

Continuity of Care for Patients with Tuberculosis Relocating to Other Countries — CureTB Program, 2016–2023

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Abstract

Patients who have received a diagnosis of tuberculosis (TB) disease face barriers to continuing and completing TB treatment when they relocate between countries, potentially resulting in lower treatment completion rates. Treatment for TB disease can range from 6 months to more than 2 years in duration; failure to complete treatment increases the risk for TB transmission and emergence of drug resistance. CDC's CureTB program makes follow-up TB care referrals for persons relocating to or from the United States, either as temporary visitors or when returning to their home countries, by providing information directly to public health authorities at patients' destinations. To evaluate program performance, public health officials examined 2016–2023 CureTB referral outcomes and treatment completion rates. Among 6,944 referral requests received from U.S. or foreign authorities during 2016–2023, approximately one half (3,912; 56%) were for patients with suspected TB, and approximately one third (2,404; 35%) were for patients with confirmed TB. Among patients who had received a diagnosis of TB for whom a request for a referral was made, CureTB made referrals for 1,741 (72%), including 1,622 (93%) persons relocating to other countries and 119 (7%) relocating to U.S. destinations. Referrals were not required for 522 (22%) persons, and referrals could not be completed for 141 (6%) because information needed to contact the patient was insufficient. Overall, within 12 months of referral, 1,379 (79%) of 1,741 referred patients completed treatment. Among 1,287 (74%) referred patients for whom data on timing of initiation of care were available, treatment completion rates were highest (91%) for 637 patients linked to treatment ≤30 days after departure, followed by 89% for 505 patients linked within 1–3 months, and 85% for 145 linked within 3–12 months. Timely initiation of care can

facilitate continuity of care and support completion of TB treatment. CureTB supports the global goals of reducing TB transmission, improving treatment completion rates, and enhancing progress toward TB elimination in the United States; the program can serve as a model for other countries.

Introduction

Worldwide, 10.8 million persons received a new diagnosis of tuberculosis (TB) disease during 2023 (1). TB remains a global public health concern because of its high rate of transmission, potential for drug resistance, associated morbidity and mortality, effect on the health of populations at risk for exposure, and challenges in diagnosis and treatment (1). The 9,633 new TB diagnoses in the United States during 2023 represented a 15.6% increase compared with the 8,332 cases reported during 2022 and an 8.3% increase compared with the 8,895 cases reported during 2019, the year preceding the onset of the COVID-19 pandemic (2). Patients who have received a TB diagnosis might relocate to another country before finishing their treatment, as was documented for 3.3% of patients who received a diagnosis of TB in the United States during 2016 (3). Although baseline TB treatment completion

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rates specific to persons relocating are not available, those who relocate are generally at higher risk for failure to complete treatment because they might face unique challenges, including language barriers, unfamiliarity with health care systems, and other socioeconomic barriers to accessing services at their destination (4,5). Furthermore, lack of medical documentation (including results of mycobacterial cultures, drug susceptibility testing, and treatment history) from the site where evaluation and treatment were initiated could delay or hinder clinical care in destination countries. Treatment for TB disease can range from 6 months to more than 2 years in duration; failure to complete treatment increases the risk for TB transmission and emergence of drug resistance (6).

The [CureTB program](#), started in 1997 by the San Diego County Tuberculosis Control and Refugee Health program and managed by CDC since 2016, facilitates treatment continuity for patients who relocate into or out of the United States before completing their TB treatment.* CureTB initially supported patients relocating between the United States and Mexico, with limited subsequent expansion to include Central America. During 2016, CDC expanded services to facilitate worldwide referrals to the public health system in the destination country for persons relocating out of or into the United

States. CureTB receives requests for referrals from TB programs across the United States, other federal agencies, and national TB programs worldwide.

CureTB works primarily with patients who receive a diagnosis of TB while visiting or living in the United States and are returning to their home countries during treatment or who are returning to the United States after receiving a diagnosis of TB abroad. The CureTB referral process is not used for [applicants for U.S. residency](#), for whom completion of TB treatment is required before travel to the United States if a diagnosis of TB is received during their required overseas medical examinations.

CureTB referrals help facilitate information exchange between origin and destination public health authorities regarding patients' TB diagnoses, treatment, and outcomes. CureTB staff members interview clients, irrespective of location, to collect and confirm their contact information, including full names, telephone numbers, and addresses in both the United States and abroad. During these interviews, staff members use motivational interviewing strategies (7,8) to educate clients about the importance of continuing their TB care after leaving their country of origin and encourage active involvement in their own care and treatment. To facilitate continuity of care, CureTB sends accurate clinical and contact information for these persons to public health authorities (TB programs) at their destination. In addition, CureTB assists in retrieving information about previous treatments and accepts referral requests for household contacts of persons who have received a diagnosis of infectious TB disease. Referred patients

*CureTB is staffed by CDC employees, at times supplemented by contractors or fellows. U.S. TB programs and national TB programs of other countries can contact CureTB to request assistance in obtaining continuity of care at a person's destination or information about previous TB care received. CureTB facilitates these requests through public health TB programs at the relocating person's destination.

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with a diagnosis of TB disease are managed according to treatment protocols of the national TB program of the destination country. To minimize the risk for TB transmission during relocation, when CDC is aware of a person with suspected or confirmed TB disease before travel occurs, CDC works with the health department to ensure that the person is considered noninfectious at the time of travel, per CDC criteria for commercial or international travel.[†] Noninfectious is defined as having at least three consecutive negative sputum smears for acid-fast bacilli; at least two consecutive negative cultures (for persons with drug-resistant disease); and having received a sufficient number of doses of effective treatment as determined by smear status, presence or absence of cavitary disease on chest radiograph, and presence or absence of drug resistance.

An analysis of CureTB data from 2012–2015 demonstrated that 78% (343 of 440) of referred patients with confirmed TB (both outbound from and inbound to the United States) completed treatment (3). This report updates the previous evaluation, focusing on referrals processed during 2016–2023, the program's expansion during this period, and outcomes for referred patients who have confirmed TB disease.

