SAS software (version 9.4; SAS Institute). These programmatic activities were reviewed by CDC, deemed not research, and conducted consistent with applicable federal law and CDC policy.[§§]

Results

During March 14, 2023–March 13, 2024, TTMH distributed 443,183 tests to 219,360 persons, including 16,365 (7.5%) who ordered from the program more than once. Overall, 86.0% of orders were for two HIVSTs; 14.0% were for only one test. Among 169,623 (77.3%) persons who completed at least one postorder question, the majority were aged <35 years (60.1%), cisgender men (71.5%), identified as Hispanic or Latino (Hispanic) or Black (54.7%), and lived in large central or fringe metropolitan counties (59.5%); one half lived in EHE focus jurisdictions[¶¶] (Table 1). Approximately two thirds (65.3%) of orders were placed by persons recruited from messaging tailored for gay and bisexual men on lesbian, gay, bisexual, transgender, and queer-plus (LGBTQ+)–focused dating apps. Overall, 54.6% of orders could be attributed to one of the priority audiences, and an additional 13.3% with missing information came to the program from promotions on an LBGTQ+ dating app. Few persons (7.3%) were currently using PrEP or had received an HIV diagnosis (2.4%); a message generated on the TTMH website encouraged these persons to give their HIVSTs to others who might benefit more from the test. Overall, 24.1% of persons had never previously received testing for HIV and 24.8% had not received testing within the previous year. The proportion who had never received testing varied substantially by age (from 45.4% among those aged 17–24 years to 13.2% among those aged 35–44 years), gender identity (from 35.2% among transgender men to 23.5% among cisgender men), and county population density (from approximately 31.0% in noncore and micropolitan [more rural] areas to 20.7% in large central metropolitan areas [urban centers or cities]). Among priority audiences, the highest percentage of persons who reported receiving testing during the previous 12 months (58.4%) were Black cisgender MSM.

Among the 14,217 HIVST recipients who responded to at least one question on either the 10- or 60-day follow-up survey, 88.3% reported that they had used an HIVST themselves; 27.1% gave away an HIVST; 11.7% (1,171 of 10,048) accessed additional preventive services (including 4.8% who accessed PrEP services); and 8.6% accessed additional STI testing after ordering from TTMH (Table 2). Sharing HIVSTs with others was more commonly reported by persons aged >35 years; those living in small metropolitan, micropolitan, or noncore counties; and Black cisgender women. Among priority audiences, the largest percentages to access PrEP and STI testing were cisgender MSM (6.5%) and transgender women (11.3%), respectively. Among 7,893 persons who used the HIVST themselves and who had not reported a previous HIV diagnosis, 151 (1.9%) reported receiving a positive test result; nearly every demographic group included at least one person who reported receiving a positive test result. The highest percentages of persons who reported receiving a positive test result were transgender women (3.6%), Black MSM (3.0%), and Hispanic MSM (2.9%); the lowest percentage was reported by Black cisgender women (0.8%).

Discussion

In its first year, TTMH distributed approximately 440,000 tests, which exceeded the program's initial expectations of 200,000 for that year as well as the number reported for all other CDC-funded test sites considered nonclinical settings in 2021, combined (*8*). The percentage of persons reporting new positive HIVST results in TTMH was also approximately twice as high as that reported for all CDC-funded HIV testing in in-person settings (*8*). These data demonstrate that providing HIV self-tests was an effective option to reduce barriers for persons who are not otherwise receiving testing in clinic- or community-based settings. The program reached many persons who had not previously received testing for HIV as well as persons who had not received testing during the previous year, even among populations most affected by HIV. Nearly all persons who ordered from TTMH used an HIVST themselves, and approximately one quarter gave an HIVST to others, thereby extending the reach of the program. Within a relatively short time after ordering from TTMH, approximately 12% of participants sought out additional HIV and STI services, which demonstrates that mailed HIVSTs have not only the potential to increase HIV testing, but also might lead to additional important prevention and care-seeking behaviors.

The outcomes achieved by TTMH were the result of partnerships with LGBTQ+ dating apps (led by BHOC) and

[††] Based on combined responses from one or both of the 10- and 60-day follow-up surveys. When stratification by demographic or geographic groupings led to numerators with at least one but fewer than five participants, numerator and percentages are suppressed. Strata with zero program users in the numerator are reported as zero percent.

[§§] 45 C.F.R. part 46.102(l)(2), 21 C.F.R. part 56; 42 U.S.C. Sect. 241(d); 5 U.S.C. Sect. 552a; 44 U.S.C. Sect. 3501 et seq.

