Biological and Behavioral Surveillance Lite (BBS-Lite) Study on Male Seasonal Labor Migrants in Armenia

2025-2026

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ABBREVIATIONS

BBS	biobehavioral survey
BBS-lite	biobehavioral survey lite
IBBS	integrated biobehavioral survey
HCV	hepatitis C virus
HBV	hepatitis B virus
KP	key population
NCID	National Center of Infectious Disease
PSE	population size estimate
RDS	respondent driven sampling
STI	sexually transmitted infection
UNAIDS	United Nations Program on HIV and AIDS
WHO	World Health Organization

1. EXECUTIVE SUMMARY

Labor migration remains an important social and economic phenomenon in Armenia and has long been recognized as a factor influencing vulnerability to HIV infection. Shirak, Lori, and Gegharkunik regions experience both high levels of labor migration and some of the highest HIV prevalence rates in the country. To generate updated evidence on HIV prevalence, risk behaviors, access to services, and the feasibility of simplified surveillance approaches, the National Center for Infectious Diseases (NCID), with support from UNAIDS, implemented a Biological and Behavioral Surveillance Lite (BBS-Lite) study among male seasonal labor migrants during 2025–2026.

The study was conducted in 12 medical centers across Shirak, Lori, and Gegharkunik regions and recruited 900 male labor migrants aged 18–49 years who had worked abroad for at least three months during the previous year. A chain-referral sampling approach adapted from respondent-driven sampling (RDS) was used. Participants completed an electronic behavioral questionnaire and received rapid testing for HIV, hepatitis B virus (HBV), hepatitis C virus (HCV), and syphilis. Weighted estimates were generated using participants' reported network sizes and are presented as adjusted descriptive estimates.

The study found that labor migration among participants was heavily concentrated in the Russian Federation, where nearly all migrants reported working during the previous year. Most participants were aged 25 years or older, were married, and worked in the construction sector. Approximately half of participants reported sexual intercourse within the previous 30 days. Condom use was inconsistent across partner types and settings, with condom use generally higher abroad than in Armenia. Condom non-use was most commonly attributed to trust in a sexual partner. Although sexual activity with casual, commercial, and/or male partners was reported by a minority of participants, inconsistent condom use was frequently observed among those reporting these partnerships.

Knowledge of HIV transmission and prevention was generally high, although misconceptions persisted for some indicators. HIV testing coverage was high, with most participants reporting previous HIV testing and many having tested within the previous 12 months. HIV prevalence among study participants was low, with one confirmed HIV-positive participant identified during the survey period. The prevalence of HBV, HCV, and syphilis was also low.

Population size estimation based on participants’ social network information produced a median estimate of approximately 8,543 migrant workers across the study regions, substantially lower than the 2018 estimate of 38,258. This difference should be interpreted cautiously due to methodological differences, changes in migration patterns, recruitment dynamics, and the sensitivity of network-based estimation methods to reported network sizes. Given the sensitivity of this method to reported network sizes and recruitment dynamics, the 2025–2026 PSE should be interpreted as an indicative network-based estimate for program planning and triangulated with national migration statistics, routine program data, and prior bio-behavioral survey (BBS) estimates, rather than used as a standalone replacement for official population estimates.

Overall, the findings suggest that HIV prevalence was low among the recruited participants. However, important behavioral vulnerabilities persist, particularly related to inconsistent condom use and ongoing engagement in higher-risk sexual behaviors among a subset of migrants. The study also demonstrated that the BBS-Lite approach is operationally feasible within routine healthcare settings in Armenia and can generate timely surveillance data to support HIV prevention, testing, and service planning among migrant populations.

2. BACKGROUND

2.1 HIV and Migration in Armenia

Armenia has a concentrated HIV epidemic, with an estimated HIV prevalence of 0.4% among adults aged 15–49 years. According to national estimates, approximately 7,300 people aged 15 years and older were living with HIV in Armenia in 2024. Over the past five years, heterosexual transmission has remained the dominant mode of HIV transmission in the country, accounting for the majority of newly reported HIV cases. Homosexual contact and injecting drug use account for smaller proportions of newly diagnosed cases.

Regional differences in HIV prevalence are notable. According to national surveillance data, the highest HIV prevalence rates per 100,000 population are observed in Shirak (305 per 100,000), followed by Lori (279 per 100,000) and Gegharkunik (254 per 100,000) regions, while the national average is lower. These regions represent some of the areas with the greatest burden of HIV in the country.

Labor migration is a significant social and economic phenomenon in Armenia and has long been recognized as a factor influencing vulnerability to HIV infection. External migration remains the dominant direction of population movement in the country. During 2021–2023, a total of 261.8 thousand household members were involved in migration processes. Of these, 100.8 thousand people (38.5%) were still absent as of 2023, 64.6 thousand people (24.7%) had returned, and 96.4 thousand people (36.8%) had arrived in a settlement for the first time.[1] Overall, 55.3% (approximately 144.8 thousand people) of all migratory movements during 2021–2023 classified as interstate migration. The Russian Federation remains the primary destination country for Armenian labor migrants, accounting for 88.2% (around 127.8 thousand people) of all external migration movements. Among individuals who remained abroad as of 2023, 58.8% (approximately 59.3 thousand people) were residing in Russia, while among returnees, 66.9% (about 43.2 thousand people) had returned from Russia, reflecting the strong and longstanding labor migration ties between the two countries.[2]

Migration patterns also demonstrate strong regional concentration. Regions with the highest levels of labor migration—including Shirak, Lori, and Gegharkunik—are also the regions reporting the highest HIV prevalence rates. This overlap suggests that migration dynamics may contribute to increased vulnerability to HIV infection in these areas.

Labor migrants may face multiple factors that increase their vulnerability to HIV infection. Migration often involves prolonged separation from families, social isolation, and limited access to healthcare services while abroad. These conditions may increase the likelihood of engaging in high-risk behaviors such as unprotected sexual activity, including with commercial sex workers or casual partners, and in some cases substance use, including injecting drug use. As a result, migrants may be at risk of acquiring HIV while abroad and transmitting the infection upon returning to Armenia. A significant proportion of newly diagnosed HIV cases involve individuals who have either worked abroad or are sexual partners of labor migrants.

[1] https://armstat.am/file/article/demog_2024_7.pdf
[2] https://armstat.am/file/article/poverty_2024_en_2.pdf

2.2 Previous Surveillance and Data Gaps

BBS surveys provide critical information on HIV prevalence, risk behaviors, and access to prevention and treatment services among populations at increased risk of HIV infection. In Armenia, the most recent integrated biobehavioral survey among migrant workers was conducted in 2018. The survey identified HIV prevalence among migrants as well as the presence of other infections including HBV, HCV, and syphilis.

While large-scale integrated biobehavioral surveys provide valuable epidemiological information, they require substantial financial and technical resources and are therefore conducted infrequently. As a result, program managers may lack timely data needed to guide HIV prevention, testing, and treatment programs for migrant populations.

Routine programmatic data collected through HIV service delivery systems also have limitations, as they primarily capture individuals who are already engaged in health services and may not reflect the broader migrant population, including those who have limited interaction with healthcare services.

2.3 The BBS-Lite Approach

The BBS-lite methodology has been developed as a simplified surveillance approach designed to generate timely data on HIV, viral hepatitis, and sexually transmitted infections among populations at increased risk. Compared with traditional integrated bio-behavioral surveys, BBS-lite surveys use shorter questionnaires and simplified sampling approaches, allowing them to be implemented more frequently and at lower cost. This approach enables health programs to collect routine surveillance data that can inform program planning, service delivery, and evaluation of HIV prevention interventions. Importantly, BBS-lite surveys are intended to complement, rather than replace, large-scale integrated bio-behavioral surveys by providing more frequent programmatic information between larger surveillance studies.

2.4 Rationale for the Study

Given the continued importance of labor migration as a factor influencing HIV vulnerability in Armenia, updated data are needed to better understand HIV prevalence, risk behaviors, and access to prevention and testing services among migrant workers. The implementation of a BBS-lite survey among migrant workers provides an opportunity to generate timely information on HIV, viral hepatitis B and C, and syphilis prevalence, as well as behavioral and structural factors associated with infection risk. The findings of this study will support the improvement of HIV prevention, testing, and treatment services targeting migrant populations in Armenia and contribute to the evidence base used for national HIV strategic planning.

3. OBJECTIVES

The main objective of the study is to identify and assess the prevalence of HIV, HBV, HCV, and syphilis, associated risk behaviors, and access to prevention services among labor migrants.

- Assess participants' knowledge related to HIV.
- Examine socio-demographic characteristics (age, marital status, etc.).
- Assess participants' sexual and injecting risk behaviors.

- Measure the use of HIV prevention and testing services by labor migrants within Armenia's primary healthcare system.
- Assess the prevalence of HIV, HBV, HCV, and syphilis among labor migrants.

4. SAMPLING METHODS

4.1 Study population and Participant Eligibility

Participants were eligible for inclusion if they were male, aged 18–49 years, citizens of the Republic of Armenia, and residing in the catchment area of the participating medical center. For larger cities such as Gyumri and Vanadzor, where two medical centers participated in the study, individuals were free to attend whichever medical center was most convenient for them. However, referral coupons were site-specific and could only be redeemed at the medical center associated with the original participant who distributed the coupon. Individuals presenting a coupon at a different study site would not have been eligible for enrollment at that location. No instances of participants attempting to redeem coupons at an incorrect medical center were recorded during the study. Participants were required to have traveled abroad for labor for at least three months but not more than one year within the past year, be able to understand and communicate in Armenian, and be able and willing to provide informed consent.

Participating medical centers primarily recruited individuals from their usual service catchment areas, which generally included the city in which the facility was located as well as surrounding villages and nearby communities. In larger urban areas where two participating facilities were located within the same city (Vanadzor Medical Center and Vanadzor Polyclinic No. 3 in Vanadzor; Gyumri Medical Center and Gyumri Enrico Mattei Polyclinic in Gyumri), catchment areas could overlap. In these settings, recruitment was managed operationally by site survey administrators, regional coordinators, and the project manager to monitor enrollment flow and reduce the risk of duplicate enrollment. Participant eligibility and prior participation were verified through the study's coupon tracking and enrollment procedures.

4.2 Study sites

The survey was implemented in 12 medical centers across 10 cities in three regions of Armenia: Shirak, Lori, and Gegharkunik. Recruitment took place through existing HIV service programs supported by the Global Fund that provide services to migrant workers and the general population.

The participating medical centers were selected based on regional migration patterns, relative HIV prevalence rates, and the size of the populations served. Selected study sites included: Gyumri Medical Center, Akhurian Medical Center, Artik Medical Center, Gyumri Enrico Mattei Polyclinic, Vanadzor Polyclinic No. 3, Vanadzor Medical Center, Tashir Medical Center, Spitak Medical Center, Gavar Medical Center, Martuni Medical Center, Sarukhan Outpatient Clinic, Sevan Medical Center.

4.3 Sampling strategy

The study employed a chain-referral sampling strategy adapted from standard respondent-drive sampling (RDS) methods to recruit returning male labor migrants, a population that can be difficult to reach through conventional sampling approaches due to mobility, informal

employment patterns, and limited routine engagement with health services. RDS is a structured form of peer recruitment that begins with a small number of purposively selected initial participants, referred to as “seeds,” who are chosen based on their social connections and ability to reach diverse segments of the target population.

A total of 36 seeds were selected for the study, with three seeds recruited at each of the 12 participating medical centers. However, due to inactivity of two seeds at one of the medical centers, an additional two seeds were added bringing the total to 38. Seeds were identified through collaboration between medical center staff, regional site coordinators, each site’s survey administrator, and the study team. Medical center staff, who were familiar with the local communities and populations of returning labor migrants, proposed potential candidates, while regional site coordinators, survey administrators, and the study supervisor reviewed selections to ensure that seeds met study requirements and would support effective recruitment chains.

Several criteria were considered during seed selection. Preference was given to individuals who were socially well connected within the target population and who reported having broad social networks of other returning male labor migrants. Many selected seeds had experience traveling abroad for labor in large groups rather than individually, which increased the likelihood that they maintained active social and professional connections with other migrants. In addition, some seeds held supervisory or leadership roles while working abroad, such as serving as heads of construction teams or work brigades that employed or coordinated large numbers of Armenian labor migrants. These individuals were considered particularly well connected because of their frequent interaction with migrant workers both abroad and after returning to Armenia.

Efforts were also made to ensure diversity among seeds within each region, including variation in age, occupation, and areas of residence, in order to maximize recruitment into different social networks and subgroups of the target population. Individuals who were considered respected, communicative, and willing to participate in peer recruitment were prioritized, as these characteristics were expected to facilitate trust and sustained recruitment.

Each seed received three to five uniquely coded referral coupons to distribute within their social networks. The number of coupons distributed was adjusted throughout the study depending on recruitment performance and the pace of enrollment at each site. If recruitment chains initiated by a seed stalled or did not generate additional participants, additional seeds were identified and recruited at the respective medical center to maintain recruitment momentum. In such cases, the site survey administrator, in coordination with the study supervisor and regional site coordinators, would attempt to identify another eligible returning labor migrant known within the local community or through prior interaction with the medical center and invite them to participate as a new seed in the study. Decisions regarding additional coupon distribution were made jointly by the study supervisor, regional site coordinators, and each site’s survey administrator after reviewing recruitment progress and monitoring the development of recruitment chains across participating sites.

Recruited peers who enrolled in the study then became subsequent recruiters and were also provided with referral coupons, generating successive recruitment waves. This process continued throughout the recruitment period until the target sample size was achieved.

For this study, the traditional RDS framework was pragmatically adapted for implementation within routine health service settings. Recruitment was conducted from December 12, 2025 to February 16, 2026 at participating medical centers to facilitate integration with ongoing service

delivery and to ensure operational feasibility. Referral coupons included basic study information and instructions for participation. Individuals receiving coupons could attend designated recruitment sites during specified operating hours for screening and enrollment. The use of uniquely coded coupons enabled monitoring of recruitment chains and identification of recruiter–recruit relationships while maintaining participant anonymity and confidentiality, as no personal identifying information such as names or addresses was required.