Methods

Description of CureTB Referral Requests

CureTB maintains a database of all referral requests (i.e., requests for assistance obtaining ongoing TB care at a person's destination or information about previous TB care) received by the program, referrals made, and referral outcomes. CureTB receives requests for five types of referrals: 1) notification of a laboratory-confirmed TB case as [defined by the Council of State and Territorial Epidemiologists](#) or as defined by the national TB program of the referring country, 2) notification of a suspected TB case (i.e., a patient with an incomplete TB evaluation [with pending test results]), 3) request for clinical history, 4) notification of a close contact of a patient who received a confirmed diagnosis of TB, and 5) request for a source case investigation to identify an index patient. CureTB does not make referrals for latent TB infection (LTBI) because LTBI management protocols vary by country, whereas treatment of TB disease is standardized across countries (Box).

Possible Referral Outcomes

For referred patients who received a confirmed diagnosis of TB, CureTB staff members request outcome information from

public health authorities at patients' destinations ≤30 days after the referral and every 2 months thereafter until treatment is completed, or for 12 months for patients who refuse treatment or are lost to follow-up. Requests for referral for patients who received a confirmed diagnosis of TB can result in seven possible outcomes: 1) referral not required, 2) courtesy notification only (insufficient contact information), and, for those referred, 3) completed treatment, 4) lost to follow-up, 5) refused treatment, 6) treatment stopped by provider, and 7) death (Box).

Identification and Analysis of 2016–2023 CureTB Referrals

Referrals for January 1, 2016–December 31, 2023, were extracted from the database. Data were analyzed by type of request, requesting agency and jurisdiction, whether the request was for a person outbound from or inbound to the United States, and for those outbound, the destination country. For patients who received a confirmed diagnosis of disease, the number of months from referral until initiation of care in the destination country and patient outcomes were analyzed. Descriptive analyses were conducted using SAS (version 9.4; SAS Institute). This activity was reviewed by CDC, deemed not research, and was conducted consistent with applicable federal law and CDC policy.[§]

Results

CureTB Referral Requests

During 2016–2023, CureTB received 6,944 referral requests, an increase of approximately 400% compared with the 1,347 requests received during 2012–2015, when the program primarily supported patients relocating between the United States and Mexico (3). These 6,944 referral requests included 3,912 (56%) suspected TB cases, 2,404 (35%) confirmed TB cases, 296 (4%) close contact notifications, 276 (4%) clinical history requests, and 56 (1%) source case identification requests (Table). Four requests for LTBI referrals were excluded from the analysis. The median age of referred persons was 36 years (IQR = 27–49 years).

Outcomes of Referrals Made for Patients Who Received a Laboratory-Confirmed Diagnosis of TB

Among the 2,404 patients who received a confirmed diagnosis of TB disease, 522 (22%) did not require a referral per CureTB because the patient left the country of origin with ≤30 days of therapy remaining (with referring jurisdictions encouraged to provide treatment for patients to take with them and follow-ups with patients after departure to confirm treatment completion), or they did not need a referral because they ultimately did not leave the country ([Supplementary Figure](#)).

[†]People with infectious TB disease are not permitted to travel by commercial transport into, within, or out of the United States until cleared by public health officials. Health departments may request use of [federal public health travel restrictions](#) for people with confirmed or suspected infectious TB disease if they intend to travel before being cleared to do so by public health authorities. The request can be made by contacting the [CDC port health station](#) with jurisdiction for the area where the person is located.

[§]45 C.F.R. part 46, 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.

BOX. CureTB referral request types and possible outcomes for patients with confirmed tuberculosis — CureTB program, multiple jurisdictions, 2025

Referral Request Types

- Confirmed TB case*
 - Notification to public health authorities at an international destination of a person with a diagnosis of laboratory-confirmed TB disease
 - **Goal:** Facilitate completion of TB treatment
- Suspected TB case
 - Notification to public health authorities at an international destination of a person with suspected TB (i.e., one who has an incomplete TB evaluation [an evaluation with pending test results]).
 - **Goal:** Link the person to care until the final results are obtained
- Clinical history request
 - Intercountry request for TB medical records of a person who was evaluated for, received a diagnosis of, or was treated for TB disease in one country before relocating to another
 - **Goal:** Confirm evaluation, diagnosis, or treatment
- Close contact notification
 - Notification from public health authorities in a country where a person received a diagnosis of TB disease to authorities of another country where one or more persons were exposed to the infected person
 - **Goal:** Facilitate a TB contact investigation according to the national TB protocols of the destination country
- Source case investigation
 - Notification from public health authorities in a country where a newly arrived person has received a diagnosis of TB disease, requesting information about the potential source TB case in the person's country of origin
 - **Goal:** Trace and identify the original TB source patient, including drug susceptibility of the source patient's TB

Abbreviation: TB = tuberculosis.

* Confirmed TB disease is defined according to the [Council of State and Territorial Epidemiologists Position Statement 09-ID-65](#), or as defined by the national TB program of the referring country.

† CureTB does not make referrals for patients who leave ≤ 30 days before treatment completion. Instead, CureTB encourages referring jurisdictions to provide treatment for patients to take with them and follows up with patients after departure to confirm treatment completion.

Possible Outcomes

- **Referral not required:** Patient left the country with ≤ 30 days of remaining treatment[†] or stayed in the country to finish treatment
- **Courtesy notification to destination country:** CureTB process cannot be completed because information needed to connect with or locate a patient, either in the origin country or at the destination country (including telephone numbers, addresses, or information for another person who is able to contact the patient), is missing
- **Completed treatment:** Confirmation by the treating entity in the destination country that the patient completed the intended or recommended course of TB treatment or is classified as cured
- **Lost to follow-up:** After 12 months of attempts, a referred patient has not been found at the intended location, nor has any communication been made with the patient, and no proof exists of their having completed TB treatment
- **Refused treatment:** After a 12-month period during which a referred patient was located and contacted, the patient has refused or not adhered to recommended TB treatment
- **Treatment stopped by provider:** The treatment provider has determined, on the basis of their own medical criteria, risk-benefit assessment, or treatment availability, that the treatment provided was sufficient to cure the patient
- **Died:** The patient died from any cause during the course of treatment.