[¶¶] Part of the marketing strategy included using ads that ran in counties and states that provide geographic focus for the EHE initiative. https://www.cdc.gov/ehe/php/jurisdictions-plans/

TABLE 1. HIV testing history and demographic characteristics reported by persons who ordered at least one HIV self-test and answered at least one postorder survey question* (N = 169,623) — Together TakeMeHome HIV self-test distribution program, United States, March 14, 2023–March 13, 2024

Characteristic	Total, no. (column %)	History of HIV testing, no. (row %)			
		Within past year	≥1 year ago	Never	Missing
Total	**169,623 (100.0)**	**76,790 (45.3)**	**42,122 (24.8)**	**40,846 (24.1)**	**9,865 (5.8)**
Age group, yrs					
17–24	**43,148 (25.4)**	16,654 (38.6)	4,827 (11.2)	19,569 (45.4)	2,098 (4.9)
25–34	**58,903 (34.7)**	29,605 (50.3)	14,138 (24.0)	11,820 (20.1)	3,340 (5.7)
35–44	**36,700 (21.6)**	17,854 (48.6)	11,787 (32.1)	4,847 (13.2)	2,212 (6.0)
45–54	**17,803 (10.5)**	7,494 (42.1)	6,721 (37.8)	2,440 (13.7)	1,148 (6.4)
≥55	**13,061 (7.7)**	5,178 (39.6)	4,648 (35.6)	2,169 (16.6)	1,066 (8.2)
Missing	**8 (0)**	5 (62.5)	1 (12.5)	1 (12.5)	1 (12.5)
Gender†					
Cisgender man	**121,334 (71.5)**	58,731 (48.4)	27,360 (22.5)	28,501 (23.5)	6,742 (5.6)
Cisgender woman	**30,374 (17.9)**	10,308 (33.9)	11,217 (36.9)	7,681 (25.3)	1,168 (3.8)
Transgender man or transmasculine	**1,972 (1.2)**	825 (41.8)	372 (18.9)	694 (35.2)	81 (4.1)
Transgender woman or transfeminine	**4,027 (2.4)**	2,003 (49.7)	736 (18.3)	1,041 (25.9)	247 (6.1)
Another gender identity	**9,503 (5.6)**	4,271 (44.9)	2,081 (21.9)	2,577 (27.1)	574 (6.0)
Missing	**2,413 (1.4)**	652 (27.0)	356 (14.8)	352 (14.6)	1,053 (43.6)
Race and ethnicity§					
AI/AN	**1,833 (1.1)**	828 (45.2)	415 (22.6)	484 (26.4)	106 (5.8)
Asian	**7,591 (4.5)**	3,697 (48.7)	1,404 (18.5)	2,104 (27.7)	386 (5.1)
Black or African American	**41,271 (24.3)**	20,175 (48.9)	10,000 (24.2)	8,868 (21.5)	2,228 (5.4)
NH/PI	**807 (0.5)**	362 (44.9)	179 (22.2)	227 (28.1)	39 (4.8)
White	**58,673 (34.6)**	25,209 (43.0)	16,020 (27.3)	14,668 (25.0)	2,776 (4.7)
Hispanic or Latino	**51,588 (30.4)**	23,104 (44.8)	12,246 (23.7)	12,913 (25.0)	3,325 (6.4)
Multiracial and other	**6,254 (3.7)**	2,908 (46.5)	1,552 (24.8)	1,284 (20.5)	510 (8.2)
Missing	**1,606 (1.0)**	507 (31.6)	306 (19.1)	298 (18.6)	495 (30.8)
Population density¶					
Large central metropolitan	**66,871 (39.4)**	33,611 (50.3)	15,153 (22.7)	13,839 (20.7)	4,268 (6.4)
Large fringe metropolitan	**34,025 (20.1)**	15,426 (45.3)	8,409 (24.7)	8,220 (24.2)	1,970 (5.8)
Medium metropolitan	**33,587 (19.8)**	14,728 (43.9)	8,306 (24.7)	8,712 (25.9)	1,841 (5.5)
Small metropolitan	**13,327 (7.9)**	5,491 (41.2)	3,351 (25.1)	3,819 (28.7)	666 (5.0)
Micropolitan	**10,744 (6.3)**	4,075 (37.9)	2,807 (26.1)	3,323 (30.9)	539 (5.0)
Noncore	**5,687 (3.4)**	2,034 (35.8)	1,579 (27.8)	1,780 (31.3)	294 (5.2)
Missing	**5,382 (3.2)**	1,425 (26.5)	2,517 (46.8)	1,153 (21.4)	287 (5.3)
EHE jurisdiction**					
Yes	**84,661 (49.9)**	40,553 (47.9)	21,027 (24.8)	18,790 (22.2)	5,191 (6.1)
No	**84,962 (50.1)**	36,237 (42.7)	21,995 (25.9)	22,056 (26.0)	4,674 (5.5)
Recruitment source††					
LGBTQ+ dating app	**110,799 (65.3)**	54,629 (49.3)	24,152 (21.8)	25,279 (22.8)	6,739 (6.1)
Other dating app or website	**5,710 (3.4)**	2,505 (43.9)	1,744 (30.5)	1,231 (21.6)	230 (4.0)
Social media	**9,993 (5.9)**	3,238 (32.4)	4,168 (41.7)	2,056 (20.6)	531 (5.3)
Other partner promotions	**16,698 (9.8)**	6,893 (41.3)	4,243 (25.4)	4,605 (27.6)	957 (5.7)
Search engine marketing or web search	**13,051 (7.7)**	4,542 (34.8)	3,855 (29.5)	3,997 (30.6)	657 (5.0)
Direct link	**7,869 (0.1)**	2,724 (34.6)	2,297 (29.2)	2,402 (30.5)	446 (5.7)
Other	**378 (0.2)**	116 (30.7)	163 (43.1)	85 (22.5)	14 (3.7)
Missing	**5,125 (3.0)**	2,143 (41.8)	1,500 (29.3)	1,191 (23.2)	291 (5.7)
Priority audience§§					
No¶¶	**46,043 (27.1)**	14,416 (31.3)	14,160 (30.8)	15,528 (33.7)	1,939 (4.2)
Yes (all with enough information to be categorized)	**92,655 (54.6)**	49,610 (53.5)	21,128 (22.8)	19,121 (20.6)	2,796 (3.0)
Yes, cisgender MSM overall	**75,295 (44.4)**	41,649 (55.3)	15,858 (21.1)	15,691 (20.8)	2,097 (2.8)
Yes, Hispanic cisgender MSM	**24,856 (14.7)**	13,742 (55.3)	4,846 (19.5)	5,481 (22.1)	787 (3.2)
Yes, Black or African American cisgender MSM	**13,272 (7.8)**	7,755 (58.4)	2,194 (16.5)	2,870 (21.6)	453 (3.4)
Yes, transgender women or transfeminine	**4,027 (2.4)**	2,003 (49.7)	736 (18.3)	1,041 (25.9)	247 (6.1)
Yes, Black or African American cisgender women	**13,333 (7.9)**	5,958 (44.7)	4,534 (34.0)	2,389 (17.9)	452 (3.4)
Unable to determine audience because of missing information	**30,925 (18.2)**	12,764 (41.3)	6,834 (22.1)	6,197 (20.0)	5,130 (16.6)
Missing information but recruited from LGBTQ+ dating app***	**22,572 (13.3)**	9,955 (44.1)	4,983 (22.1)	4,370 (19.4)	3,264 (14.5)