Although the study design drew on core RDS principles, it was primarily intended to assess the feasibility and effectiveness of chain-referral recruitment among migrant workers in the Armenian context rather than to generate fully weighted population estimates based on formal RDS assumptions. Given the collection of network size information and recruitment linkages, RDS-weighted estimators were applied to adjust for differences in participants' network sizes and recruitment patterns. However, because the study was not designed as a traditional RDS survey and did not seek to satisfy all assumptions required for formal RDS inference, weighted estimates are presented for descriptive purposes only. These estimates should be interpreted as adjusted descriptions of the study sample and should not be considered representative population-level estimates of all migrant workers in Armenia.

4.4 Sample size

Since the BBS-Lite uses non-probability sampling methods, it is not possible to calculate a statistically powered sample size. For the purposes of this study, the target sample size was set at 900 migrant workers recruited through a combination of consecutive and chain-referral sampling.

To ensure adequate recruitment and allow for regional comparisons, approximately equal numbers of participants were recruited from each study site rather than allocating the sample proportionally to the estimated size of the migrant worker population in each region. As a result, the overall sample should be considered operationally balanced rather than population-proportional.

5. DATA COLLECTION PROCEDURES

Data collection was conducted using the SALT electronic data capture platform, a secure digital system designed to support participant registration, coupon tracking, eligibility verification, questionnaire administration, and study monitoring. Survey administrators entered data directly into tablets at participating medical centers, facilitating standardized data collection and centralized data management across all study sites.

Since the data collection software was newly developed for the study, recruitment was rolled out in phases, with one to two medical centers initiated per day to allow for software monitoring and troubleshooting. During site initiation, the site coordinator was present and the medical center arranged for selected seeds to attend to ensure that study procedures could be implemented successfully before full recruitment began.

Study procedures included eligibility screening, informed consent, completion of the behavioral questionnaire, biological sample collection, rapid testing, coupon distribution, and participant compensation. All procedures were conducted in a private area within participating medical centers. Participants completed the questionnaire independently on the tablet in Armenian. Questions were not read aloud, and participants did not discuss their responses with the survey

administrator. Survey administrators provided technical assistance and clarification when needed and oversaw implementation of study procedures.

Upon arrival at the participating medical center, individuals were screened for eligibility (**Annex A**) by the survey administrator. Prior to screening, participants' passports were reviewed to verify travel history, specifically entry to and exit from the country; no information was recorded or copied from any identification document. Participants recruited through peer referral presented a study coupon and, once eligibility was confirmed, provided informed consent electronically through the tablet system. Participants then completed a behavioral questionnaire covering demographic characteristics, migration history, HIV-related knowledge, risk behaviors, and service utilization (**Annex B**). Questionnaire completion required approximately 15–20 minutes.

Personal network size was assessed using questions designed to estimate the number of migrant workers known personally by each participant. For weighting purposes, the analysis used respondents' self-reported estimate of the number of migrant workers they knew personally. This measure was selected as the most appropriate representation of each participant's social network within the migrant worker community. Self-reported network size estimates were incorporated into the RDS weighting procedures, with participants reporting larger networks receiving smaller weights and those reporting smaller networks receiving larger weights, consistent with standard RDS methodology.

In cases where participants received a positive rapid test result, blood samples and limited identifying information was collected by clinical staff solely for the purpose of referral and confirmatory testing. They were then provided with coupons to distribute to peers in their network. Each participant received three to five coupons to recruit additional eligible migrant workers. The referral coupons were automatically generated through the study software, which allowed tracking of recruitment chains while maintaining participant confidentiality.

Participating medical centers were asked to document cases in which individuals presented with expired coupons and requested testing out of personal interest or curiosity, in order to better understand demand for testing beyond the formal recruitment process. Coupons were initially issued with a validity period of 10 working days. During implementation, the recruitment period and coupon validity period were extended uniformly across all participating sites to facilitate participant recruitment. In addition, some medical centers accommodated participants on Saturdays to increase accessibility. Scheduling arrangements, including days and hours of operation, were determined by each participating medical center based on local feasibility and were indicated on distributed coupons.

6. DATA MANAGEMENT & ANALYSIS

6.1 Data Management

All screening and questionnaire data were collected electronically using password-protected tablets. The survey software was designed to operate in both online and offline environments to ensure uninterrupted data collection across all study sites. Data were uploaded to a secure web-based data management system either in real time or at the end of each day, depending on internet connectivity at the study sites. In locations with limited connectivity, completed questionnaires were temporarily stored on the device and uploaded once a secure internet connection became available (usually by the end of the day), which also allowed the project team to verify the

number of completed questionnaires daily and promptly identify any potential software or data collection issues.

Study data were reviewed daily by the study data manager. Data from all sites were extracted each day and checked for completeness, accuracy, and logical consistency, and questionnaire branching logic was also reviewed regularly to ensure that survey pathways were functioning correctly. If any inconsistencies, errors, or technical issues were identified, the data manager communicated immediately with site supervisors who then communicated with the staff at the medical centers to clarify the issue and resolve it during the data collection period. The software allowed the study supervisor and data manager to track data collection progress in real time and support quality assurance across all sites.

Only de-identified data were stored in the study database. The database was protected through password access controls, and data were regularly backed up on a separate secure server. Access to the database was restricted to authorized study investigators, including the principal investigator, survey administrators, and data manager. Personal identifying information was not collected as part of the behavioral survey; however, in cases where participants received a positive rapid test result, limited identifying information was collected by clinical staff solely for the purpose of referral and confirmatory testing. Laboratory personnel responsible for returning test results had access only to the personal identifying information required for clinical follow-up. Test results were linked to the study database using a unique participant study identification number. Clinical staff and survey administrators did not have access to the behavioral survey database, and laboratory personnel did not have access to participants' interview responses.

No system-missing questionnaire items occurred because all questions required a response; however, participants could select 'no response' or 'don't know'. These responses were retained in the dataset and are presented in the analysis where applicable. Therefore, while there were no missing data due to unanswered questions, item non-response was captured through these response categories and should be considered when interpreting the findings.

6.2 Data Cleaning

Prior to analysis, the dataset underwent extensive cleaning, recoding, and preparation for use in RDS Analyst. Several data management steps were undertaken prior to analysis. Variable coding was standardized to improve interpretability and consistency during analysis (e.g., binary response categories were recoded to a uniform yes/no format). In addition, questions allowing multiple responses ("select all that apply") were transformed into separate binary variables, with each response option coded individually as yes/no. These modifications affected variable structure and coding only and did not alter participants' underlying responses. A limited number of logical inconsistencies, such as participants selecting "no response" while also providing valid responses to follow-up questions, were reviewed and recoded according to predefined data cleaning rules described in this report. No sensitivity analyses were conducted with and without recoded data. The purpose of these procedures was to improve data usability and analytical consistency rather than to modify substantive study findings.

As the original survey tool captured responses in Armenian, relevant variables and response categories were translated and recoded into English to ensure compatibility with analysis software. Additional data cleaning was required to address inconsistencies arising from questionnaire logic and response patterns. In some cases, the availability of a "no response" option at the beginning of a question block did not prevent participants from proceeding to and

answering subsequent related questions, due to skip logic limitations. In these instances, responses were reviewed and adjusted to better reflect the participant's apparent intent, particularly when subsequent answers indicated engagement with the question set. Similarly, for "select all that apply" questions, records in which participants selected substantive response options alongside "no response" were cleaned by removing the contradictory "no response" selection while retaining the meaningful responses provided.

For the Armenia and abroad analyses, participants were categorized based on whether they reported a given behavior or partnership in Armenia, abroad, or both settings. Participants who reported the same behavior or partnership type in both Armenia and abroad were included in both subgroup analyses. As a result, the Armenia and abroad groups are not mutually exclusive, and subgroup totals may exceed the overall number of participants reporting a given behavior. Additional caution was required when reviewing responses to follow-up behavioral questions such as condom use and condom use frequency. In some cases, participants selected "no response" when asked whether the reported partnership occurred in Armenia or abroad, but subsequently provided valid responses to the related condom-use questions. Unlike other sections of the questionnaire, these responses were not recoded during data cleaning because it was not possible to determine whether the reported sexual activity occurred in Armenia or abroad. Recoding these records would have required making assumptions about the location of the sexual encounter. Therefore, the original responses were retained to preserve the integrity of the data and avoid introducing potential misclassification. These steps were undertaken to improve internal consistency, data accuracy, and the reliability of subsequent RDS analysis.

6.3 Data Analysis

All analyses were conducted using the successive sampling estimator in RDS Analyst (www.hpmrg.org), a specialized software designed for RDS and network-based data. Recruitment diagnostics were also generated using RDS Analyst. Estimates for each survey site were produced using site-specific population size inputs and were weighted accordingly to generate estimates across all survey locations.

Because the weighted estimates are derived from participants' self-reported personal network sizes, they should be interpreted with caution. Responses to the network size question varied considerably, with some participants reporting very large network sizes, which can have a substantial influence on the weighting process and resulting estimates. This is particularly important when interpreting highly sensitive indicators, where reporting may be affected by stigma, social desirability bias, or non-response. Consequently, while weighted estimates are presented to account for differences in recruitment probabilities, they should be considered descriptive in nature and interpreted alongside the unweighted findings. RDS-based estimators were applied because recruitment linkage and participant network size data were available through the coupon referral process; however, given that the study did not employ a traditional RDS design and no convergence diagnostics were conducted, the resulting estimates should be interpreted as adjusted descriptive measures rather than formal population estimates derived from RDS methodology.

7. LABORATORY PROCEDURES

Biological testing for HIV, HBV, HCV, and syphilis was conducted by routine healthcare providers at participating medical centers in accordance with national testing guidelines. After providing informed consent and completing the behavioral questionnaire, participants received

pre-test counselling from trained staff. A finger-prick blood sample was collected and processed on site using rapid diagnostic tests.

Rapid testing for HIV (sensitivity: 99.2%; specificity: 99.7%), HBV (sensitivity: 99.9%; specificity: 99.9%), HCV sensitivity: >99.3%; specificity: 98.1-100%, and syphilis (sensitivity: 99.7%; specificity: 99.7%), was performed at the study sites according to national testing procedures. If the rapid HIV or HCV test result was positive, venous blood (3–5 mL) was collected and sent to NCID for confirmatory testing. Participants with positive HBV results were referred to their local polyclinic for further evaluation and care, while those with positive syphilis results were referred to the Dermatology Center in Yerevan.

Biological specimens requiring confirmatory testing were stored and transported in accordance with Ministry of Health guidelines. Test results were linked to survey data using unique participant study identification numbers and laboratory codes. Participants received their rapid test results on the day of the survey through trained counsellors and were referred to appropriate care and treatment services in accordance with national clinical guidelines.

8. ETHICAL CONSIDERATIONS

Participants read the consent form on the tablet and confirmed their participation by providing a digital signature. Signed consent forms were securely stored within the system and kept on record. During the consent process, participants were informed about the purpose of the survey, the study procedures, potential risks and benefits, and contact information for reporting concerns or complaints. Participants were informed that participation was voluntary and confidential and that they could withdraw from the study at any time without providing a reason. To receive compensation for participation, potential participants were informed that they had to agree to complete the behavioral interview as well as the biological testing. They were also informed that aggregated and de-identified data may be used in future publications.

The protocol, eligibility questionnaire, questionnaire, and any other material (coupon, referral document, etc.) were submitted for ethical review to and approved by the ethics committee of the NCID. No adverse events were reported during the duration of the study.

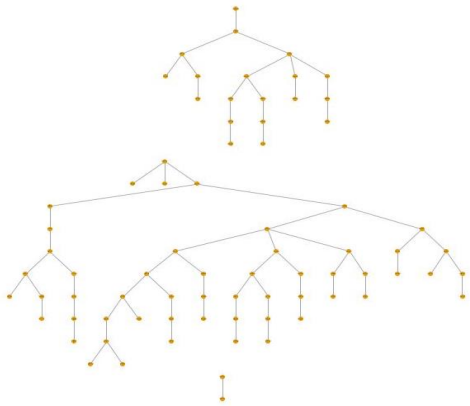
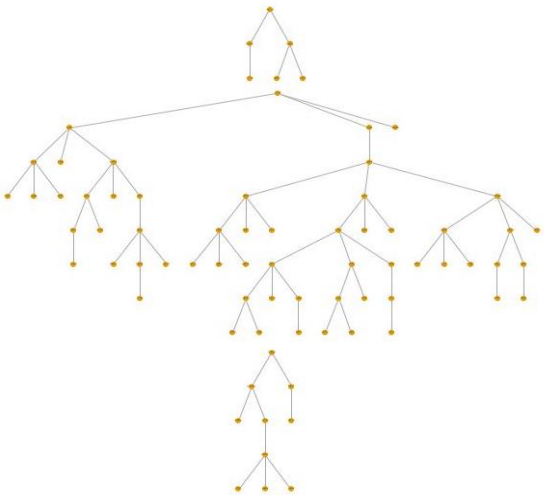
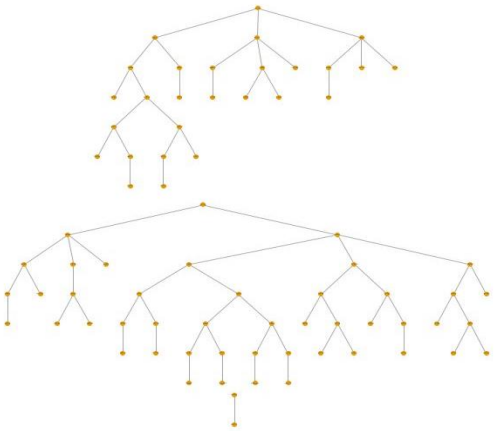
9. RESULTS

The total sample consisted of 900 participants, including 38 seeds. Initially, 36 seeds were recruited (three per study site); however, two additional seeds were recruited at one site to replace inactive seeds that did not distribute coupons or initiate recruitment chains. In total, 1,840 coupons were distributed during the study. A total of 12 participating medical centers were included in the recruitment process. Most medical centers initiated recruitment with three seeds (36 total), while Vanadzor Polyclinic No. 3 used five seeds due to slower recruitment chain development and the need to sustain participant flow. Across all sites, each medical center successfully achieved the target of 75 participants, although the number of distributed coupons and the productivity of individual seeds varied substantially between sites.