For 141 (6%) patients with insufficient contact information, the referral process was not completed, and CureTB issued only a courtesy notification; no outcome data were available for these patients because health authorities at the destinations could not locate them for ≥ 12 months. CureTB made referrals for 1,741 (72%) patients, including 1,622 (93%) to 100 other countries and 119 (7%) to U.S. destinations. Among

all referred patients, 1,379 (79%) completed treatment (1,270 [78%] for non-U.S. destinations and 109 [92%] for U.S. destinations), 235 (14%) were lost to follow-up, 55 (3%) died, 52 (3%) refused treatment, and 20 (1%) had treatment stopped by a provider. A similar percentage of CureTB-referred patients (82%; 466 of 571) completed treatment during 2020–2022 as did patients during 2016–2019 (80%; 660 of 824).

TABLE. Characteristics of tuberculosis-related referral requests for persons relocating to another country, by request type — CureTB program, 2016–2023

Characteristic	No. (column %) of referral requests					
	Confirmed* TB case	Suspected TB [†] case	Contact notification [§]	Clinical history request [¶]	Source case identified**	Total
Total (row %)	2,404 (34.6)	3,912 (56.3)	296 (4.3)	276 (4.0)	56 (0.8)	6,944 (100.0)
Destination country						
United States	132 (5.5)	29 (0.7)	51 (17.2)	22 (8.0)	1 (1.8)	235 (3.4)
Mexico	827 (34.4)	969 (24.8)	225 (76.0)	144 (52.2)	51 (91.1)	2,216 (31.9)
Honduras	171 (5.7)	673 (17.2)	0 (—)	6 (2.2)	2 (3.6)	852 (12.3)
Guatemala	137 (5.7)	668 (17.1)	4 (1.4)	11 (4.0)	0 (—)	820 (11.8)
Peru	89 (3.7)	247 (6.3)	1 (0.3)	21 (7.6)	1 (1.8)	359 (5.2)
El Salvador	48 (2.0)	213 (5.4)	0 (—)	5 (1.8)	1 (1.8)	267 (3.8)
India	138 (5.7)	40 (1.0)	0 (—)	4 (1.4)	0 (—)	182 (2.6)
Colombia	53 (2.2)	116 (3.0)	0 (—)	3 (1.1)	0 (—)	172 (2.5)
Venezuela, Bolivarian Republic of	57 (2.4)	111 (2.8)	0 (—)	3 (1.1)	0 (—)	171 (2.5)
Ecuador	54 (2.2)	110 (2.8)	0 (—)	4 (1.4)	0 (—)	168 (2.4)
Other countries (n = 119)	698 (29.0)	736 (18.8)	225 (76.0)	53 (19.2)	0 (—)	1,502 (21.6)
Referring jurisdiction						
Texas	577 (24.0)	2,279 (58.3)	8 (2.7)	27 (9.8)	3 (5.4)	2,894 (41.7)
California	575 (23.9)	320 (8.2)	206 (69.6)	178 (64.5)	45 (80.4)	1,324 (19.1)
Arizona	280 (11.6)	634 (16.2)	12 (4.1)	16 (5.8)	3 (5.4)	945 (13.6)
Louisiana	37 (1.5)	229 (5.9)	0 (—)	5 (1.8)	0 (—)	271 (3.9)
Washington	66 (2.7)	145 (3.7)	3 (1.0)	1 (0.4)	1 (1.8)	216 (3.1)
Other U.S. states	655 (27.7)	286 (7.3)	13 (4.4)	27 (9.8)	3 (5.4)	984 (14.2)
Non-U.S. jurisdictions	214 (8.9)	19 (0.5)	54 (18.2)	22 (8.0)	1 (1.8)	310 (4.5)

Abbreviation: TB = tuberculosis.

* Notification about a relocating person with a diagnosis of laboratory-confirmed TB disease.

† Notification about a relocating person who has an incomplete TB evaluation with pending test results.

§ Notification from public health authorities in a country where a person received a TB disease diagnosis to authorities of another country where one or more persons were exposed to the infected person.

¶ An intercountry request for TB medical records of a person who was evaluated for, received a diagnosis of, or was treated for TB disease in one country before relocating to another.

** Notification from public health authorities in one country about a potential source case of TB disease in another.

Treatment Completion by Interval Between Departure from the United States and Initiation of Care at Destination

Among 1,287 (74%) referred patients who received a confirmed diagnosis of TB disease for whom information on the interval between departure and initiation of care in their destination country was available, 637 (49%) were linked to care ≤30 days after leaving the originating country, with a treatment completion rate of 91%. An additional 505 (39%) were linked to care within 1–3 months and 145 (7%) within 3–12 months, with treatment completion rates of 89% and 85%, respectively (Figure).