See table footnotes on the next page.

TABLE 1. (*Continued*) HIV testing history and demographic characteristics reported by persons who ordered at least one HIV self-test and answered at least one postorder survey question* (N = 169,623) — Together TakeMeHome HIV self-test distribution program, United States, March 14, 2023–March 13, 2024

Characteristic	Total, no. (column %)	History of HIV testing, no. (row %)			
		Within past year	≥1 year ago	Never	Missing
PrEP use†††					
Currently on PrEP	**12,447 (7.3)**	—§§§	—§§§	—§§§	—§§§
Previously on PrEP	**13,994 (8.3)**	11,158 (79.7)	2,812 (20.1)	—§§§	—§§§
No	**95,448 (56.3)**	53,117 (55.7)	38,667 (40.5)	3,527 (3.7)	137 (0.1)
Missing	**47,734 (28.1)**	477 (1.0)	245 (0.5)	37,292 (78.1)	9,720 (20.4)
HIV positive status¶¶¶					
Yes	**4,047 (2.4)**	—****	—****	—****	—****
No	**115,983 (68.4)**	75,195 (64.8)	40,753 (35.1)	0 (—)	35 (0)
Missing	**49,593 (29.2**	1,463 (3.0)	1,328 (2.7)	40,846 (82.4)	5,956 (12.0)

Abbreviations: AI/AN = American Indian or Alaska Native; EHE = Ending the HIV Epidemic in the US; LGBTQ+ = lesbian, gay, bisexual, transgender, or queer-plus; MSM = men who have sex with men; NH/PI = Native Hawaiian or Pacific Islander; PrEP = HIV preexposure prophylaxis.