Recruitment chain depth (maximum branching) also differed between sites. The deepest recruitment chain was observed at Gyumri Medical Center, where one seed achieved a branching depth of 15 waves, indicating strong peer-to-peer recruitment and sustained network penetration.

Other sites demonstrated moderate recruitment depth, generally ranging between 3 and 10 waves. Some seeds generated very limited or no recruitment chains, highlighting the importance of continuous seed monitoring and replacement throughout the data collection process (**Table 1, Table 2, Table 3**).

Table 1. Recruitment graphic of Shirak migrants

Akhuryan Medical Center	
Artik Medical Center	
Gyumri “Enrico Mattei” Polyclinic	

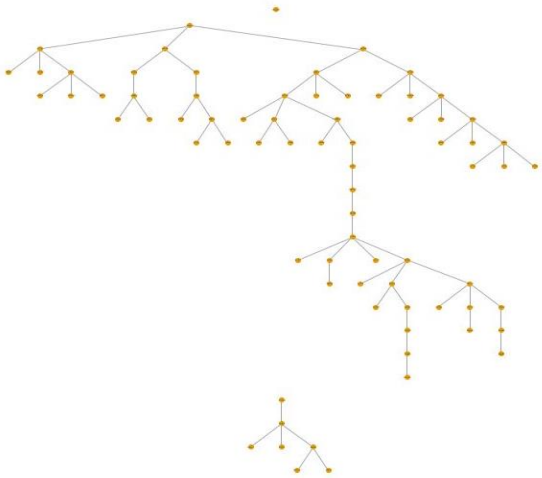
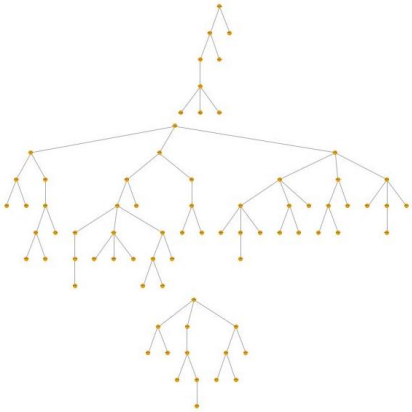
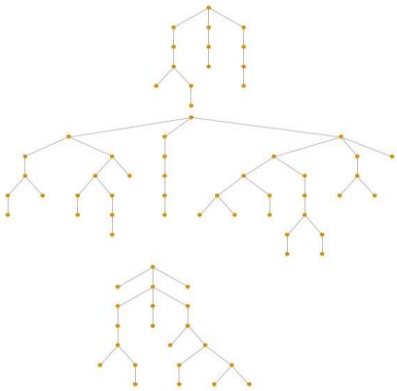
Gyumri Medical Center	

Table 2. Recruitment graphic of Lori migrants

Spitak Medical Center	
Tashir Medical Center	

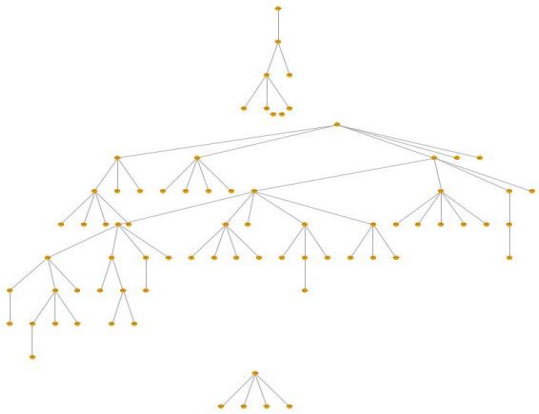
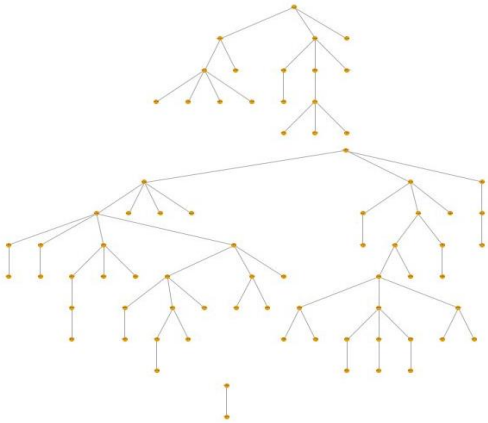
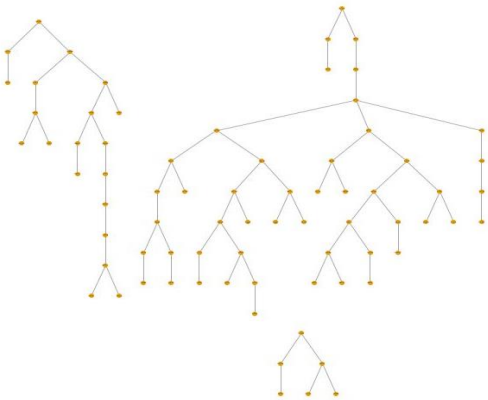
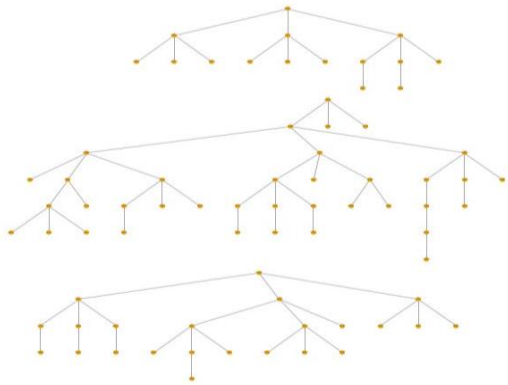
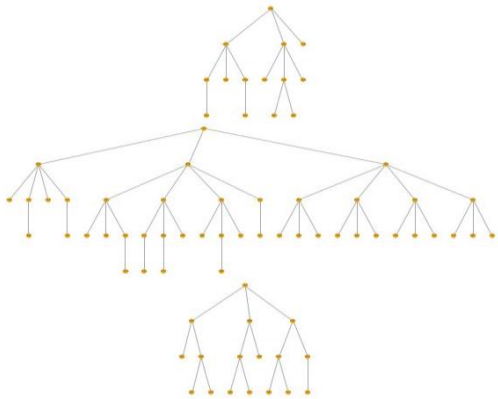
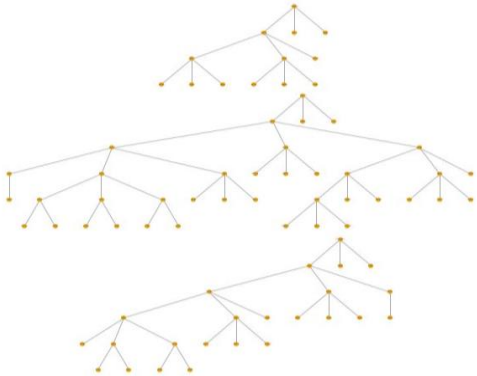
Vanadzor N3 Polyclinic	
Vanadzor Medical Center	

Table 3. Recruitment graphic of Gegharkunik migrants

Gavar Medical Center	

Martuni Medical Center	
Sarukhan Outpatient Clinic	
Sevan Medical Center	

The number of distributed coupons ranged from 100 coupons at Sarukhan Outpatient Clinic to 259 coupons at Vanadzor N3 Polyclinic, suggesting differences in recruitment efficiency and network connectivity across regions. In several sites, recruitment was driven primarily by one highly productive seed. For example, at Gyumri Medical Center, one seed generated 66 recruits while another generated none. Similarly, in Vanadzor Medical Center, one seed generated 54 recruits, whereas another generated only one (**Table 4**).

Table 4. Seed breakdown (n=38)

Medical Center	Seeds	Distributed Coupons	Study Participants	Seed Productivity	Maximum Branching
Akhuryan Medical Center	3	186	75	Seed 1 = 18	Seed 1 = 6
				Seed 2 = 53	Seed 2 = 9
				Seed 3 = 1	Seed 3 = 1

Artik Medical Center	3	146	75	Seed 1 = 58	Seed 1 = 7
				Seed 2 = 5	Seed 2 = 2
				Seed 3 = 9	Seed 3 = 4
Gavar Medical Center	3	133	75	Seed 1 = 5	Seed 1 = 2
				Seed 2 = 48	Seed 2 = 10
				Seed 3 = 19	Seed 3 = 9
Gyumri Medical Center	3	209	75	Seed 1 = 66	Seed 1 = 15
				Seed 2 = 6	Seed 2 = 3
				Seed 3 = 0	Seed 3 = 0
Gyumri "Enrico Mattei" Polyclinic	3	108	75	Seed 1 = 45	Seed 1 = 6
				Seed 2 = 26	Seed 2 = 6
				Seed 3 = 1	Seed 3 = 1
Martuni Medical Center	3	121	75	Seed 1 = 14	Seed 1 = 3
				Seed 2 = 22	Seed 2 = 4
				Seed 3 = 36	Seed 3 = 6
Sarukhan Outpatient Clinic	3	100	75	Seed 1 = 16	Seed 1 = 3
				Seed 2 = 43	Seed 2 = 4
				Seed 3 = 13	Seed 3 = 3
Sevan Medical Center	3	162	75	Seed 1 = 12	Seed 1 = 3
				Seed 2 = 37	Seed 2 = 5
				Seed 3 = 23	Seed 3 = 5
Spitak Medical Center	3	138	75	Seed 1 = 13	Seed 1 = 4
				Seed 2 = 8	Seed 2 = 4
				Seed 3 = 51	Seed 3 = 6
Vanadzor Medical Center	3	170	75	Seed 1 = 1	Seed 1 = 1
				Seed 2 = 17	Seed 2 = 4
				Seed 3 = 54	Seed 3 = 7
Vanadzor N3 Polyclinic	5	259	75	Seed 1 = 0*	Seed 1 = 0
				Seed 2 = 6	Seed 2 = 3
				Seed 3 = 0*	Seed 3 = 0
				Seed 4 = 4	Seed 4 = 1
				Seed 5 = 60	Seed 5 = 7
Tashir Medical Center	3	109	75	Seed 1 = 39	Seed 1 = 7
				Seed 2 = 13	Seed 2 = 5
				Seed 3 = 20	Seed 3 = 6

**Two additional seeds were recruited at this site because the original two out of three seeds did not actively recruit participants*

A total of 38 seeds were recruited across Gegharkunik (n=12), Lori (n=14), and Shirak (n=12), with the majority aged 25 years or older (89.5%), particularly those aged 35–44 years (n=14) and 25–34 years (n=12), reflecting a mature working-age migrant population. Most seeds were married (n=25), with fewer being single (n=10), suggesting that many participants had established family responsibilities. Educational attainment was generally at the secondary level, with most reporting completed secondary education (n=25), while a smaller proportion had higher education (n=8). Nearly all seeds reported working in the Russian Federation (n=33), confirming Russia as the dominant destination for labor migration among the study population. Most had worked abroad for extended periods, with 20 reporting 3–6 months abroad and 18 reporting 7–12 months, indicating sustained migration exposure over the previous year. The majority resided in urban settings in Armenia (city/town: n=29), and most had worked in large cities abroad (n=27), with fewer in smaller cities (n=11). In terms of occupation, construction was by far the most common sector (n=24), followed by smaller numbers in service roles and other occupations (**Table 5**).

Table 5. Socio-demographic and general working characteristics of seeds in Armenia (n=38)

	Armenia		**Shirak**		**Lori**		**Gegharkunik**	
	n=38		***n=12***		***n=14***		***n=12***	
	n	%	n	%	n	%	n	%
Age in years (four levels)								
18-24	4	10.5	0	0.0	2	14.3	2	16.7
25-34	12	31.6	3	25.0	4	28.6	5	41.7
35-44	14	36.8	7	58.3	4	28.6	3	25.0
45+	8	21.1	2	16.7	4	28.6	2	16.7
Age in years (two levels)								
≤24	4	10.5	0	0.0	2	14.3	2	16.7
≥25	34	89.5	12	100.0	12	85.7	10	83.3
Education								
Incomplete Secondary	3	7.9	1	8.3	1	7.1	1	8.3
Secondary	25	65.8	7	58.3	10	71.4	8	66.7
Secondary technical	2	5.3	0	0.0	0	0.0	2	16.7
Incomplete higher	0	0.0	0	0.0	0	0.0	0	0.0
Higher	8	21.1	4	33.3	3	21.4	1	8.3
Family status								
Single	10	26.3	3	25.0	3	21.4	4	33.3
Married	25	65.8	8	66.7	10	71.4	7	58.3
Civil Marriage	2	5.3	1	8.3	0	0.0	1	8.3
Divorced	0	0.0	0	0.0	0	0.0	0	0.0
Widowed	0	0.0	0	0.0	0	0.0	0	0.0
No response	1	2.6	0	0.0	1	7.1	0	0.0
Foreign country worked in the past year								
Russia	33	86.8	11	91.7	12	85.7	10	83.3
Ukraine	0	0.0	0	0.0	0	0.0	0	0.0
Other	5	13.2	1	8.3	2	14.3	2	16.7
Duration worked abroad								
3-6 months	20	52.6	5	41.7	8	57.1	7	58.3
7-12 months	18	47.4	7	58.3	6	42.9	5	41.7
Place of residence abroad								
City/Town	29	76.3	9	75.0	12	85.7	8	66.7
Village	9	23.7	3	25.0	2	14.3	4	33.3
Type of settlement worked in the past year								
Big City	27	71.1	11	91.7	11	78.6	5	41.7
City	11	28.9	1	8.3	3	21.4	7	58.3
Suburbs	0	0.0	0	0.0	0	0.0	0	0.0
Village	0	0.0	0	0.0	0	0.0	0	0.0
Type of work performed in the past year								
Construction	24	63.2	7	58.3	9	64.3	8	66.7
Agriculture	0	0.0	0	0.0	0	0.0	0	0.0
Trade	2	5.3	1	8.3	1	7.1	0	0.0
Service sector	4	10.5	1	8.3	2	14.3	1	8.3
Other	8	21.1	3	25.0	2	14.3	3	25.0

9.1 Socio-Demographic and General Working Characteristics

Most migrants were 25 years or older based on weighted estimates (79.8%) (**Table 6**), while 20.2% were between the ages of 18 and 24 years, with the largest proportion aged 35–44 years (32.9%). With the exception of Gegharkunik, where a younger age profile was observed (30.8%

aged 18–24), most regions were composed primarily of older working-age adults. Most migrants had secondary education (53.9%), with especially high levels in Lori (84.9%), while Gegharkunik had the highest proportion with higher education (28.3%). Overall, most migrants were married (56.2%), although this varied by region, with marriage most common in Shirak (62.2%), while migrants in Gegharkunik were more likely to be single (59.6%). Nearly all migrants reported working in Russia during the past year (96.4%), with only small proportions reporting Ukraine or other destinations; the highest proportion working outside Russia was observed in Gegharkunik (8.4%). Most migrants reported spending 3–6 months abroad during the past year (74.8%), while one-quarter (25.1%) spent 7–12 months abroad. Shorter durations were especially common in Shirak (85.5%), whereas longer stays were more common in Lori (39.8%) and Gegharkunik (39.0%). Most migrants reported living abroad in cities or towns (82.2%), and most also worked in big cities (72.1%), especially those from Gegharkunik (79.8%) and Shirak (75.7%), whereas migrants from Lori were more likely to report working in smaller cities (43.1%). Construction was by far the most common type of work performed abroad (80.5%), followed by the service sector (12.7%). Construction employment was highest among migrants from Gegharkunik (87.6%), while service sector employment was highest in Lori (19.4%), and trade work was also more commonly reported in Lori (9.1%) than in other regions.