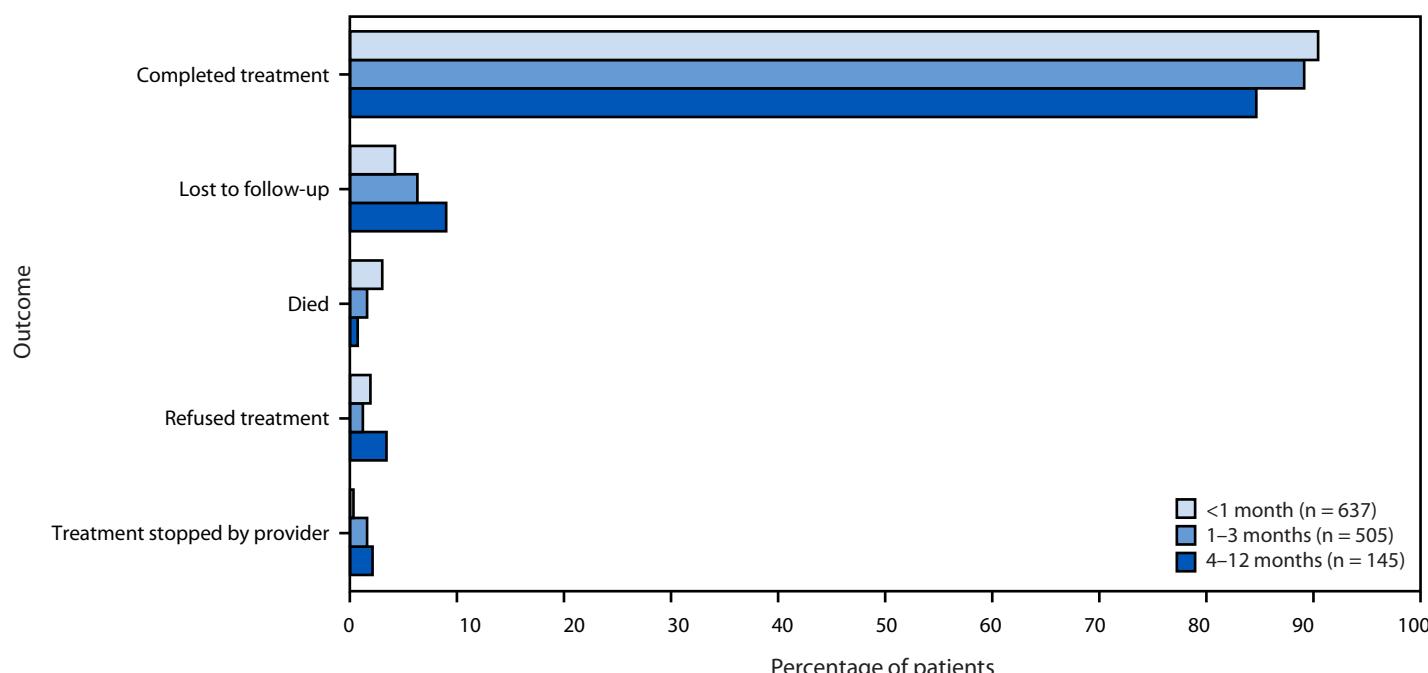
Discussion

During 2016–2023, CureTB referrals for persons relocating to or from the United States resulted in an overall 79% treatment completion rate, which remained stable during the COVID-19 pandemic and increased slightly from the 78% reported in the previous evaluation (3). During the analysis period, the program expanded from focusing primarily on Mexico to including all destination countries, with referrals made to or received from 100 countries; the average volume of annual referral requests approximately tripled compared with the previous analysis (3). Fostering international partnerships

helps to ensure secure transfer of clinical and contact information and continuity of care for patients who receive a diagnosis of TB transitioning between different countries' health systems. CureTB is initiating the process of formalizing international referral agreements to strengthen collaboration and coordination across health systems.

The CureTB program is designed to reduce impediments to TB treatment completion after international relocation. However, effectiveness of the referral process might be limited by external barriers, including language or socioeconomic factors, patient mistrust on the basis of stigma or legal concerns, or access to resources in the destination country, such as transportation or interpreter access, which can affect patients' ability or willingness to complete treatment. Requesting a CureTB referral as soon as program staff members are aware a client is planning to relocate internationally allows staff members to explain the referral process, confirm the accuracy of contact information, educate the client before departure regarding the importance of completing TB treatment, provide individualized guidance and support to address challenges, and encourage active participation in care. Conversely, referral requests that occur at the time of or after a person's departure, or with inaccurate or incomplete contact information, hinder

FIGURE. Treatment outcomes among referrals for patients with confirmed tuberculosis disease after international relocation, by interval from U.S. departure to initiation of care at destination (N = 1,287)* — CureTB program, 2016–2023



* Among 1,741 patients with tuberculosis disease for whom a referral was made, data on interval between departure and initiation of care were missing for 454 (26%).

Summary

What is already known about this topic?

Patients with tuberculosis (TB) disease face challenges completing treatment after relocating internationally. CDC's CureTB program links patients who have received a diagnosis of TB disease to care at their destinations within the United States or abroad.

What is added by this report?

During 2016–2023, among 1,741 patients who received a confirmed diagnosis of TB disease and were referred for treatment by CureTB, 79% completed treatment at their destinations. Among 1,287 referred patients with available data on timing of initiation of care, completion rates were highest (91%) for the 637 (49%) patients linked to treatment ≤30 days after departure.

What are the implications for public health practice?

The CureTB program can serve as a model for public health strategies aimed at improving outcomes for relocating patients. Timely initiation of care can facilitate continuity of care and support completion of treatment.

destination exceeded 3 months. Timely and complete referrals enable public health authorities in receiving countries to make early contact, continue the process initiated by the referring facility and CureTB staff members, and avoid treatment interruptions, which can increase the risk for TB transmission and emergence of drug resistance (6).

Limitations

The findings in this report are subject to at least two limitations. First, incomplete or inconsistent data collection prevented a more detailed analysis. CureTB can only make referrals when a request for referral is received. Improved coordination with and communication among national TB programs could improve referral rates. Second, when a receiving country did not provide treatment completion data, loss to follow-up was assumed, which might have resulted in underestimates of treatment completion.

Implications for Public Health Practice

CureTB supports global goals of reducing TB transmission and emergence of drug resistance through efforts to improve treatment completion rates among patients who receive a diagnosis of TB. By facilitating treatment of patients relocating to the United States or who might return after visiting another country, the program has the potential to reduce the risk for introducing TB into the United States and thereby support

both the ability of CureTB staff members to complete the education process and of authorities in destination countries to locate these persons. Furthermore, although overall treatment completion rates for patients who received a diagnosis of TB disease were high, they declined from 91% to 85% when the interval between departure and initiation of care at the

progress toward national TB elimination. The CureTB program can serve as a model for other countries' public health strategies aimed at improving outcomes for patients relocating between countries.