* Data are limited to the subset of persons who started the postorder survey and completed at least one demographic question (169,623; 77% of all persons who placed at least one order). For persons who ordered from the program more than once, demographic data reported at the time the first order was placed are considered and summarized; only the first order is included in the counts reported.

† Gender identity is a composite of reported sex at birth and current gender identity. Cisgender men and cisgender women reported a current gender identity that aligned with their reported sex at birth. Persons who stated their gender identity was transgender man or transmasculine or who reported female sex at birth and current gender of man were classified as transgender men. Persons who stated their gender identity was transgender woman or transfeminine or who reported male sex at birth and current gender of woman were classified as transgender women. Another gender identity includes persons who identified as nonbinary, gender nonconforming, genderqueer, gender fluid, or another gender.

§ Persons of Hispanic or Latino (Hispanic) origin might be of any race but are categorized as Hispanic; all racial groups are non-Hispanic. Other categories reported as a single race or as multiracial when more than one race was reported.

¶ Zip codes associated with self-test shipping addresses were assigned to county of residence and then summarized using the National Center for Health Statistics population density categorizations. https://www.cdc.gov/nchs/data_access/urban_rural.htm

** Zip codes associated with self-test shipping addresses were assigned to county of residence and then categorized based on whether or not that county is included in one of the EHE jurisdictions. https://www.cdc.gov/ehe/php/jurisdictions-plans/

†† The program ordering portal includes analytics that can categorize the source of recruitment to the website. These broad categories include LGBTQ+ dating app (dating apps for both gay and bisexual persons), other dating app or website (dating apps for other men and women), social media (e.g., Facebook and Instagram), other partner promotions (planned promotional campaigns by CDC partners in the Let's Stop HIV together social media campaign [https://www.cdc.gov/stophivtogether/partnerships/toolkit/hiv-testing-my-way.html]), search engine marketing or web search, or direct link, when the link to the program was typed directly into an Internet browser.

§§ For the first year, program marketing was developed for three priority audiences disproportionately affected by HIV: gay, bisexual, and other MSM; transgender women (of any race); and cisgender Black or African American (Black) women. For MSM, imagery was designed specifically to appeal to Black and Hispanic men, but messages were placed on social media and dating apps inclusive of all MSM.

¶¶ Transgender men and other gender-diverse persons, cisgender women who did not identify as Black, and men who only reported female or gender-diverse partners were not considered to have been among the priority audiences for marketing the program during the period covered by the report.

*** Persons who did not provide enough demographic or sexual behavior information but could be categorized as arriving at the ordering website from an LGBTQ+ dating app are also considered to have been reached by marketing efforts for priority audiences.

††† Use of HIV preexposure prophylaxis was ascertained through a question that asked about never or no use, current use, use in the previous year but not currently, and use more than a year ago but not currently. In this report, the latter two categories have been combined as any previous PrEP use.

§§§ Dashes indicate data are not reported. Because use of PrEP requires receipt of an HIV test, HIV testing history data are summarized only for the group reporting no previous or current PrEP use.

¶¶¶ Self-reported HIV-positive status was determined from responses to a question about having ever received a positive HIV test result.

**** Dashes indicate data are not reported. Because program users who report receipt of a positive HIV test result have a history of receiving an HIV test and would not require ongoing retesting, HIV testing history data are not reported for this group.

advertising implemented through CDC's Let's Stop HIV Together campaign.*** These efforts included marketing to populations disproportionately affected by HIV, including geographically based promotions within EHE jurisdictions. Tailored approaches helped the program address health equity by specifically attempting to reach populations disproportionately affected by HIV, including MSM (especially Black and Hispanic MSM), Black cisgender women, and transgender women. In addition, the program reached groups that included very high percentages of persons who reported never having received testing for HIV before they accessed the program, including young adults, transgender men, and other gender-diverse persons. Reaching these populations with HIV testing is critical to ensuring equitable access to care and prevention services. These populations might experience increased barriers to traditional in-person HIV testing methods, such as travel time and distance, cost, medical mistrust, and stigma. Mailed HIVSTs remove some of these barriers and thereby have the potential to expand equitable access to HIV testing.