Table 6. Socio-demographic and general working characteristics of migrant workers in Armenia (n=900)

	Armenia		**Shirak**		**Lori**		**Gegharkunik**	
	n=900		***n=300***		***n=300***		***n=300***	
	n	% (95% Cl)*	n	% (95% Cl)*	n	% (95% Cl)*	n	% (95% Cl)*
Age in years (four levels)								
18-24	152	20.2 (14.0-26.4)	40	15.4 (4.5-26.3)	50	23.0 (13.5-32.4)	62	30.8 (20.4-41.3)
25-34	269	30.8 (25.6-36.0)	78	30.3 (18.2-42.3)	88	31.0 (24.2-37.7)	103	32.0 (25.6-38.4)
35-44	325	32.9 (27.6-38.2)	121	36.0 (26.1-46.1)	110	30.3 (21.0-39.6)	94	26.9 (18.9-34.9)
45+	154	16.1 (9.8-22.4)	61	18.3 (5.6-31.0)	52	15.7 (6.8-24.7)	41	10.3 (1.9-18.6)
Age in years (two levels)								
≤24	152	20.2 (15.7-24.7)	40	15.4 (4.3-26.6)	50	23.0 (17.1-28.9)	62	30.8 (23.3-38.3)
≥25	748	79.8 (75.3-84.3)	260	84.6 (73.5-95.7)	250	77.0 (71.1-82.9)	238	69.2 (61.7-76.7)
Education								
Incomplete Secondary	82	5.9 (0.0-13.5)	11	4.2 (0.0-8.7)	10	2.4 (0.0-9.5)	61	14.7 (6.6-22.8)
Secondary	588	53.9 (47.4-60.4)	185	48.9 (38.0-59.7)	248	84.9 (84.5-85.2)	155	33.2 (32.8-33.7)
Secondary technical	93	21.6 (18.5-24.8)	50	29.6 (28.7-30.6)	11	2.6 (1.1-4.2)	32	20.0 (11.0-29.0)
Incomplete higher	27	3.5 (3.0-4.1)	21	4.8 (0.0-10.5)	2	0.0 (0.0-6.9)	4	3.8 (0.0-9.1)
Higher	109	14.9 (13.1-16.7)	32	12.2 (2.6-21.7)	29	10.0 (8.9-11.2)	48	28.3 (21.3-35.3)
No response	1	0.2 (-)	1	0.3 (0.0-2.4)	0	-	0	-
Family status								
Single	341	37.0 (37.0-37.1)	90	27.5 (27.1-27.8)	104	41.3 (41.3-41.4)	147	59.6 (49.3-69.7)
Married	525	56.2 (56.0-56.4)	189	62.2 (58.9-65.6)	191	57.2 (49.8-64.6)	145	37.7 (34.8-40.7)
Civil Marriage	2	0.0 (0.0-0.2)	1	0.0 (0.0-0.3)	1	0.0 (0.0-0.1)	0	-
Divorced	15	2.4 (0.0-4.9)	10	3.3 (3.2-3.4)	2	1.0 (0.9-1.1)	3	1.4 (0.0-11.5)
Widowed	4	1.0 (0.0-8.3)	3	1.6 (0.0-5.8)	1	0.1 (0.0-0.3)	0	-
No response	13	3.4 (0.0-10.5)	7	5.4 (2.9-7.8)	1	0.3 (0.0-7.7)	5	1.3 (0.0-2.7)
Foreign country worked in the past year								
Russia	858	96.4 (95.6-97.1)	291	98.0 (97.3-98.7)	293	96.3 (96.1-96.5)	274	91.6 (83.4-99.8)

Ukraine	2	0.0 (0.0-0.2)	1	0.1 (0.0-0.2)	1	0.1 (0.0-0.1)	0	-
Other[1]	40	3.6 (2.9-4.3)	8	1.9 (1.2-2.63)	6	3.6 (3.5-3.8)	26	8.4 (0.2-16.6)
Duration worked abroad								
3-6 months	581	74.8 (68.2-81.5)	214	85.5 (71.4-99.6)	159	60.2 (49.7-70.7)	208	60.6 (49.8-71.4)
7-12 months	318	25.1 (18.4-31.8)	86	14.5 (0.4-28.6)	141	39.8 (29.3-50.3)	91	39.0 (28.3-49.8)
No response	1	0.1 (0.0-1.3)	0	-	0	-	1	0.4 (0.2-0.5)
Place of residence abroad								
City/Town	663	82.2 (75.7-88.7)	222	81.0 (68.7-93.2)	227	83.4 (75.4-91.4)	214	84.4 (74.7-94.1)
Village	237	17.8 (11.3-24.3)	78	19.0 (6.8-31.3)	73	16.6 (8.6-24.6)	86	15.6 (5.9-25.3)
Type of settlement worked in the past year								
Big City	557	72.1 (65.1-79.2)	177	75.7 (62.2-89.3)	177	56.2 (46.1-66.3)	203	79.8 (71.3-88.3)
City	331	26.5 (19.5-33.5)	115	22.3 (9.1-35.6)	122	43.1 (33.0-53.3)	94	19.6 (11.3-28.0)
Suburbs	5	0.7 (0.0-1.6)	4	1.0 (0.0-5.2)	1	0.7 (0.2-1.1)	0	-
Village	7	0.7 (0.0-2.4)	4	1.0 (0.0-3.2)	0	-	3	0.6 (0.0-3.8)
Type of work performed in the past year								
Construction	729	80.5 (79.5-81.5)	249	82.0 (72.4-91.6)	218	70.3 (61.7-78.8)	262	87.6 (87.3-87.9)
Agriculture	3	0.0 (0.0-5.2)	0	-	2	0.1 (0.0-5.3)	1	0.0 (0.0-0.0)
Trade	35	4.6 (1.7-7.5)	12	3.9 (0.0-8.8)	20	9.1 (2.2-16.1)	3	1.3 (1.0-1.7)
Service sector	107	12.7 (7.0-18.4)	30	12.1 (8.3-15.9)	54	19.4 (19.0-19.8)	23	6.9 (-)
Other[2]	25	2.1 (-)	9	1.9 (0.0-10.4)	6	1.1 (0.0-3.4)	10	3.8 (3.6-3.9)
No response	1	0.1 (0.0-1.9)	0	-	0	-	1	0.4 (0.3-0.4)

**Weighted estimates*

[1] '*Other' countries of work included Abkhazia (n=1), Belgium (n=1), Germany (n=4), Georgia (n=3), Iraq (n=1), Kazakhstan (n=27), Montenegro (n=1), and the United States (n=1).*

[2] *'Other' occupations were primarily driver (n=9) and chef (n=5), with smaller numbers working in conditioner repair, health sector, delivery services, car services, road construction, and other miscellaneous occupations.*

9.2 General Sexual History

Based on weighted estimates, less than half of migrants reported having sexual intercourse in the past 30 days (49.5%) (**Table 7**), although this varied substantially by region. Recent sexual activity was highest among migrants from Lori (78.7%) and lower in Shirak (41.2%) and Gegharkunik (40.3%). Among those reporting sexual intercourse in the past 30 days, condom non-use at last sexual intercourse was relatively low, with only 36.7% reporting condom use. Condom non-use was highest among migrants from Shirak (80.5%), followed by Gegharkunik (53.9%), while migrants from Lori reported the lowest level of condom non-use (30.7%). Among those who did not use a condom, the most commonly reported reason overall was trust in their sexual partner (49.4%), particularly in Gegharkunik (71.8%) and Lori (55.5%). Reduced pleasure was the second most common reason (22.0%), especially among migrants from Shirak (32.0%). Feelings of shame when buying condoms (14.6%) or asking a partner to use one (8.4%) were also reported, particularly in Shirak. A relatively high proportion of participants in Lori did not respond to the condom non-use reason question (35.3%), Notably, participants from Lori consistently demonstrated the highest levels of non-response across several sexual behavior indicators. This was particularly evident for questions related to sexual intercourse in the past 30 days, where 17 participants did not provide a response, condom use at last sexual intercourse, where 44 participants did not respond, and reasons for not using a condom, where 52 participants did not provide a reason.

Table 7. General sexual history of migrant workers in Armenia (n=900)

	Armenia	Shirak	Lori	Gegharkunik

	n=900		*n=300*		*n=300*		*n=300*	
	n	% (95% Cl)*	n	% (95% Cl)*	n	% (95% Cl)*	n	% (95% Cl)*
Spouse accompanies while abroad								
Yes	99	6.6 (2.6-10.5)	27	4.6 (0.0-15.7)	47	12.2 (8.4-16.0)	25	6.0 (1.8-10.2)
No	708	80.9 (75.0-86.8)	229	81.8 (69.0-94.6)	232	81.1 (74.6-87.5)	247	78.2 (72.1-84.2)
Not Married	86	12.1 (9.8-14.4)	43	13.6 (12.2-15.1)	19	5.9 (4.2-7.5)	24	14.8 (13.7-15.8)
No response	7	0.4 (0.0-5.0)	1	0.0 (0.0-7.8)	2	0.9 (0.0-5.9)	4	1.1 (0.0-5.8)
Sexual intercourse in past 30 days across any/all partner types								
Yes	475	49.5 (48.3-50.6)	155	41.2 (30.1-52.3)	219	78.7 (72.9-84.5)	101	40.3 (39.1-41.4)
No	399	49.2 (44.0-54.4)	143	58.7 (54.6-62.9)	64	17.2 (10.7-23.6)	192	57.9 (49.3-66.5)
No response	26	1.4 (0.0-6.3)	2	0.1 (0.0-11.4)	17	4.4 (0.0-10.2)	7	1.8 (0.0-11.1)
	n=501		***n=157***		***n=236***		***n=108***	
Condom use at last sexual intercourse in past 30 days ***(among those who had sexual intercourse in past 30 days or no response)***								
Yes	200	36.7 (31.0-42.4)	45	19.5 (0.0-41.0)	110	55.6 (44.2-67.0)	45	43.3 (17.5-69.1)
No	253	57.8 (47.3-68.3)	112	80.5 (59.0-100.0)	82	30.7 (18.7-42.8)	59	53.9 (29.4-78.3)
No response	48	5.5 (0.0-15.7)	0	-	44	13.7 (4.7-22.7)	4	2.8 (0.0-9.5)
	n=301		***n=112***		***n=126***		***n=63***	
Reasons why condom not used during sexual intercourse in past 30 days ***(among those who did not use condom or no response)*** *(select all that apply)*								
Very expensive	3	0.3 (0.0-0.9)	1	0.1 (0.1-0.1)	0	-	2	1.6 (1.6-1.6
Ashamed to buy	16	14.6 (14.4-14.9)	13	24.1 (6.4-41.9)	2	0.3 (0.0-5.1)	1	1.6 (1.6-1.6)
Difficult to use	11	9.7 (6.6-12.7)	9	15.9 (0.0-42.3)	1	0.9 (0.9-0.9)	1	0.1 (0.0-46.9)
Abates pleasure	45	22.0 (11.4-32.5)	22	32.0 (0.7-63.3)	16	8.8 (0.0-28.1)	7	4.9 (3.8-6.0)
Ashamed to ask sexual partner to use it	13	8.4 (5.6-11.1)	7	13.6 (12.9-14.4)	1	0.0 (0.0-8.8)	5	1.8 (0.0-8.6)
Trust my partner	161	49.4 (30.0-68.9)	74	41.2 (11.5-70.9)	58	55.5 (29.7-81.2)	29	71.8 (27.0-100.0)
Don't trust that condoms work	6	3.3 (2.7-3.9)	3	4.7 (-)	2	1.8 (-)	1	0.6 (-)
Other	6	1.8 (-)	1	1.3 (-)	2	1.5 (-)	3	4.2 (-)
No response	67	11.5 (0.0-28.2)	1	0.7 (-)	52	35.3 (17.9-52.7)	14	13.6 (0.0-43.7)

**Weighted estimates*

9.3 Sexual Behaviors with Regular Partners

Based on weighted estimates, 44.1% of migrants reported sexual intercourse with a regular partner in Armenia, while 10.5% reported sexual intercourse with a regular partner abroad and 44.6% reported no sexual intercourse with a regular partner (**Table 8**). Sexual intercourse with a regular partner abroad was most commonly reported among migrants from Lori (33.0%), while migrants from Gegharkunik were the least likely to report sexual intercourse with a regular partner abroad (9.1%). Condom use with regular partners was low across all regions. Among respondents reporting a regular partner in Armenia, 74.6% did not use a condom during their most recent sexual intercourse, while only 21.7% reported condom use. Similar patterns were observed abroad, where over half (51.5%) did not use a condom during their most recent sexual encounter. Trust in a regular partner was the primary reason for condom non-use, reported by 65.6% of respondents with regular partners in Armenia and 49.7% of those with regular partners abroad. Consistent condom use was uncommon, with only 9.6% of respondents in Armenia and 17.1% abroad reporting always using condoms with regular partners. Lori had the highest number of non-responses across several key indicators, including sexual intercourse with a regular partner (n=34), condom use during most recent intercourse in Armenia (n=29) and abroad (n=26),

reasons for condom non-use in Armenia (n=33), and lifetime condom use with regular partners in Armenia (n=30).