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Prevalence of Violence Perpetration by Men Aged 18–24 Years in Low- and Middle-Income Countries Who Were Exposed to Violence During Childhood — Eight Countries, 2018–2023

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Abstract

Violence is a major cause of morbidity and mortality among young adults in low- and middle-income countries. Men aged 18–24 years (young men) account for the majority of victims and perpetrators of many types of interpersonal violence. Childhood experiences, such as exposure to emotional, physical, or sexual violence or witnessing violence in their homes or communities, might increase risk for perpetration of violence in adulthood. Data from eight Violence Against Children and Youth Surveys conducted in low- and middle-income countries during 2018–2023 were analyzed to assess prevalence of physical and sexual violence perpetration by young men and associations of these events with their exposure to violence during childhood. Lifetime prevalence of physical or sexual violence perpetration among young men was common in all countries and ranged from 12.4% in Eswatini to 44.9% in Côte d'Ivoire. Physical violence victimization or witnessing violence in the household or community before age 18 years was associated with increased odds of violence perpetration among young men in all eight countries after adjusting for demographic covariates and childhood adversity indicators. Efforts to prevent exposure to violence during childhood, a pivotal developmental period, might reduce perpetration of violence by young men and create safer and more secure homes and communities.

Introduction

Interpersonal violence is a leading cause of morbidity and mortality among adults aged 20–24 years (young adults) in many low- and middle-income countries (1,2). Young adults account for a higher incidence of most forms of interpersonal violence victimization and perpetration compared with adolescents (1). Although females also perpetrate violence (3), males are the primary perpetrators of interpersonal violence against both females and males (1,4). Childhood experiences, including exposure to violence, can increase the risk among boys for perpetration of violence when they are adults (3,5). Boys' exposure to violence includes not only experiencing violence themselves but also witnessing violence in their household or community, places where they should feel safe and secure.

Limited data are available for men aged 18–24 years (young men) in low- and middle-income countries (LMICs) regarding the association between witnessing violence during childhood and perpetration of physical or sexual violence during young adulthood (3). This nationally representative household survey study of young men in eight LMICs describes self-reported childhood emotional, physical, and sexual violence victimization and self-reported witnessing physical violence in the household or community, as well as the associations of these events with physical and sexual violence perpetration among young men. Findings can guide interventions to prevent violence victimization and perpetration among young men and promote safe and secure homes and communities.

Methods

Data Source

Since 2007, CDC, as a member of the Together for Girls (6) public-private partnership, has collaborated with more than 20 countries to implement the Violence Against Children and Youth Surveys (VACS). VACS are cross-sectional, nationally representative household surveys that assess emotional, physical, and sexual violence against persons aged 13–24 years (7). VACS uses a multistage cluster random sampling design. Primary sampling units are stratified by sex, and protocol protections are in place to secure the privacy and confidentiality of all respondents. During 2018–2023, CDC implemented VACS in collaboration with the governments of Colombia (2019), Côte d'Ivoire (2018), Eswatini (2022), Jamaica (2023), Kenya (2019), Moldova (2019), Mozambique (2019), and Namibia (2019).

Standard VACS questionnaires were administered through face-to-face interviews with youths in all countries except Jamaica, which administered parts of the survey through audio computer-assisted self-interview software to comply with national mandatory reporting laws. Questionnaires were translated into the relevant local languages and back-translated to confirm accurate translation. Participation was voluntary and confidential. Informed consent was obtained. The survey included a tiered response plan that provided multiple levels

of support intensity depending on participants' exposure to adversities and need for social and health services. A general list of youth-friendly support services was provided to all participants. Design and sampling details for each country survey are available in VACS reports (6). This analysis includes data for men aged 18–24 years (Colombia, 674; Côte d'Ivoire, 617; Eswatini, 733; Jamaica, 353; Kenya, 408; Moldova, 412; Mozambique, 424; and Namibia, 565). Survey response rates among males were lowest in Moldova and highest in Côte d'Ivoire (Colombia, 47.5%; Côte d'Ivoire, 87.7%; Eswatini, 84.7%; Jamaica, 64.5%; Kenya, 66.5%; Moldova, 45.5%; Mozambique, 81.1%; and Namibia, 84.2%). Data from adolescent boys aged 13–17 years were excluded because the exposure period for childhood violence (i.e., occurring before age 18 years) was not complete. This activity was reviewed by CDC, deemed research not involving human subjects, and was conducted consistent with applicable federal law and CDC policy.*

Case Definitions

Lifetime history of violence perpetration. Lifetime history of violence perpetration at the time of the survey was defined as ever having perpetrated physical or sexual violence toward a partner (i.e., a current or previous girlfriend, intimate partner, or wife) or nonpartner. Stratified multivariable analysis by partner versus nonpartner or physical versus sexual violence was not possible because of low prevalence of perpetration in some countries.

Physical violence perpetration. Physical violence perpetration was defined as ever slapping, pushing, shoving, shaking, or intentionally throwing something to hurt a person; punching, kicking, whipping someone or beating a person with an object; choking, smothering, or trying to drown or burn someone intentionally; or threatening someone with or using a knife, gun, or other weapon. Sexual violence perpetration was defined as forcing someone to have sex with the perpetrator when that person did not want to.

Childhood physical and sexual violence victimization. Childhood physical violence victimization was defined as ever having been slapped, pushed, shoved, or shaken; having had something intentionally thrown at them to hurt them; or having been punched, kicked, whipped, beaten with an object, choked, smothered, held under water, burned intentionally, or threatened with a weapon before age 18 years. Childhood sexual violence victimization included having experienced any unwanted sexual touching, attempted forced sex, physically forced sex, or pressured sex before age 18 years.