*** https://www.cdc.gov/stophivtogether/partnerships/toolkit/hiv-testing-my-way.html

TABLE 2. Characteristics of persons who received and used an HIV self-test and reported one or more outcomes on a follow-up survey (N = 14,217) — Together TakeMeHome HIV self-test distribution program, United States, March 14, 2023–March 13, 2024

Characteristic	no./No. (row %)*					
	HIV self-test use		Other services accessed after receiving self-test			New positive HIV self-test result
	Used themselves	Shared with others	HIV testing	PrEP service	STI testing	
Total	**7,793/8,828 (88.3)**	**2,490/9,178 (27.1)**	**1,918/9,194 (20.9)**	**479/10,048 (4.8)**	**797/9,239 (8.6)**	**151/7,893 (1.9)**
Age group, yrs†						
17–24	1,138/1,245 (91.4)	240/1,286 (18.7)	258/1,294 (19.9)	81/1,461 (5.5)	97/1,295 (7.5)	24/1,153 (2.1)
25–34	2,303/2,543 (90.6)	690/2,637 (26.2)	608/2,645 (23.0)	127/2,884 (4.4)	237/2,656 (8.9)	53/2,335 (2.3)
35–44	2,176/2,442 (89.1)	795/2,535 (31.4)	560/2,532 (22.1)	141/2,747 (5.1)	265/2,549 (10.4)	46/2,201 (2.1)
45–54	1,180/1,376 (85.8)	450/1,431 (31.5)	260/1,431 (18.2)	79/1,539 (5.1)	119/1,438 (8.3)	15/1,195 (1.3)
≥55	996/1,221 (81.6)	315/1,288 (24.5)	232/1,291 (18.0)	51/1,416 (3.6)	79/1,300 (6.1)	13/1,009 (1.3)
Gender§						
Cisgender man	5,676/6,388 (88.9)	1,659/6,667 (24.9)	1,459/6,674 (22.9)	409/7,270 (5.6)	564/6,710 (8.4)	118/5,755 (2.1)
Cisgender woman	1,457/1,664 (87.6)	611/1,697 (36.0)	274/1,708 (16.0)	14/1,888 (0.7)	142/1,711 (8.3)	17/1,467 (1.2)
Transgender man or transmasculine	78/98 (79.6)	23/102 (22.6)	20/103 (19.4)	14/111 (12.6)	13/104 (12.5)	—¶/79 (—¶)
Transgender woman or transfeminine	163/178 (91.6)	56/186 (30.1)	51/184 (27.7)	11/206 (5.3)	21/186 (11.3)	—¶/165 (—¶)
Another gender identity	379/457 (82.9)	129/481 (26.8)	103/480 (21.5)	30/523 (5.7)	51/483 (10.6)	—¶/387 (—¶)
Missing	40/43 (93.0)	12/45 (26.7)	11/45 (24.4)	1/50 (2.0)	6/45 (13.3)	—¶/40(—¶)
Race and ethnicity**						
AI/AN	82/88 (93.2)	36/90 (40.0)	21/90 (23.3)	—¶/104 (—¶)	12/91 (13.2)	—¶/83 (—¶)
Asian	316/343 (92.1)	64/346 (18.5)	97/346 (28.0)	23/369 (6.2)	34/346 (9.8)	—¶/318 (—¶)
Black or African American	1,695/1,916 (88.5)	574/1,998 (28.7)	409/1,997 (20.5)	74/2,175 (3.4)	164/2,007 (8.2)	27/1,717 (1.6)
NH/PI	27/32 (84.4)	10/33 (30.3)	15/33 (45.4)	—¶/35 (—¶)	—¶/33 (—¶)	—¶/27 (—¶)
White	3,083/3,604 (85.5)	1,005/3,738 (26.9)	669/3,755 (17.8)	208/4,054 (5.1)	334/3,771 (8.9)	49/3,124 (1.6)
Hispanic or Latino	2,307/2,514 (91.8)	711/2,627 (27.1)	646/2,626 (24.6)	154/2,930 (5.3)	219/2,641 (8.3)	62/2,338 (2.7)
Multiracial and other	253/299 (84.6)	84/312 (26.9)	57/313 (18.2)	15/343 (4.4)	30/316 (9.5)	—¶/256 (—¶)
Missing	30/32 (93.8)	6/34 (17.7)	—¶/34 (—¶)	—¶/38 (—¶)	—¶/34 (—¶)	—¶/30 (—¶)
Population density††						
Large central metropolitan	2,892/3,278 (88.2)	866/3,422 (25.3)	750/3,418 (21.9)	168/3,738 (4.5)	301/3,442 (8.7)	72/2,927 (2.5)
Large fringe metropolitan	1,599/1,843 (86.8)	486/1,910 (25.5)	414/1,917 (21.6)	97/2,061 (4.7)	177/1,922 (9.2)	28/1,624 (1.7)
Medium metropolitan	1,603/1,801 (89.0)	517/1,858 (27.8)	377/1,861 (20.3)	108/2,053 (5.3)	149/1,869 (8.0)	26/1,619 (1.6)
Small metropolitan	580/671 (86.4)	208/709 (29.3)	136/711 (19.1)	50/782 (6.4)	74/717 (10.3)	9/592 (1.5)
Micropolitan	566/628 (90.1)	198/645 (30.7)	126/649 (19.4)	31/709 (4.4)	59/650 (9.1)	9/570 (1.6)
Noncore	310/339 (91.5)	117/355 (33.0)	57/356 (16.0)	15/384 (3.9)	22/356 (6.2)	7/317 (2.2)
Missing	243/268 (90.7)	98/279 (35.1)	58/282 (20.6)	10/321 (3.1)	15/283 (5.3)	0/244 (—)
EHE jurisdiction§§						
Yes	3,853/4,323 (89.1)	1,205/4,511 (26.7)	953/4,510 (21.1)	213/4,943 (4.3)	383/4,538 (8.4)	92/3,909 (2.4)
No	3,940/4,505 (87.5)	1,285/4,667 (27.5)	965/4,684 (20.6)	266/5,105 (5.2)	414/4,701 (8.8)	59/3,984 (1.5)
Recruitment source¶¶						
LGBTQ+ dating app	4,810/5,494 (87.6)	1,364/5,740 (23.8)	1,251/5,741 (21.8)	374/6,266 (6.0)	508/5,776 (8.8)	98/4,885 (2.0)
Other dating app or website	152/186 (81.7)	58/189 (30.7)	33/190 (17.3)	2/211 (1.0)	8/190 (4.2)	—¶/154 (—¶)
Social media	486/550 (88.4)	204/566 (36.0)	108/571 (18.9)	15/634 (2.4)	31/572 (5.4)	12/487 (2.5)
Other partner promotions	1,038/1,128 (92.0)	399/1,170 (34.1)	254/1,171 (21.7)	46/1,270 (3.6)	114/1,177 (9.7)	17/1,047 (1.6)
Search engine marketing or web search	630/674 (93.5)	199/688 (28.9)	139/693 (20.0)	15/771 (2.0)	68/693 (9.8)	13/635 (2.1)
Direct link	425/510 (83.3)	157/525 (29.9)	67/528 (12.7)	15/580 (2.6)	43/530 (8.1)	—¶/427 (—¶)
Other	27/30 (90.0)	12/31 (38.7)	8/31 (25.8)	—¶/36 (—¶)	—¶/31 (—¶)	—¶/27 (—¶)
Missing	225/256 (87.9)	97/269 (36.1)	58/269 (21.6)	12/280 (4.3)	24/270 (8.9)	—¶/231 (—¶)