Table 8. Sexual behaviors in the past year with regular partners among migrant workers in Armenia (n=900)

	Armenia		**Shirak**		**Lori**		**Gegharkunik**	
	n=900		***n=300***		***n=300***		***n=300***	
	n	% (95% Cl)*	n	% (95% Cl)*	n	% (95% Cl)*	n	% (95% Cl)*
Sexual intercourse with regular partner within past year *(select all that apply)*								
Armenia	391	44.1 (37.0-51.2)	169	48.8 (34.8-62.8)	163	46.2 (35.7-56.7)	59	28.0 (19.4-36.7)
Abroad	181	10.5 (5.1-15.9)	24	2.1 (0.0-9.3)	95	33.0 (24.1-41.9)	62	9.1 (1.1-17.1)
No	326	44.6 (38.0-51.3)	108	47.5 (34.6-60.5)	56	24.5 (15.3-33.7)	162	59.0 (48.4-69.6)
No response	60	3.8 (1.6-5.9)	8	2.0 (1.0-3.0)	34	7.7 (1.2-14.1)	18	4.5 (0.0-9.3)
Condom use during most recent sexual intercourse with regular partner								
Armenia								
	n=391		***n=169***		***n=163***		***n=59***	
Yes	116	21.7 (14.6-28.7)	40	14.9 (1.0-30.5)	53	27.5 (17.3-37.6)	23	44.8 (0.5-89.2)
No	246	74.6 (62.6-86.6)	129	85.1 (69.5-100.0)	81	56.5 (41.5-71.6)	36	55.2 (10.8-99.5)
No response	29	3.8 (0.0-14.9)	0	-	29	16.0 (0.0-32.1)	0	-
Abroad								
	n=181		***n=24***		***n=95***		***n=62***	
Yes	59	32.5 (13.5-51.5)	15	34.2 (4.8-63.6)	34	36.0 (9.2-62.3)	10	17.0 (0.0-36.5)
No	91	51.5 (31.2-71.8)	8	64.6 (35.2-94.0)	35	43.4 (18.3-68.5)	48	75.9 (54.0-97.8)
No response	31	16.0 (0.6-31.4)	1	1.2 (0.0-3.3)	26	20.6 (0.0-47.0)	4	7.1 (0.0-19.0)
Reasons why condom not used with regular partner *(select all that apply)*								
Armenia								
	n=275		***n=129***		***n=110***		***n=36***	
Very expensive	4	0.7 (0.0-3.7)	2	0.7 (0.0-15.8)	0	-	2	2.4 (0.0-24.9)
Ashamed to buy	12	8.7 (0.0-25.5)	10	12.5 (10.1-14.9)	2	0.4 (-)	4	5.7 (0.0-46.1)
Difficult to use	9	8.3 (0.0-18.6)	8	11.7 (0.0-28.0)	1	1.0 (-)	0	-
Abates pleasure	35	17.9 (8.0-27.8)	20	23.3 (5.3-41.3)	11	5.9 (0.0-28.3)	0	-
Ashamed to ask partner to use it	6	5.1 (3.1-7.1)	4	7.3 (7.1-7.5)	1	0.1 (-)	1	0.8 (-)
Trust my partner	180	65.6 (48.4-82.9)	96	63.0 (44.9-81.0)	62	67.1 (42.6-91.6)	22	82.4 (31.3-100.0)
Don't trust that condoms work	7	2.8 (2.3-3.3)	4	3.2 (0.0-11.7)	2	2.0 (1.7-2.2)	1	1.0 (-)
Other	2	0.1 (0.0-1.9)	0	-	0	-	2	0.5 (0.0-10.1)
No response	38	6.6 (0.0-19.4)	1	1.0 (-)	33	23.7 (4.2-43.2)	4	7.2 (0.0-38.5)
Abroad								
	n=122		***n=9***		***n=61***		***n=52***	
Very expensive	0	-	0	-	0	-	0	-
Ashamed to buy	1	0.1 (0.0-2.0)	1	0.1 (-)	0	-	0	-
Difficult to use	3	1.9 (1.4-2.4)	1	1.6 (0.0-33.9)	0	-	2	3.8 (1.3-6.4)
Abates pleasure	33	14.3 (0.0-41.0)	7	4.4 (0.0-30.0)	3	35.7 (0.0-100.0)	23	34.2 (4.9-63.6)
Ashamed to ask partner to use it	15	8.0 (0.0-22.5)	1	0.1 (0.1-0.1)	1	31.2 (0.0-100.0)	13	20.9 (0.0-51.6)
Trust my partner	41	49.7 (18.9-80.6)	30	64.3 (21.0-100.0)	3	12.6 (0.0-95.4)	8	23.3 (16.8-29.9)

Don't trust that condoms work	2	3.2 (-)	1	1.6 (0.0-36.1)	1	18.7 (-)	0	-
Other	2	2.0 (-)	0	-	0	-	2	9.2 (0.0-46.5)
No response	31	23.7 (4.1-43.3)	26	32.2 (0.0-77.6)	1	1.9 (1.9-1.9)	4	8.5 (5.2-11.9)
Frequency of using condoms with regular partner across lifetime								
Armenia								
	n=391		***n=169***		***n=163***		***n=59***	
Always	67	9.6 (0.0-19.7)	26	9.4 (7.9-10.9)	32	11.0 (0.0-25.6)	9	8.1 (3.0-13.2)
Sometimes	189	59.2 (53.4-65.0)	87	55.3 (40.6-70.0)	60	55.4 (45.0-65.9)	42	85.4 (68.1-100.0)
Never	101	26.9 (18.9-34.8)	53	35.0 (18.3-51.8)	41	16.5 (2.7-30.3)	7	5.2 (0.0-17.7)
No response	34	4.4 (0.0-13.1)	3	0.3 (0.0-19.1)	30	17.1 (4.2-29.9)	1	1.3 (0.0-22.8)
Abroad								
	n=181		***n=24***		***n=95***		***n=62***	
Always	32	17.1 (8.3-26.0)	10	15.4 (0.0-44.1)	18	18.5 (0.0-42.9)	4	12.7 (0.0-50.7)
Sometimes	99	54.3 (40.7-67.8)	10	36.5 (0.0-86.0)	37	51.3 (29.4-73.2)	52	78.2 (40.8-100.0)
Never	21	13.6 (0.0-29.2)	4	48.1 (7.5-88.6)	16	11.1 (0.0-36.7)	1	0.7 (0.0-2.3)
No response	29	15.0 (0.0-34.9)	0	-	24	19.1 (1.0-37.2)	5	8.5 (0.0-17.6)

**Weighted estimates*

9.4 Sexual Behaviors with Casual Partners

Based on weighted estimates, 11.9% of migrants reported sexual intercourse with a casual partner in Armenia and 18.7% reported sexual intercourse with a casual partner abroad, while most migrants reported no sexual intercourse with a casual partner (68.4%) (**Table 9**). Sexual intercourse with casual partners abroad was most commonly reported among migrants from Lori (52.3%), followed by migrants from Shirak (9.7%) and Gegharkunik (6.8%). Among those reporting sexual intercourse with casual partners, most reported one partner (51.9%), while 43.1% reported two to four. Condom use during the most recent sexual intercourse with a casual partner was reported by 57.2% of respondents in Armenia and 74.9% abroad. Condom use during the most recent sexual intercourse abroad was particularly high in Lori (92.8%), while Gegharkunik reported the lowest proportion (16.2%). Among respondents who did not use a condom with a casual partner, reduced sexual pleasure was the most frequently reported reason both in Armenia (37.4%) and abroad (58.2%). Trust in a casual partner was also commonly cited in Armenia (36.6%), while embarrassment asking a partner to use a condom was reported by 25.0% of respondents abroad. Regarding lifetime condom use with casual partners, 45.8% of respondents reporting casual partners in Armenia and 63.6% of those reporting casual partners abroad reported always using condoms. Approximately one-quarter to one-half reported using condoms sometimes, while fewer than 10% reported never using condoms.

Table 9. Sexual behaviors in the past year with casual partners among migrant workers in Armenia (n=900)

	Armenia		**Shirak**		**Lori**		**Gegharkunik**	
	n=900		***n=300***		***n=300***		***n=300***	
	n	% (95% Cl)*	n	% (95% Cl)*	n	% (95% Cl)*	n	% (95% Cl)*
Sexual intercourse with casual partner within past year *(select all that apply)*								
Armenia	141	11.9 (7.0-16.7)	50	11.0 (1.0-21.0)	67	15.3 (6.4-24.2)	24	10.5 (3.0-18.1)
Abroad	249	18.7 (12.6-24.9)	51	9.7 (0.0-22.2)	143	52.3 (42.1-62.5)	55	6.8 (0.0-14.0)
No	487	68.4 (61.3-75.4)	196	78.8 (65.2-92.5)	88	34.0 (24.2-43.8)	203	77.2 (67.7-86.7)
No response	53	2.5 (0.9-4.1)	10	0.8 (0.0-7.1)	25	4.2 (0.0-11.4)	18	5.5 (3.8-7.1)
Number of casual partners ***(among those who had sex with casual partner in Armenia and/or abroad and no response)***								
1	162	51.9 (38.4-65.3)	57	63.7 (30.8-96.7)	78	40.6 (27.4-53.8)	27	56.4 (30.6-82.1)

2-4	204	43.1 (30.1-56.2)	33	33.9 (0.5-67.3)	113	52.1 (37.8-66.4)	58	37.6 (9.2-66.0)
5+	47	5.0 (0.0-12.7)	14	2.4 (0.0-25.9)	21	6.8 (0.0-14.2)	12	6.0 (0.0-24.5)
Condom use during most recent sexual intercourse with casual partner								
Armenia								
	n=141		***n=50***		***n=67***		***n=24***	
Yes	100	57.2 (32.7-81.7)	35	52.9 (18.1-87.8)	52	74.6 (64.1-85.0)	13	41.7 (0.0-100.0)
No	36	40.6 (36.8-44.5)	14	45.1 (10.3-80.0)	13	23.1 (17.0-29.3)	9	55.8 (0.0-100.0)
No response	5	2.2 (0.0-26.7)	1	2.0 (1.5-2.4)	2	2.3 (0.0-14.5)	2	2.5 (0.0-44.7)
Abroad								
	n=249		***n=51***		***n=143***		***n=55***	
Yes	179	74.9 (65.8-84.0)	41	51.3 (14.0-88.6)	130	92.8 (90.9-94.8)	8	16.2 (0.0-35.5)
No	63	23.1 (21.2-25.0)	9	48.4 (11.2-85.7)	8	4.5 (2.9-6.0)	46	81.1 (60.6-100.0)
No response	7	2.0 (0.0-11.5)	1	0.3 (-)	5	2.7 (0.2-5.3)	1	2.7 (0.0-12.0
Reasons why condom not used with casual partner *(select all that apply)*								
Armenia								
	n=41		***n=15***		***n=15***		***n=11***	
Very expensive	3	7.6 (0.0-15.7)	2	12.5 (-)	0	-	1	1.0 (-)
Ashamed to buy	2	7.8 (0.0-16.6)	1	12.5 (-)	1	2.8 (0.0-38.6)	0	-
Difficult to use	4	19.0 (2.1-36.0)	3	31.3 (0.0-68.3)	1	4.2 (-)	0	-
Abates pleasure	11	37.4 (0.0-100.0)	6	53.4 (0.0-100.0)	4	21.8 (0.0-81.1)	1	10.1 (-)
Ashamed to ask partner to use it	2	5.4 (-)	1	8.3 (-)	1	2.8 (-)	0	-
Trust my partner	13	36.6 (0.0-98.6)	4	19.2 (0.0-100.0)	4	42.4 (0.0-100.0)	5	74.6 (0.0-100.0)
Don’t trust that condoms work	3	2.9 (-)	2	2.4 (0.0-28.5)	1	8.5 (-)	0	-
Other	2	2.5 (-)	0	-	0	-	2	10.1 (0.0-81.4)
No response	8	8.0 (3.7-12.3)	2	5.8 (0.0-24.3)	4	20.3 (0.0-48.7)	2	4.2 (0.0-89.3)
Abroad								
	n=70		***n=10***		***n=13***		***n=47***	
Very expensive	2	0.8 (-)	1	1.4 (-)	0	-	1	0.2 (0.0-11.0)
Ashamed to buy	1	5.3 (0.0-26.8)	1	9.1 (0.0-68.6)	0	-	0	-
Difficult to use	4	16.7 (15.0-18.4)	2	27.4 (0.0-90.4)	0	-	2	3.7 (1.6-5.7)
Abates pleasure	37	58.2 (16.7-99.7)	6	75.3 (0.0-100.0)	3	6.7 (-)	28	55.8 (21.4-90.3)
Ashamed to ask partner to use it	9	25.0 (0.0-61.2)	2	36.5 (-)	1	2.9 (-)	6	14.0 (0.0-36.1)
Trust my partner	7	12.8 (10.2-15.4)	0	-	4	54.8 (-)	3	11.9 (9.4-14.4)
Don’t trust that condoms work	1	7.9 (-)	1	13.7 (-)	0	-	0	-
Other	4	2.1 (1.0-3.1)	0	-	0	-	4	8.6 (0.0-35.3)
No response	10	8.7 (0.0-40.2)	1	0.6 (-)	6	38.5 (-)	3	5.9 (0.0-12.1)
Frequency of using condoms with casual partner across lifetime								
Armenia								
	n=141		***n=50***		***n=67***		***n=24***	
Always	78	45.8 (18.4-73.1)	29	45.4 (25.8-65.0)	39	63.0 (34.6-91.3)	10	18.9 (0.0-66.8)
Sometimes	48	43.8 (33.7-53.9)	13	40.5 (0.0-85.3)	22	28.1 (20.4-35.7)	13	79.3 (30.0-100.0)
Never	8	7.5 (0.1-14.8)	5	11.5 (3.2-19.9)	3	4.7 (0.0-11.8)	0	-
No response	7	2.9 (0.0-30.9)	3	2.6 (0.0-48.2)	3	4.3 (0.0-32.3)	1	1.8 (0.0-14.6)
Abroad								
	n=249		***n=51***		***n=143***		***n=55***	