*45 C.F.R. part 46; 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.

Childhood emotional violence victimization. Childhood emotional violence victimization before age 18 years was assessed using separate measures for three groups of perpetrators: 1) parent, adult caregiver, or other adult relative; 2) current or ex-intimate partner; or 3) peer. Emotional violence by a parent, adult caregiver, or other adult relative was defined as telling the participant they were not loved or did not deserve to be loved, saying they wished the participant had never been born or were dead, or ridiculing the participant (i.e., telling the participant that they were stupid or useless). Emotional violence by a current or ex-intimate partner was defined as insulting, humiliating or making fun of the participant in front of others; keeping the participant from having money; or trying to keep the participant from seeing or talking to friends or family. Emotional violence by peers was defined as making the participant feel scared or bad because of name-calling; saying mean things; saying they did not want the participant around; telling lies about, spreading rumors about, or trying to make others dislike the participant; keeping the participant out of things on purpose; excluding the participant from friend groups; or completely ignoring the participant.

Witnessing violence during childhood. Witnessing violence during childhood was assessed as the participant ever having seen or heard a mother or stepmother being hit, punched, kicked, or beaten by a father or stepfather; ever having seen or heard a parent punch, kick, or beat brothers or sisters; or ever having seen anyone being attacked outside of the home and family environment.

Demographic covariates were selected a priori based on evidence of confounding or moderating relationships with key indicators. Age was assessed as a continuous variable from 18–24 years. Schooling was assessed as whether participants attended the country-specific equivalent of primary school or less or of secondary school or higher. Marital status was assessed as whether youths had ever been married or cohabited. Current food insecurity was assessed as whether the participant indicated that the household did not have enough money for food. Exceptions were Kenya, where food insecurity was assessed as whether the participant went without food because there was not enough food in the household for ≥1 day during the past month, and Colombia, because data on food insecurity were not available.

Data Analysis

Weighted percentages with associated 95% CIs were estimated for all variables. VACS weighting procedures enabled estimation of nationally representative data for each country. Multivariable logistic regression models were estimated separately by country to identify associations between childhood violence exposures (emotional, physical, sexual victimization,

and witnessing violence) and violence perpetration, adjusting for demographic covariates (age, schooling, marital status, and food insecurity). All analyses included individual survey weights, accounted for VACS complex survey design, and were conducted using R software (version 4.5.0; R Foundation). For prevalence estimates, nonoverlapping 95% CIs were considered statistically significant. For multivariable models, p-values <0.05 were considered statistically significant. Missing data (missingness) for all variables was $<3\%$ in all countries except Côte d'Ivoire, Jamaica, and Namibia, where unweighted missingness ranged from 3.01% (ever witnessed violence during childhood [Namibia]) to 7.93% (ever perpetrated nonpartner sexual violence [Jamaica]). Missingness was assessed and taken into account using full information maximum likelihood estimation in all regression models.

Results

Prevalence of having experienced and witnessed violence during childhood and of lifetime perpetration of violence varied across countries and by type of violence (Table 1). Physical violence was the most common form of childhood violence experienced by young men in most countries, ranging from 14.3% of participants in Eswatini to 60.8% in Côte d'Ivoire. Prevalence of childhood emotional violence victimization ranged from 5.0% in Kenya to 31.0% in Jamaica, and of childhood sexual violence victimization, from 2.1% in Eswatini to 11.7% in Jamaica. Witnessing violence during childhood was common: >60% of young men witnessed violence in their household or community before age 18 years in all countries except Eswatini (31.1%). Violence perpetration among young men was prevalent in all countries: prevalence of physical and sexual violence perpetration was highest in Côte d'Ivoire (44.9%) and lowest in Eswatini (12.4%). In all countries, perpetration of physical violence was more prevalent than that of sexual violence. Prevalence of nonpartner sexual violence perpetration was $<3\%$ in all countries. Prevalence of intimate partner sexual violence perpetration was highest in Côte d'Ivoire (8.5%) and Namibia (7.2%).

After controlling for demographic characteristics and other forms of childhood violence victimization and witnessing violence in the home or community before age 18 years, the study found childhood physical violence victimization to be significantly associated with lifetime odds of physical or sexual violence perpetration in all countries except Mozambique (Table 2). After controlling for demographic characteristics and all forms of childhood violence victimization, the study found witnessing violence in the home or community before age 18 years to be significantly associated with lifetime odds of physical or sexual violence perpetration in five of the eight countries.

Discussion

Perpetration of physical or sexual violence among young men in the eight studied countries ranged from approximately 10% to approximately 40%. Results from this study corroborate findings from other low- and middle-income settings on men's perpetration of violence (5) and suggest that when men do perpetrate violence, it can occur as early as adolescence and young adulthood (1). Witnessing violence in the household or community and experiencing physical violence before age 18 years were significantly associated with physical and sexual violence perpetration among young men in most countries. These results support global evidence on household violence in the lives of children (8) and childhood violence as a risk factor for men's perpetration of violence in adulthood (9). Further, these results provide nationally representative data on the potential for household and community instability (e.g., witnessing violence in home and community spaces) to influence later harmful behaviors among young men. Efforts to prevent violence during childhood, a pivotal developmental period, and shift harmful attitudes and beliefs that normalize men's use of violence can reduce perpetration of violence among young men and create safer and more secure homes, relationships, and communities (10). These efforts include implementation and enforcement of laws to prevent and respond to violence against children; shifts in restrictive or harmful social norms that support the use of violence; creation of safe physical and community environments for youths; improvement of family economic security and stability; improvements in access to health, social welfare, and justice services; and increases in children's access to effective education and life-skills training (10).