See table footnotes on the next page.

Limitations

The findings in this report are subject to at least two limitations. First, only 63.2% of all participants (138,698 of 219,360) provided sufficient demographic and sexual behavior information to permit ascertainment of whether they belonged to a priority audience. However, 73.0% of participants (22,572 of 30,925) who did not provide this information were recruited from LGBTQ+ dating apps, which suggests that those with missing demographic or sex behavior data are likely members of a priority audience. Combined, approximately two thirds (67.9%) of first-time orders were classified as being from priority audiences, but this might not directly correlate with their risk for acquiring HIV. Second, compared with in-person HIV testing programs, HIV self-testing programs face additional challenges of documenting traditional testing outcomes, including laboratory testing and subsequent HIV care or prevention services. TTMH, the Let's Stop HIV Together campaign, and the materials in the HIVST packaging offer

TABLE 2. (*Continued*) Characteristics of persons who received and used an HIV self-test and reported one or more outcomes on a follow-up survey (N = 14,217) — Together TakeMeHome HIV self-test distribution program, United States, March 14, 2023–March 13, 2024

Characteristic	no./No. (row %)*					
	HIV self-test use		Other services accessed after receiving self-test			New positive HIV self-test result
	Used themselves	Shared with others	HIV testing	PrEP service	STI testing	
Priority audience* **						
No†††	1,701/1,987 (85.6)	598/2,051 (29.2)	352/2,062 (17.1)	68/2,285 (3.0)	173/2,072 (8.4)	26/1,719 (1.5)
Yes (all)	4,870/5,469 (89.1)	1,504/5,685 (26.5)	1,234/5,691 (21.7)	340/6,144 (5.5)	503/5,716 (8.8)	104/4,938 (2.1)
Yes, cisgender MSM	3,954/4,437 (89.1)	1,149/4,627 (24.8)	1,033/4,633 (22.3)	323/4,993 (6.5)	418/4,655 (9.0)	92/4,014 (2.3)
Yes, Hispanic cisgender MSM	1,276/1,383 (92.3)	370/1,446 (25.6)	363/1,444 (25.1)	100/1,578 (6.3)	113/1,451 (7.8)	38/1,293 (2.9)
Yes, Black or African American cisgender MSM	524/580 (90.3)	146/611 (23.9)	148/612 (24.2)	48/661 (7.3)	56/616 (9.1)	16/534 (3.0)
Yes, transgender women or transfeminine	163/178 (91.6)	56/186 (30.1)	51/184 (27.7)	11/206 (5.3)	21/186 (11.3)	6/165 (3.6)
Yes, Black or African American cisgender women	753/854 (88.2)	299/872 (34.3)	150/874 (17.2)	—¶/945 (—¶)	64/875 (7.3)	6/759 (0.8)
Unable to determine audience because of missing information	1,222/1,372 (89.1)	388/1,442 (26.9)	332/1,441 (23.0)	71/1,619 (4.4)	121/1,451 (8.3)	21/1,236 (1.7)
Missing information but recruited from LGBTQ+ dating app§§§	879/998 (88.1)	264/1,050 (25.1)	232/1,050 (22.1)	55/1,182 (4.7)	86/1,059 (8.1)	16/890 (1.8)