Always	153	63.6 (47.2-80.0)	29	26.8 (0.0-71.7)	116	86.7 (71.8-100.0)	8	13.6 (7.9-19.3)
Sometimes	78	24.1 (8.3-39.9)	15	43.6 (0.0-89.9)	18	8.2 (3.8-12.5)	45	83.0 (71.0-95.0)
Never	8	9.4 (5.5-13.3)	5	26.7 (1.2-52.2)	3	2.4 (0.0-8.1)	0	-
No response	10	2.9 (0.0-7.4)	2	2.9 (0.0-21.7)	6	2.8 (0.0-15.7)	2	3.4 (0.0-16.5)

**Weighted estimates*

9.5 Sexual Behaviors with Commercial Partners

Based on weighted estimates, 6.5% of migrants reported sexual intercourse with a commercial partner in Armenia and 14.7% reported sexual intercourse with a commercial partner abroad, while most migrants reported no sexual intercourse with a commercial partner (75.3%) (**Table 10**). Sexual intercourse with commercial partners abroad was most commonly reported among migrants from Lori (51.8%), compared with migrants from Shirak (3.5%) and Gegharkunik (4.9%). Condom use during the most recent sexual intercourse with a commercial partner was reported by 56.4% of respondents in Armenia and 87.8% abroad. Condom use during the most recent commercial sexual encounter abroad was particularly high in Lori (98.0%), while Gegharkunik reported the lowest proportion (16.7%). Among respondents who did not use a condom with a commercial partner, reduced sexual pleasure was the most frequently reported reason both in Armenia (48.8%) and abroad (29.8%). Trust in a commercial partner was also reported by 24.7% of respondents in Armenia, while other reasons were reported infrequently.

Regarding lifetime condom use with commercial partners, 41.2% of respondents reporting commercial partners in Armenia and 84.2% of those reporting commercial partners abroad reported always using condoms. Approximately half of respondents reporting commercial partners in Armenia reported sometimes using condoms (50.8%), while only a small proportion reported never using condoms in either setting.

Table 10. Sexual behaviors in the past year with commercial partners among migrant workers in Armenia (n=900)

	Armenia		**Shirak**		**Lori**		**Gegharkunik**	
	n=900		***n=300***		***n=300***		***n=300***	
	n	% (95% Cl)*	n	% (95% Cl)*	n	% (95% Cl)*	n	% (95% Cl)*
Sexual intercourse with commercial partner within past year *(select all that apply)*								
Armenia	92	6.5 (2.6-10.5)	33	5.7 (0.0-14.7)	46	10.3 (3.1-17.5)	13	4.6 (3.9-5.4)
Abroad	162	14.7 (9.8-19.5)	25	3.5 (0.0-10.1)	99	51.8 (42.1-61.4)	38	4.9 (0.0-11.9)
No	585	75.3 (68.2-82.5)	231	88.7 (77.5-100.0)	140	36.1 (26.3-45.9)	214	81.2 (71.7-90.7)
No response	82	4.8 (1.2-8.4)	17	2.4 (0.9-4.0)	29	6.8 (3.9-9.7)	36	9.3 (3.0-15.6)
Condom use during most recent sexual intercourse with commercial partner								
Armenia								
	n=92		***n=33***		***n=46***		***n=13***	
Yes	64	56.4 (46.9-66.0)	23	45.4 (0.0-95.8)	36	80.2 (62.2-98.2)	5	35.8 (0.0-96.1)
No	27	43.0 (40.7-45.3)	10	54.6 (4.2-100.0)	10	19.8 (1.8-37.8)	1	4.0 (0.0-34.2)
No response	1	0.6 (0.0-10.3)	0	-	0	-	1	4.0 (0.0-34.2)
Abroad								
	n=162		***n=25***		***n=99***		***n=38***	
Yes	124	87.8 (75.2-100.0)	24	63.1 (62.7-63.5)	93	98.0 (88.1-100.0)	7	16.7 (0.0-51.7)
No	32	10.3 (7.4-13.2)	1	36.9 (36.5-37.3)	5	0.7 (0.0-5.5)	26	69.4 (28.6-100.0)

No response	6	1.9 (0.0-14.8)	0	-	1	1.3 (0.0-11.9)	5	13.9 (0.0-43.9)
Reasons why condom not used with commercial partner *(select all that apply)*								
Armenia								
	n=28		***n=10***		***n=10***		***n=8***	
Very expensive	2	2.6 (0.0-57.7)	0	-	0	-	2	12.5 (0.0-61.9)
Ashamed to buy	1	8.7 (4.3-13.1)	1	13.8 (0.0-37.2)	0	-	0	-
Difficult to use	4	35.2 (0.0-100.0	3	51.8 (0.0-100.0)	1	16.1 (-)	0	-
Abates pleasure	12	48.8 (0.0-100.0)	5	60.8 (0.0-100.0)	6	54.3 (0.0-100.0)	1	8.3 (0.0-45.9)
Ashamed to ask partner to use it	2	1.4 (0.0-36.0)	0	-	2	8.6 (-)	0	-
Trust my partner	6	24.7 (-)	3	17.7 (0.0-97.5)	1	3.2 (-)	2	62.5 (13.2-100.0)
Don't trust that condoms work	3	4.0 (-)	1	0.7 (-)	1	16.1 (-)	1	4.2 (0.0-65.8)
Other	2	2.6 (0.0-49.3)	0	-	1	8.1 (-)	1	6.3 (0.0-46.6)
No response	1	1.3 (0.0-30.1)	0	-	0	-	1	6.3 (0.0-33.4)
Abroad								
	n=38		***n=1***		***n=6***		***n=31***	
Very expensive	0	-	0	-	0	-	0	-
Ashamed to buy	1	41.5 (41.5-41.5)	1	100.0 (-)	0	-	0	-
Difficult to use	3	3.0 (0.0-35.7)	0	-	0	-	3	6.6 (0.0-54.4)
Abates pleasure	21	29.8 (0.0-100.0)	0	-	4	33.6 (-)	17	56.0 (7.3-100.0)
Ashamed to ask partner to use it	3	4.3 (0.0-85.1)	0	-	1	6.3 (-)	2	7.6 (0.0-31.5)
Trust my partner	1	0.8 (-)	0	-	1	6.3 (-)	0	-
Don't trust that condoms work	1	2.1 (-)	0	-	0	-	1	4.6 (0.7-8.4)
Other	4	4.3 (-)	0	-	1	3.2 (-)	3	8.6 (0.0-21.9)
No response	6	15.9 (-)	0	-	1	63.3 (-)	5	16.7 (0.0-60.3)
Frequency of using condoms with commercial partner across lifetime								
Armenia								
	n=92		***n=33***		***n=46***		***n=13***	
Always	52	41.2 (11.4-71.0)	15	26.8 (1.5-52.2)	32	72.2 (32.8-100.0)	5	14.4 (0.0-72.4)
Sometimes	31	50.8 (34.3-67.3)	14	63.8 (18.4-100.0)	9	18.5 (0.0-50.4)	8	85.6 (27.6-100.0)
Never	8	7.6 (6.0-9.3)	3	8.6 (0.9-16.2)	5	9.3 (0.0-39.5)	0	-
No response	1	0.4 (0.0-31.1)	1	0.8 (0.0-46.3)	0	-	0	-
Abroad								
	n=162		***n=25***		***n=99***		***n=38***	
Always	111	84.2 (66.2-100.0)	18	50.6 (6.4-94.7)	89	96.3 (81.9-100.0)	4	9.1 (0.0-38.1)
Sometimes	30	11.0 (0.0-24.4)	6	48.7 (5.1-92.3)	3	0.5 (0.0-10.2)	21	58.3 (0.1-100.0)
Never	4	0.6 (0.0-14.2)	0	-	3	0.6 (0.0-7.1)	1	2.2 (0.0-11.1)
No response	17	4.2 (0.0-9.9)	1	0.7 (0.0-22.4)	4	2.6 (0.0-11.9)	12	30.4 (0.0-86.9)

**Weighted estimates*

9.6 Sexual Behaviors with Male Partners

Based on weighted estimates, 4.0% of migrants reported sexual intercourse with a male partner in Armenia and 2.0% reported sexual intercourse with a male partner abroad, while the large majority reported no sexual intercourse with a male partner (92.4%) (**Table 11**). Sexual intercourse with a male partner in Armenia was highest among migrants from Shirak (5.5%), while sexual intercourse with a male partner abroad was highest among migrants from Gegharkunik (4.9%). The vast majority of respondents (92.4%) reported no sexual intercourse with a male partner during the past year. Among respondents reporting a male partner, condom use during the most recent sexual intercourse was generally low. In Armenia, 13.0% reported condom use during their most recent sexual encounter with a male partner, while 81.6% reported not using a condom. Abroad, only 10.9% reported condom use; however, nearly half of respondents (47.2%) did not provide a response to this question. Among respondents who did not use a condom with a male partner, reduced sexual pleasure was one of the more frequently reported reasons in both Armenia (34.9%) and abroad (13.0%). Reported lifetime condom use with male partners varied. In Armenia, 23.2% reported always using condoms, 46.2% reported sometimes using condoms, and 23.5% reported never using condoms. Abroad, only 12.7% reported always using condoms and 14.5% reported sometimes using condoms.

Table 11. Sexual behaviors in the past year with male partners among migrant workers in Armenia (n=900)

	Armenia		**Shirak**		**Lori**		**Gegharkunik**	
	n=900		***n=300***		***n=300***		***n=300***	
	n	% (95% Cl)*	n	% (95% Cl)*	n	% (95% Cl)*	n	% (95% Cl)*
Sexual intercourse with male partner within past year *(select all that apply)*								
Armenia	47	4.0 (3.1-5.0)	24	5.5 (0.0-12.2)	17	2.5 (0.0-7.6)	6	1.7 (0.9-2.5)
Abroad	50	2.0 (1.0-3.0)	11	0.9 (0.0-4.4)	9	2.2 (0.0-11.3)	30	4.9 (0.1-9.7)
No	761	92.4 (87.4-97.4)	270	93.8 (84.5-100.0)	258	93.0 (85.4-100.0)	233	87.8 (79.4-96.3)
No response	50	1.9 (0.0-5.6)	3	0.4 (0.3-0.5)	16	2.4 (0.0-4.9)	31	5.6 (0.9-10.2)
Condom use during most recent sexual intercourse with male partner								
Armenia								
	n=47		***n=24***		***n=17***		***n=6***	
Yes	11	13.0 (0.0-52.9)	2	0.9 (0.0-36.9)	4	29.5 (0.0-88.9)	5	95.7 (72.3-100.0)
No	27	81.6 (37.6-100.0)	17	96.1 (39.3-100.0)	9	47.8 (0.0-100.0)	1	4.3 (0.0-27.7)
No response	9	5.5 (0.0-34.6)	5	3.0 (0.0-58.3)	4	22.8 (0.0-70.0)	0	-
Abroad								
	n=50		***n=11***		***n=9***		***n=30***	
Yes	3	10.9 (0.0-38.3)	2	13.2 (0.0-60.4)	1	30.0 (0.0-86.7)	0	-
No	21	41.8 (0.0-83.9)	5	78.6 (20.4-100.0)	3	7.9 (0.0-84.3)	13	38.8 (0.0-86.2)
No response	26	47.2 (3.8-90.6)	4	8.3 (0.0-62.7)	5	62.1 (0.0-100.0)	17	61.2 (13.8-100.0)
Reasons why condom not used with male partner *(select all that apply)*								
Armenia								
	n=36		***n=22***		***n=13***		***n=1***	
Very expensive	2	0.5 (0.0-49.6)	0	-	1	0.5 (0.0-39.2)	1	100.0 (-)
Ashamed to buy	3	29.4 (0.0-83.1)	3	33.3 (0.0-91.0)	0	-	0	-
Difficult to use	4	24.0 (0.0-58.6)	4	27.1 (0.0-27.2)	0	-	0	-
Abates pleasure	5	34.9 (0.0-100.0)	4	37.8 (0.0-100.0)	1	12.7 (-)	0	-