Limitations

The findings in this report are subject to at least six limitations. First, because VACS are cross-sectional, the temporality of indicators cannot be established. Second, because of the nature of data collected via VACS, establishing whether timing, severity, duration, or frequency of childhood violence victimization or exposure contributes to increased odds of violence perpetration is not possible. Third, data on food insecurity were not available in Colombia, and Colombia models were not adjusted for this possible confounder. Fourth, a skip pattern error in the Kenya VACS likely resulted in a downward bias of physical violence perpetration estimates in this country. However, estimates of physical violence perpetration from VACS data in neighboring Tanzania were not statistically significantly different from those in Kenya, suggesting that the bias might be relatively small. Fifth, violence data are self-reported and might be subject to reporting biases. Finally, because of sample size limitations, physical and sexual violence

TABLE 1. Prevalence of childhood violence exposure and lifetime physical or sexual violence perpetration among men aged 18–24 in low- and middle-income countries — Violence Against Children and Youth Surveys, eight countries, 2018–2023

Variables*	Colombia 2019 n = 674	Côte d'Ivoire 2018 n = 617	Eswatini 2022 n = 733	Jamaica 2023 n = 353	Kenya 2019 n = 408	Moldova 2018 n = 412	Mozambique 2019 n = 424	Namibia 2019 n = 565		
	No.	% (95% CI)	No.	% (95% CI)	No.	% (95% CI)	No.	% (95% CI)	No.	% (95% CI)
Childhood violence exposure										
Emotional violence victimization	87	9.5 (6.3–14.1)	84	15.5 (11.3–20.9)	78	9.9 (6.6–14.5)	95	31.0 (25.4–37.1)	20	5.0 (2.5–9.8)
Physical violence victimization	275	37.5 (28.5–47.5)	342	60.8 (54.0–67.2)	106	14.3 (10.6–19.0)	115	34.4 (28.4–41.0)	186	51.9 (43.2–60.5)
Sexual violence victimization	46	7.8 (4.8–12.5)	69	11.4 (7.7–16.5)	12	2.1 (1.1–4.0)	37	11.7 (7.9–17.1)	23	6.4 (3.6–11.3)
Witnessed violence during childhood	452	62.6 (53.7–70.8)	374	66.5 (61.5–71.1)	235	31.1 (25.6–37.1)	251	74.2 (68.9–78.8)	268	68.7 (61.8–74.9)
Violence perpetration										
Sexual nonpartner violence	—†	—†	14	1.8 (1.0–3.2)	—†	—†	—†	—†	16	3.0 (1.7–5.3)
Sexual intimate partner violence [§]	11	1.6 (0.6–4.1)	39	8.5 (5.9–12.2)	—†	—†	—†	—†	29	6.2 (4.1–9.3)
Nonpartner or intimate partner sexual violence	13	1.7 (0.7–3.9)	47	7.0 (4.9–10.0)	—†	—†	—†	—†	37	7.0 (4.9–10.0)
Physical nonpartner violence	119	23.3 (15.7–33.3)	167	29.2 (23.8–35.4)	94	11.2 (8.0–15.5)	55	16.1 (12.4–20.7)	37	19.1 (12.0–29.0)
Physical intimate partner violence [§]	42	5.6 (3.4–9.2)	103	26.7 (21.8–32.4)	18	2.1 (1.3–3.4)	28	8.5 (5.5–12.8)	50	16.5 (12.1–22.1)
Nonpartner or intimate partner physical violence	139	25.6 (17.6–35.6)	231	42.3 (36.8–47.9)	103	12.0 (8.8–16.2)	65	18.4 (14.4–23.2)	58	13.6 (10.3–17.7)
Physical or sexual violence	145	26.1 (18.1–36.1)	249	44.9 (39.7–50.3)	105	12.4 (9.1–16.7)	72	20.4 (16.5–24.8)	77	16.8 (13.3–21.1)
Demographic covariates										
Age, yrs (mean, SD)	20.8 (2.1)		20.6 (2.0)		20.8 (2.0)		20.5 (2.0)		20.5 (2.0)	
Ever married or cohabited	199	34.0 (25.9–43.1)	101	16.0 (12.1–20.7)	26	2.7 (1.7–4.3)	17	6.5 (3.8–11.0)	46	9.2 (6.9–12.1)
Attained secondary or higher education	627	94.5 (90.7–96.8)	378	63.5 (57.3–69.3)	639	87.5 (83.7–90.4)	334	96.6 (93.5–98.2)	294	74.4 (68.8–79.3)
Food insecure	NA	NA	300	48.7 (42.5–55.0)	453	62.7 (57.5–67.6)	80	24.5 (19.4–30.4)	103	26.3 (18.8–35.5)

Abbreviation: NA = not available.

* Missing data (missingness) on all variables was <3% in all countries except Côte d'Ivoire, Jamaica, and Namibia where unweighted missingness ranged from 3.01% (ever witnessed violence during childhood [Namibia]) to 7.93% (ever perpetrated nonpartner sexual violence [Jamaica]).

† Estimate suppressed if n ≥ 10 and relative SE > 30%.

§ Among adolescent boys and young men who had ever been married, cohabited, or dated (Colombia, 609; Côte d'Ivoire, 457; Eswatini, 564; Jamaica, 313; Kenya, 296; Moldova, 304; Mozambique, 395; and Namibia, 423).

perpetration and partner and nonpartner perpetration were not disaggregated as separate outcomes.

Implications for Public Health Practice

Understanding which risk factors are associated with violence perpetration among young men can help guide development of efficient violence prevention programs and services addressing population-specific factors to reduce future violence perpetration. Interventions to promote safe, stable, and nurturing childhood environments for male youths, such as school- and sports-based mentorship programs, might help to reduce the incidence of violence perpetration among young men (10). Structural efforts to improve community safety and promote youth community engagement and empowerment, such as

after-school programming and safe transport options, could also contribute to reductions in violence perpetration and make communities safer for all youths (10). Prevention programs focused on male perpetration cessation might benefit from a trauma-guided approach that acknowledges the link between childhood exposure to violence and later perpetration of violence (10).