Abbreviations: AI/AN = American Indian or Alaska Native; EHE = Ending the HIV Epidemic in the US initiative; LGBTQ+ = lesbian, gay, bisexual, transgender, or queer-plus; MSM = men who have sex with men; NH/PI = Native Hawaiian or Pacific Islander; PrEP = HIV preexposure prophylaxis; STI = sexually transmitted infection.

* For each outcome, the number (no.) reporting a given outcome is divided by the total (No.) who completed a question about a given outcome on either a 10- or 60-day follow-up survey, stratified by characteristics in each row and reported as row percentages. When stratification by demographic or geographic groupings led to a numerator (no.) with at least one but fewer than five participants, numerator (no.) and percentages are suppressed.

† One response missing for age; for this category total No. = 8,827.

§ Gender identity is a composite of reported sex at birth and current gender identity. Cisgender men and cisgender women reported a current gender identity that aligned with their reported sex at birth. Persons who stated their gender identity was transgender man or transmasculine or who reported female sex at birth and current gender of man were classified as transgender men. Persons who stated their gender identity was transgender woman or transfeminine or who reported male sex at birth and current gender of woman were classified as transgender women. Another gender identity includes persons who identified as nonbinary, gender nonconforming, genderqueer, gender fluid, or another gender.

¶ Dashes indicate numerator (no.) and percentage suppressed (at least one participant but fewer than five).

** Persons of Hispanic or Latino (Hispanic) origin might be of any race but are categorized as Hispanic; all racial groups are non-Hispanic. Other categories reported as a single race or as multiracial when more than one race was reported.

†† Zip codes associated with self-test shipping addresses were assigned to county of residence and then summarized using the National Center for Health Statistics population density categorizations. https://www.cdc.gov/nchs/data_access/urban_rural.htm

§§ Zip codes associated with self-test shipping addresses were assigned to county of residence and then categorized based on whether or not that county is included in one of the EHE jurisdictions. https://www.cdc.gov/ehe/php/jurisdictions-plans/

¶¶ The program ordering portal includes analytics that can categorize the source of recruitment to the website. These broad categories include LGBTQ+ dating app (dating apps for both gay and bisexual persons), other dating app or website (dating apps for other men and women), social media (e.g., Facebook and Instagram), other partner promotions (planned promotional campaigns by CDC partners in the Let's Stop HIV together social media campaign [https://www.cdc.gov/stophivtogether/partnerships/toolkit/hiv-testing-my-way.html]), search engine marketing or web search, or direct link, when the link to the program was typed directly into an Internet browser.

*** For the first year, program marketing was developed for three priority audiences disproportionately affected by HIV: gay, bisexual, and other MSM; transgender women (of any race); and cisgender Black or African American (Black) women. For MSM, imagery was designed specifically to appeal to Black and Hispanic men, but messages were placed on social media and dating apps inclusive of all MSM.

††† Transgender men and other gender-diverse persons, cisgender women who did not identify as Black, and men who only reported female or gender-diverse partners were not considered to have been among the priority audiences for marketing the program during the period covered by the report.

§§§ Persons who did not provide enough demographic or sexual behavior information but could be categorized as arriving at the ordering website from an LGBTQ+ dating app are also considered to have been reached by marketing efforts for priority audiences.

multiple resources to help users interpret their HIVST results and access services after testing; data from CDC-funded self-testing research has indicated that persons who use self-tests seek follow-up care at rates similar to those of persons using community-based testing (*1*). However, the low response rate for the 10- and 60-day follow-up surveys limits the data available to evaluate who is accessing these services and might have introduced bias in the evaluation of the program if, for example, persons who completed the follow-up survey were more likely to have had a positive self-test result or to have sought additional services. The low response to the follow-up surveys suggests a need to identify other supplemental evaluation approaches, such as cross-sectional surveys of randomly selected participants. In addition, health care providers can document patient-reported previous HIVST use when providing HIV testing to their patients; the HIV surveillance system case report form††† has been updated to document use of HIV self-tests among persons with newly diagnosed HIV infections.