Ashamed to ask partner to use it	2	14.1 (13.7-14.5)	2	15.9 (14.1-17.8)	0	-	0	-
Trust my partner	4	5.5 (0.0-15.0)	3	5.4 (0.0-42.2)	1	6.3 (-)	0	-
Don't trust that condoms work	5	11.9 (6.6-17.2)	4	11.0 (0.4-21.7)	1	19.0 (13.2-24.8)	0	-
Other	1	0.3 (0.0-24.9)	0	-	1	2.4 (0.0-35.7)	0	-
No response	15	16.5 (0.0-66.5)	7	11.2 (0.0-59.4)	8	59.1 (0.0-100.0)	0	-
Abroad								
	n=46		***n=9***		***n=7***		***n=30***	
Very expensive	2	1.7 (0.0-5.6)	0	-	1	1.8 (-)	1	2.5 (0.0-9.9)
Ashamed to buy	0	-	0	-	0	-	0	-
Difficult to use	0	-	0	-	0	-	0	-
Abates pleasure	9	13.0 (0.0-44.8)	1	4.0 (0.0-25.5)	1	9.8 (0.0-42.7)	7	18.2 (0.0-54.7)
Ashamed to ask partner to use it	2	8.1 (4.3-11.9)	1	26.5 (21.5-31.6)	0	-	1	1.5 (0.0-14.3)
Trust my partner	2	0.9 (0.0-15.6)	1	1.6 (-)	1	2.7 (-)	0	-
Don't trust that condoms work	1	7.2 (6.8-7.7)	1	26.5 (13.5-39.6)	0	-	0	-
Other	1	7.2 (6.4-8.1)	1	26.5 (0.0-100.0)	0	-	0	-
No response	30	69.1 (25.3-100.0)	5	41.3 (0.0-100.0)	4	85.7 (4.9-100.0)	21	77.7 (30.1-100.0)
Frequency of using condoms with male partner across lifetime								
Armenia								
	n=47		***n=24***		***n=17***		***n=6***	
Always	13	23.2 (0.0-62.5)	5	16.8 (0.0-67.2)	4	19.8 (0.060.1)	4	87.1 (47.5-100.0)
Sometimes	11	46.2 (4.1-88.3)	7	55.2 (12.4-97.9)	2	16.1 (0.0-73.4)	2	12.9 (0.0-52.5)
Never	10	23.5 (0.0-52.8)	6	25.2 (0.0-73.1)	4	28.5 (0.0-79.8)	0	-
No response	13	7.1 (0.0-47.5)	6	2.9 (0.0-45.8)	7	35.6 (0.0-85.9)	0	-
Abroad								
	n=50		***n=11***		***n=9***		***n=30***	
Always	5	12.7 (7.8-17.7)	3	15.3 (0.0-58.8)	1	30.0 (0.0-100.0)	1	2.5 (0.0-38.4)
Sometimes	10	14.5 (0.0-45.1)	1	23.0 (0.0-99.3)	3	4.0 (0.0-88.4)	6	15.2 (0.0-51.6
Never	2	7.1 (0.0-25.9)	2	26.5 (0.0-68.1)	0	-	0	-
No response	33	65.6 (40.3-91.0)	5	35.2 (0.0-87.8)	5	66.0 (22.4-100.0)	23	82.3 (71.0-93.6)

**Weighted estimates*

9.7 Drug Use

Based on weighted estimates, lifetime drug use among migrants was relatively uncommon, with 2.7% reporting ever having used drugs (**Table 12**). Reported prevalence was similar across Shirak (2.9%), Lori (2.5%), and Gegharkunik (2.2%). Among those reporting drug use, smoking was by far the most commonly reported method of use (59.6%), while injecting, oral, and nasal use were reported much less frequently. Injecting drug use appeared rare overall, with only a very small number of respondents reporting this route of administration. No respondents reported sharing injecting equipment in the past year.

Table 12. Drug use among migrant workers in Armenia (n=900)

	Armenia	**Shirak**	**Lori**	**Gegharkunik**
	n=900	***n=300***	***n=300***	***n=300***

	n	% (95% Cl)*	n	% (95% Cl)*	n	% (95% Cl)*	n	% (95% Cl)*
Ever used drugs								
Yes	32	2.7 (0.4-5.0)	11	2.9 (0.0-8.2)	14	2.5 (0.0-6.7)	7	2.2 (0.0-4.8)
No	845	96.4 (92.8-100.0)	285	96.7 (90.6-100.0)	282	96.9 (91.8-100.0)	278	94.8 (90.0-99.6)
No response	23	1.0 (0.0-3.7)	4	0.4 (0.0-2.4)	4	0.6 (0.0-3.7)	15	3.0 (0.0-6.9)
	n=55		***n=15***		***n=18***		***n=22***	
Type of drug used within past year ***(among those who have ever used drugs and no response)*** *(select all that apply)*								
Injecting	3	3.5 (-)	1	4.0 (-)	0	-	2	5.0 (-)
Oral	2	1.7 (-)	0	-	1	3.6 (-)	1	3.6 (-)
Nasal	4	2.7 (-)	3	5.1 (-)	0	-	1	0.2 (-)
Smoking	16	59.6 (46.9-72.4)	7	85.4 (-)	8	68.0 (-)	1	7.2 (-)
Other	2	1.1 (-)	1	0.7 (-)	0	-	1	2.4 (-)
No response	30	35.5 (0.0-100.0)	5	12.7 (-)	9	28.4 (-)	16	81.7 (0.0-100.0)
	n=3		***n=1***		***n=0***		***n=2***	
Shared injecting equipment in the past year ***(among those who reported injecting drugs)***								
Yes	0	-	0	-	0	-	0	-
No	3	100.0 (-)	1	100.0 (-)	0	-	2	100.0 (-)
Frequency of use of new sterile needle while injecting in the past year								
Always	1	29.4 (-)	0	-	0	-	1	71.4 (-)
Sometimes	1	58.8 (-)	1	100.0 (-)	0	-	0	-
Never	1	11.8 (-)	0	-	0	-	1	28.6 (-)
Used sterile needle last time injected								
Yes	2	88.2 (-)	1	100.0 (-)	0	-	1	71.4 (-)
No	1	11.8 (-)	0	-	0	-	1	28.6 (-)

**Weighted estimates*

9.8 HIV/STI Testing

Based on weighted estimates, self-reported STI symptoms in the past year were relatively uncommon, with 3.2% of migrants reporting symptoms, while 6.5% reported that they did not know (**Table 13**). Among those indicating where they would seek STI treatment, hospitals and primary health care clinics were the most commonly reported sources of care. Regarding HIV testing history, 35.0% of migrants reported ever being tested for HIV (4.4% in Armenia and 30.6% abroad), while 61.1% reported never having been tested. Lifetime HIV testing abroad was particularly common among migrants from Lori (66.4%), whereas never testing was highest among migrants from Gegharkunik (73.6%) and Shirak (70.0%). Among those never tested, the most commonly reported reason was confidence that they would not become infected (48.9%), followed by fear of discrimination, concerns about confidentiality, and not knowing where to get tested. Testing in the past year was reported by 25.1% overall (4.1% in Armenia and 21.0% abroad), while 71.8% had not tested in the past year. Among those tested in the past year, polyclinics (47.3%) and hospitals (32.0%) were the most commonly reported testing locations overall, while private laboratories were also common, particularly among migrants from Lori (56.2%).

Table 13. HIV/STI Testing in Armenia (n=900)

	Armenia		**Shirak**		**Lori**		**Gegharkunik**	
	n=900		***n=300***		***n=300***		***n=300***	
	n	% (95% Cl)*	n	% (95% Cl)*	n	% (95% Cl)*	n	% (95% Cl)*
STI symptoms within past year								
Yes	36	3.2 (0.0-9.2)	15	3.8 (0.0-8.8)	17	4.1 (2.7-5.6)	4	0.5 (0.4-0.6)

No	833	89.9 (89.7-90.1)	265	85.6 (82.4-88.8)	277	93.6 (93.1-94.2)	291	98.0 (97.9-98.2)
Don't know	25	6.5 (3.4-9.6)	20	10.6 (6.2-14.9)	2	1.2 (0.0-2.4)	3	0.9 (0.7-1.0)
No response	6	0.4 (0.0-6.7)	0	-	4	1.1 (1.0-1.2)	2	0.7 (0.6-0.8)
	n=42		***n=15***		***n=21***		***n=6***	
Where to seek STI treatment ***(among those who have had STI symptoms the past year or no response)***								
Primary health care clinic	14	31.0 (-)	9	39.8 (0.0-100.0)	3	13.4 (-)	2	13.0 (-)
Hospital	15	56.0 (0.0-100.0)	11	87.8 (18.5-100.0)	2	3.8 (-)	2	9.8 (-)
NGO	1	0.3 (-)	1	0.5 (-)	0	-	0	-
Pharmacy	0	-	0	-	0	-	0	-
Online telemedicine	0	-	0	-	0	-	0	-
Self-medicate without consulting specialist	3	3.6 (-)	1	2.8 (-)	2	4.7 (-)	0	-
I do not seek treatment for STI	0	-	0	-	0	-	0	-
No response	16	27.8 (-)	0	-	14	59.9 (4.3-100.0)	2	34.8 (-)
Ever tested for HIV *(select all that apply)*								
	n=900		***n=300***		***n=300***		***n=300***	
Yes, in Armenia	71	4.4 (1.0-7.8)	32	4.4 (0.0-12.0)	25	4.6 (0.0-10.2)	14	4.4 (0.5-8.2)
Yes, abroad	320	30.6 (23.8-37.4)	88	23.0 (10.1-35.8)	171	66.4 (57.1-75.7)	61	12.1 (5.4-18.7)
No	470	61.1 (54.0-68.2)	179	70.0 (57.3-82.6)	96	27.4 (17.6-37.2)	195	73.6 (63.4-83.8)
Don't know	41	3.6 (2.2-5.0)	12	2.8 (0.4-5.2)	6	1.3 (0.9-1.7)	23	8.5 (2.1-14.8)
No response	18	0.8 (0.6-1.0)	2	0.3 (0.0-0.6)	8	1.3 (1.0-1.7)	8	1.6 (1.4-1.9)
	n=470		***n=179***		***n=96***		***n=195***	
Reason for not ever testing for HIV ***(among those who have never been tested for HIV)*** *(select all that apply)*								
Fear of discrimination or disrespectful treatment	23	13.5 (6.7-20.4)	22	20.4 (11.9-29.0)	1	0.6 (0.0-52.6)	0	-
Concerns about confidentiality	21	13.2 (7.9-18.5)	16	19.7 (11.8-27.7)	5	2.3 (-)	0	-
I don't know where to get tested	29	5.8 (0.0-12.8)	14	7.1 (0.0-14.3)	8	4.1 (0.2-8.0)	7	3.1 (2.5-3.6)
I only have sexual relations with trusted partners	44	7.5 (0.0-15.6)	11	6.2 (0.0-28.0)	15	19.7 (13.6-25.8)	18	6.0 (3.7-8.3)
I always use condoms	31	4.3 (3.0-5.6)	6	1.3 (0.0-7.6)	15	25.0 (2.7-47.3)	10	3.9 (3.0-4.8)
I am confident that I will not get infected	229	48.9 (36.0-61.8)	93	45.2 (29.0-61.4)	27	23.8 (0.0-55.4)	109	69.6 (55.1-84.0)
I did not avoid	42	11.2 (8.0-14.3)	23	15.0 (12.6-17.4)	9	6.6 (0.6-12.5)	10	2.7 (0.3-5.1)
Other	13	2.0 (1.1-2.9)	1	0.6 (-)	4	7.6 (6.9-8.4)	8	3.4 (0.0-19.1)

No response	68	6.2 (0.0-15.5)	9	2.1 (0.0-20.3)	24	20.1 (0.0-46.6)	35	11.8 (3.2-20.4)
	n=900		***n=300***		***n=300***		***n=300***	
Tested for HIV in the past year *(select all that apply)*								
Yes, in Armenia	70	4.1 (1.1-7.0)	27	3.7 (0.0-12.0)	31	5.3 (0.0-11.2)	12	3.6 (2.6-4.6)
Yes, abroad	261	21.0 (14.8-27.2)	81	21.1 (7.4-34.8)	113	27.2 (18.7-35.9)	67	13.6 (6.7-20.5)
No	528	71.8 (65.0-78.5)	189	73.3 (60.4-86.2)	152	66.3 (56.1-76.4)	187	73.7 (63.9-83.5)
Don't know	34	2.4 (0.6-4.2)	8	1.7 (0.8-2.6)	4	0.7 (0.0-1.4)	22	6.4 (0.0-14.6)
No response	27	1.4 (0.4-2.4)	6	0.6 (0.0-2.2)	9	2.2 (1.8-2.6)	12	2.7 (2.2-3.3)
	n=372		***n=111***		***n=148***		***n=113***	
Location for where to get tested for HIV in the past year ***(among those who have been tested for HIV, responded don't know, and no response)*** *(select all that apply)*								
Polyclinic	183	47.3 (32.0-62.5)	49	49.5 (8.2-90.9)	76	39.6 (21.2-58.0)	58	51.8 (28.5-75.2)
Hospital	122	32.0 (18.9-45.0)	54	35.4 (0.0-76.9)	44	26.8 (11.1-42.5)	24	29.5 (28.4-30.6)
Private laboratory	113	25.9 (12.6-39.1)	32	19.1 (0.0-54.6)	78	56.2 (37.1-75.2)	3	1.8 (-)
Mobile clinics	15	3.3 (0.0-13.7)	5	2.8 (0.0-61.1)	10	6.7 (1.7-11.7)	0	-
NGO	3	0.3 (0.1-0.5)	3	0.5 (-)	0	-	0	-
Pharmacy	1	0.1 (-)	0	-	0	-	1	0.5 (0.0-12.0)
Other	5	0.3 (0.0-0.7)	4	0.4 (0.0-27.1)	0	-	1	0.5 (-)
No response	48	9.2 (0.0-22.1)	2	1.8 (0.0-12.5)	16	15.7 (2.6-28.9)	30	21.2 (0.0-47.2)

**Weighted estimates*

9.9 HIV Knowledge and Perceptions

Based on weighted estimates, awareness of PrEP was moderate overall, with 58.2% of migrants reporting that they were aware of it, although awareness varied substantially by region, ranging from 32.7% in Lori to 74.1% in Gegharkunik (**Table 14**). Over half of migrants perceived themselves to have no risk of acquiring HIV (51.0%), while 30.1% considered their risk medium and 12.8% high. The Shirak region reported the highest number of migrants that perceived themselves to have no risk of acquiring HIV (66.1%) compared to other regions (45.3% in Gegharkunik and 17.5% in Lori). However, Lori had the highest no response rate at 18.2%. compared to 3.1% in Shirak and 1.1% in Gegharkunik. Knowledge of key HIV prevention measures was mixed: 70.6% recognized condom use as protective and 61.1% recognized that limiting partners reduces risk, while 69.0% knew that a healthy-looking person can be living with HIV. However, misconceptions remained common. Only 39.6% identified sharing needles/syringes as a transmission route, 17.5% identified non-sterilized medical equipment, and 13.9% identified mother-to-child transmission. A substantial proportion of respondents in Gegharkunik (56.7%) also reported not knowing what causes HIV compared to the other two regions and only 21.8% correctly identified unprotected sex as a transmission route compared to 77.2% in Shirak and 62.4% in Lori. In addition, some respondents incorrectly believed HIV could be transmitted through kissing (22.6%), using the same towel (15.3%), using the same toilet (16.4%), sharing food (4.7%), or handshakes (2.8%). A substantial proportion also reported not knowing transmission routes, particularly in Gegharkunik. Only 6.2% reported receiving HIV services at the survey medical center, suggesting limited direct engagement with HIV-specific services. Despite this, most migrants (84.6%) reported feeling comfortable accessing HIV/STI

services in their community, with comfort levels highest in Shirak (87.1%) and Gegharkunik (86.6%).