Acknowledgments

Colombia: Ministry of Health and Social Protection, government of Colombia; United States Agency for International Development; International Organization for Migration. Côte d'Ivoire: National Program for the Care of Orphans and Other Children made Vulnerable by HIV/AIDS, Ministry of Women, Family and Children, National Institute of Statistics, government of Côte d'Ivoire;

TABLE 2. Adjusted odds ratios of lifetime physical or sexual violence perpetration among men aged 18–24 in low- and middle-income countries — Violence Against Children and Youth Surveys, eight countries, 2018–2023

Variables*	aOR (95% CI)							
	Colombia 2019 n = 674	Côte d'Ivoire 2018 n = 617	Eswatini 2022 n = 733	Jamaica 2023 n = 353	Kenya 2019 n = 408	Moldova 2018 n = 412	Mozambique 2019 n = 424	Namibia 2019 n = 565
	Age	1.0 (0.9–1.2)	1.1 (0.9–1.2)	1.2 (1.0–1.3)†	0.9 (0.7–1.1)	1.0 (0.8–1.2)	1.1 (0.9–1.3)	0.9 (0.8–1.1)
Secondary or higher education (ref: primary or less)	0.8 (0.3–2.8)	1.3 (0.8–2.2)	0.6 (0.3–1.3)	1.0 (0.4–3.1)	0.4 (0.2–0.9)	0.3 (0.1–0.9)	0.7 (0.3–1.4)	1.0 (0.5–1.8)
Ever married or cohabited	3.4 (1.3–8.9)†	2.4 (1.2–5.0)†	3.1 (0.9–10.2)	2.0 (0.5–9.2)	3.6 (1.3–10.4)†	2.2 (0.7–6.8)	1.7 (0.9–3.2)	2.7 (1.0–7.2)†
Food insecure	NA	1.2 (0.7–1.9)	0.7 (0.4–1.3)	0.8 (0.3–2.1)	0.3 (0.1–1.1)	1.0 (0.2–5.3)	0.5 (0.3–1.0)	1.4 (0.8–2.4)
Childhood emotional violence victimization	1.6 (0.7–4.1)	2.6 (1.5–4.6)†	2.1 (0.8–5.3)	1.1 (0.5–2.3)	6.0 (0.5–69.6)	0.6 (0.2–2.1)	2.8 (1.0–8.3)	0.8 (0.3–2.5)
Childhood physical violence victimization	4.8 (2.0–11.6)†	2.8 (1.5–5.3)†	10.9 (4.9–24.1)†	3.6 (1.8–7.4)†	2.8 (1.2–6.6)†	5.3 (2.4–11.7)†	2.0 (1.0–4.2)	3.2 (1.9–5.3)†
Childhood sexual violence victimization	0.8 (0.3–2.5)	1.3 (0.7–2.5)	0.2 (0.0–3.1)	3.1 (1.2–8.4)†	0.2 (0.0–1.4)	1.0 (0.2–4.2)	1.4 (0.5–3.6)	3.2 (1.5–6.9)†
Witnessed violence during childhood	5.1 (1.6–16.8)†	2.8 (1.6–4.8)†	2.7 (1.5–5.0)†	1.5 (0.7–3.0)	1.4 (0.4–4.8)	2.6 (0.7–9.6)	4.1 (1.6–10.9)†	4.2 (1.8–9.5)†

Abbreviations: aOR = adjusted odds ratio; NA = not available; ref = referent.

* Each country column represents a single multivariable regression model inclusive of all listed variables. Missing data (missingness) for all variables was <3% in all countries except Côte d'Ivoire, Jamaica, and Namibia, where unweighted missingness ranged from 3.01% (ever witnessed violence during childhood [Namibia]) to 7.93% (ever perpetrated nonpartner sexual violence [Jamaica]). Missingness was assessed and taken into account using full information maximum likelihood estimation in all regression models.

† p<0.05.

Summary

What is already known about this topic?

Men aged 18–24 years (young men) disproportionately perpetrate many forms of interpersonal violence in low- and middle-income countries. Exposure to violence during childhood, including both experiencing and witnessing harm, might increase risk for perpetration of violence during adulthood.

What is added by this report?

In this survey study of young men in eight low- and middle-income countries during 2018–2023, lifetime prevalence of violence perpetration ranged from 12.4% in Eswatini to 44.9% in Côte d'Ivoire. Experiencing physical violence and witnessing violence in the household or community before age 18 years were associated with higher odds of perpetrating physical or sexual violence among young men in most countries.

What are the implications for public health practice?

Efforts to reduce exposure to violence during childhood might help reduce perpetration of violence among young men and make communities safer for all persons.

Emergency Plan for AIDS Relief. Moldova: Ministry of Health, Labour and Social Protection, Republic of Moldova; International Organization for Migration; Institute for Marketing and Surveys; U.S. Agency for International Development. Mozambique: Instituto Nacional de Saúde, Ministry of Health, Ministry of Gender, Child and Social Action, Instituto Nacional de Estatística, government of Mozambique; UNICEF; President's Emergency Plan for AIDS Relief. Namibia: Ministry of Gender Equality and Child Welfare, Namibia Statistics Agency, Republic of Namibia; International Training and Education Center for Health, University of Washington (I-TECH/UW); President's Emergency Plan for AIDS Relief.

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President's Emergency Plan for AIDS Relief. Eswatini: Deputy Prime Minister's Office, Ministry of Health, Central Statistical Office, government of Eswatini; ICAP at Columbia University; President's Emergency Plan for AIDS Relief. Kenya: Ministry of Labour and Social Protection, Kenya National Bureau of Statistics, government of Kenya; University of California, San Francisco; Population Council; LVCT Health; President's Emergency Plan for AIDS Relief. Jamaica: Planning Institute of Jamaica, Ministry of Education, Skills, Youth and Information; government of Jamaica; Elizabeth Glazer Pediatric AIDS Foundation; University of the West Indies; President's

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