††† https://www.cdc.gov/hiv/pdf/guidelines/cdc-hiv-adult-case-report-form-2023.pdf

Summary

What is already known about this topic?

HIV self-testing is a cost-effective method for expanding testing access to persons with barriers to other in-person HIV testing options.

What is added by this report?

During March 14, 2023–March 13, 2024, a CDC-funded program delivered approximately 440,000 mailed HIV self-tests (HIVSTs) to U.S. residents, including those disproportionately affected by HIV, 24.1% of whom had never previously received testing; 1.9% reported receiving a positive HIV test result. Many sought additional clinical services shortly after receiving their HIVSTs.

What are the implications for public health practice?

Clinicians, community organizations, and public health officials should be aware of HIVST programs, initiate discussions about HIV testing conducted outside their clinics or offices, and initiate follow-up services for persons who report a positive or negative HIVST result.

Implications for Public Health Practice

HIV self-testing is, and will continue to be, an important means for increasing awareness of HIV status and facilitating access to HIV prevention and care. Clinicians, community organizations, and public health officials need to be aware of HIVST programs, initiate discussions about HIV testing conducted outside their clinics or offices, and initiate follow-up services for persons who report a positive or negative HIVST result.

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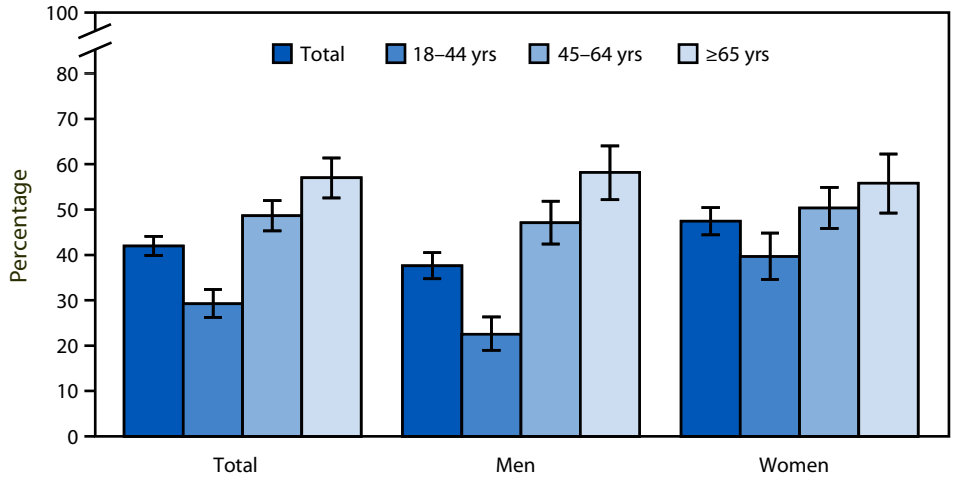
QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Percentage* of Current Cigarette Smokers† Aged ≥18 Years Who Received Advice from a Health Professional To Quit Smoking,§ by Sex and Age Group — United States, 2022



* With 95% CIs indicated by error bars. Estimates are based on household interviews of a sample of the civilian, noninstitutionalized U.S. population.
† Based on a "Yes" response to the survey question, "Have you smoked at least 100 cigarettes in your entire life?" and a response of "Every day" or "Some days" to the question, "Do you now smoke cigarettes every day, some days, or not at all?" In 2022, an estimated 11.6% of adults aged ≥18 years were current cigarette smokers.
§ Based on a "Yes" response to the survey question, "In the past 12 months, has a doctor, dentist, or other health professional advised you about ways to stop smoking or prescribed medication to help you quit?"

In 2022, 42.0% of current cigarette smokers aged ≥18 years received advice from a doctor, dentist, or other health professional about ways to quit smoking. The percentage of current smokers who received advice to quit smoking increased with age. Overall, and for current smokers aged 18–44 years, men were less likely to receive advice on quitting compared with women.

Supplementary Table: https://stacks.cdc.gov/view/cdc/156763

Source: National Center for Health Statistics, National Health Interview Survey, 2022. https://www.cdc.gov/nchs/nhis.htm

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For more information on this topic, CDC recommends the following link: https://www.cdc.gov/tobacco/index.html

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