Table 14. HIV knowledge and perceptions among migrant workers in Armenia (n=900)

	Armenia		**Shirak**		**Lori**		**Gegharkunik**	
	n=900		***n=300***		***n=300***		***n=300***	
	n	% (95% Cl)*	n	% (95% Cl)*	n	% (95% Cl)*	n	% (95% Cl)*
Aware of PrEP								
Yes	520	58.2 (56.2-60.2)	191	62.7 (51.2-74.1)	149	32.7 (26.6-38.8)	180	74.1 (64.0-84.2)
No	348	39.7 (33.2-46.2)	91	35.0 (25.9-44.2)	141	64.0 (54.2-73.8)	116	25.6 (24.5-26.8)
No response	32	2.1 (0.0-8.7)	18	2.3 (0.0-15.5)	10	3.3 (0.0-13.0)	4	0.3 (0.0-10.4)
Likelihood of acquiring HIV								
High	117	12.8 (6.5-19.1)	44	17.3 (8.7-25.9)	39	6.6 (0.0-16.3)	34	7.2 (0.0-17.5)
Medium	282	30.1 (25.5-34.7)	43	13.6 (2.4-24.7)	125	57.6 (49.6-65.7)	114	46.4 (36.0-56.8)
No risk	409	51.0 (46.9-55.1)	194	66.1 (52.5-79.7)	74	17.5 (10.1-25.0)	141	45.3 (38.6-52.0)
No response	92	6.1 (0.0-13.5)	19	3.1 (0.0-9.7)	62	18.2 (11.1-25.4)	11	1.1 (0.0-6.4)
Risk of HIV reduced by one uninfected faithful partner								
Yes	518	61.1 (55.7-66.4)	195	57.6 (47.5-67.7)	218	74.6 (68.3-81.0)	105	55.8 (48.7-62.8)
No	191	18.8 (12.2-25.4)	48	21.3 (16.0-26.6)	19	4.5 (3.0-5.9)	124	27.9 (19.8-36.0)
Don’t know	126	15.7 (8.1-23.4)	47	20.1 (6.0-34.1)	27	9.1 (4.0-14.2)	52	10.7 (2.5-18.9)
No response	65	4.4 (1.1-7.8)	10	1.1 (0.0-11.4)	36	11.8 (7.8-15.9)	19	5.6 (1.1-10.2)
Risk of HIV reduced by using condom								
Yes	602	70.6 (66.7-74.5)	231	67.8 (62.4-73.3)	238	80.1 (74.3-85.9)	133	68.0 (60.6-75.3)
No	146	13.7 (8.1-19.3)	30	15.2 (11.1-19.2)	14	3.6 (1.4-5.8)	102	21.0 (12.8-29.1)
Don’t know	106	13.0 (6.3-19.6)	30	16.0 (7.9-24.1)	23	8.2 (6.1-10.2)	53	9.6 (0.8-18.5)
No response	46	2.7 (0.5-5.0)	9	1.0 (0.0-6.5)	25	8.2 (3.1-13.2)	12	1.4 (0.0-5.1)
Healthy-looking person infected with HIV								
Yes	540	69.0 (66.7-71.3)	205	67.6 (55.2-80.0)	212	75.3 (69.7-80.9)	123	66.1 (58.2-73.9)
No	169	15.8 (11.4-20.1)	43	18.5 (3.8-33.1)	21	4.2 (0.8-7.6)	105	21.1 (11.8-30.4)
Don’t know	146	12.9 (6.6-19.2)	43	13.2 (6.6-19.8)	45	13.8 (6.6-21.0)	58	11.1 (2.0-20.3)
No response	45	2.3 (0.0-7.3)	9	0.8 (0.0-10.2)	22	6.7 (3.6-9.8)	14	1.7 (0.0-5.8)
What causes HIV infection *(select all that apply)*								
Sharing needles/syringes when using drugs	354	39.6 (32.6-46.6)	102	32.1 (18.6-45.6)	197	73.9 (63.8-83.7)	55	22.6 (15.4-29.9)
From a mosquito bite	81	7.8 (4.2-11.5)	8	2.4 (0.0-10.2)	56	19.9 (10.3-29.5)	17	9.7 (4.3-15.1)
From the use of non-sterilized medical equipment	184	17.5 (11.7-23.2)	32	10.5 (0.0-24.2)	128	44.7 (34.6-54.8)	24	6.7 (1.6-11.8)

Through everyday contact	29	3.9 (2.9-4.9)	9	5.8 (5.7-5.8)	13	1.2 (0.0-2.9)	7	1.8 (0.0-6.6)
During unprotected sex	459	62.8 (55.2-70.3)	201	77.2 (63.5-90.8)	180	62.4 (52.2-72.6)	78	21.8 (13.9-29.7)
From mother to child	173	13.9 (8.8-19.0)	49	15.1 (6.8-23.4)	71	12.0 (2.4-21.6)	53	12.6 (5.9-19.3)
Don't know	245	20.3 (14.8-26.0)	62	11.6 (1.4-21.9)	36	10.3 (6.1-14.5)	147	56.7 (46.8-66.7)
No response	45	2.4 (0.0-5.2)	2	0.5 (0.4-0.6)	24	7.0 1.4-12.5)	19	2.5 (0.0-8.9)
Acquire HIV from general contact *(select all that apply)*								
When sharing food	48	4.7 (2.8-6.5)	15	6.1 (0.0-14.1)	26	3.9 (0.0-9.5)	7	1.5 (1.2-1.8)
During a handshake	20	2.8 (2.4-3.3)	8	4.4 (4.3-4.5)	9	1.1 (0.3-1.9)	3	0.2 (0.0-1.1)
When kissing	251	22.6 (16.1-29.1)	54	15.6 (6.2-24.9)	108	36.5 (26.9-46.1)	89	27.1 (18.0-36.3)
When using the same towel	113	15.3 (11.4-19.2)	25	9.7 (8.6-10.8)	74	39.6 (31.6-47.7)	14	3.9 (1.6-6.3)
When using the same toilet	129	16.4 (12.0-20.8)	38	14.2 (8.6-19.9)	57	25.6 (17.5-33.7)	34	12.2 (5.3-19.0)
None of the above	219	29.2 (23.3-35.2)	169	47.8 (34.8-60.9)	28	4.5 (0.0-9.1)	22	3.8 (1.3-6.3)
Don't know	287	26.4 (20.3-32.5)	31	13.8 (5.5-22.0)	101	27.6 (18.5-36.6)	155	61.4 (50.9-71.9)
No response	44	3.6 (.8-5.4)	6	2.6 (2.4-2.8)	21	7.0 (6.2-7.7)	17	2.5 (0.0-5.7)
Receive HIV services at survey medical center								
Yes	99	6.2 (4.1-8.3)	44	6.4 (2.9-9.9)	38	8.2 (3.6-12.8)	17	3.3 (0.0-7.2)
No	771	91.1 (85.8-96.3)	246	90.8 (81.7-100.0)	249	87.7 (79.9-95.5)	276	95.5 (91.1-99.9)
Not sure	12	1.7 (0.1-3.3)	7	2.6 (0.0-5.6)	2	0.3 (0.0-7.2)	3	0.8 (0.0-2.2)
No response	18	1.1 (0.0-5.7)	3	0.2 (0.0-8.2)	11	3.8 (3.0-4.7)	4	0.4 (0.0-2.1)
Comfort of accessing HIV/STI services in community								
Yes	707	84.6 (80.7-88.5)	254	87.1 (81.4-92.8)	214	76.5 (73.0-79.9)	239	86.6 (79.9-93.2)
No	94	9.8 (4.7-14.9)	30	11.9 (1.9-22.0)	18	4.0 (0.0-10.2)	46	10.0 (2.3-17.8)
No response	99	5.6 (1.9-9.4)	16	1.0 (0.0-9.8)	68	19.5 (13.5-25.5)	15	3.4 (0.0-8.0)

**Weighted estimates*

9.10 HIV, HCV, HBV, and Syphilis Prevalence

Rapid testing identified a low overall prevalence of HIV and sexually transmitted or blood-borne infections among participants. HIV prevalence was very low, with one positive case detected. The corresponding weighted prevalence estimate was 0.03% (95% CI 0.0-0.4). HCV had the highest prevalence on rapid testing at 1.9%, followed by HBV at 0.7% and syphilis at 0.3% (**Table 15**). Confirmatory testing verified the single HIV case and confirmed six HCV infections, resulting in a final HCV prevalence of 1.1% (**Table 16**). Due to the small number of positive cases overall, results were not disaggregated by region, as subgroup estimates would be unstable and difficult to interpret reliably.

Table 15. HIV, HCV, HBV, and syphilis Rapid Test Prevalence

Infection	n	Prevalence (%)*	95% CI*

HIV	1	0.03	0.0-0.4
HCV	9	1.9	0.8-3.0
HBV	5	0.7	0.0-2.1
Syphilis	3	0.3	0.0-1.1

**Weighted estimates*

Table 16. HIV and HCV Confirmatory Test Prevalence

Infection	n	Prevalence (%)*	95% CI*
HIV	1	0.03	0.0-0.4
HCV	6	1.1	0.4-1.8

**Weighted estimates*

9.11 Population Size Estimate

The median population size estimate of migrant workers obtained through the 2025–2026 BBS-Lite survey was 8,543 individuals, substantially lower than the median estimate of 38,258 individuals reported in the 2018 assessment.

Participants reported a wide range of social network sizes, reflecting considerable variability in their connections with other migrant workers. Based on the raw, unweighted survey data, the mean reported network size was 30.4 individuals, with responses ranging from 1 to 1,000, indicating substantial heterogeneity in the size of participants' social networks. While many respondents reported relatively modest network sizes, a smaller number reported very large networks. During data cleaning and quality assurance procedures, two extremely large reported network sizes were identified as implausible and likely resulted from data entry or respondent error. Following review, both values were recoded to 1,000, corresponding to the upper limit considered plausible within the study population.

Given the sensitivity of network-based population size estimation methods to reported network sizes and the presence of extreme values, the median estimate is considered the most appropriate summary measure for population size estimation and is therefore presented as the primary estimate. The marked difference between the 2018 and 2025–2026 estimates should be interpreted with considerable caution and should not be assumed to reflect a true five-fold decline in the migrant worker population. Differences in network size reporting, study implementation procedures, recruitment dynamics, outlier handling, and methodological approaches may all influence the resulting estimates. The two assessments differed in their methodologies, implementation approaches, recruitment dynamics, and underlying assumptions used for population size estimation. In addition, the 2018 assessment was conducted in three urban centers (Yerevan, Gyumri, and Vanadzor), whereas the 2025–2026 BBS-Lite survey was implemented across a broader set of sites in Shirak, Lori, and Gegharkunik regions and did not include Yerevan. Differences in the geographic composition of the study populations may have influenced network characteristics and population size estimates.

Furthermore, the absence of access to the raw 2018 data limited the ability to directly compare analytical decisions and assumptions across survey rounds. As a result, the observed difference is likely attributable, at least in part, to methodological and implementation factors rather than solely to a genuine change in population size. Because network size is a key input for both weighting and network-based population size estimation methods, the presence of highly variable responses should also be considered when interpreting weighted estimates and population size estimates derived from these data.

10. DISCUSSION

This BBS-Lite survey provides updated evidence on HIV vulnerability, sexual risk behaviors, testing access, and blood-borne infections among surveyed Armenian male seasonal labor migrants. Overall, findings suggest that although biological prevalence of HIV and other infections was low during the survey period, important behavioral and structural risk factors remain present, indicating the continued need for targeted prevention and testing services.

A key finding of the current survey was the identification of one confirmed HIV-positive participant, corresponding to a weighted prevalence estimate of 0.03%. This is substantially lower than the 2018 survey, which reported an HIV prevalence of 1.2% among urban labor migrants. Similarly, confirmatory HCV prevalence in the current study was 1.1%, lower than the 3.3% reported in 2018, while HBV (0.7% vs. 0.6%) and syphilis (0.3% vs. 0.5%) remained low in both rounds. These differences may reflect genuine epidemiologic improvement, expanded testing and prevention services over time, changes in migration patterns, or differences in sampling frames between the two surveys. The 2018 survey focused on three urban centers (Yerevan, Gyumri, Vanadzor), whereas the current BBS-Lite surveyed migrants through twelve medical centers across Shirak, Lori, and Gegharkunik regions. Therefore, direct trend comparisons should be interpreted cautiously.

Despite low HIV prevalence in the surveyed population, sexual risk behaviors remain important. Condom use was inconsistent across partner types and settings. Among migrants reporting casual partners, condom use during the most recent sexual intercourse was 57.2% in Armenia and 74.9% abroad. Similarly, among migrants reporting commercial partners, condom use during the most recent sexual intercourse was 56.4% in Armenia and 87.8% abroad. In contrast, condom use with regular partners remained substantially lower, with only 21.7% reporting condom use during their most recent sexual intercourse with a regular partner in Armenia and 32.5% abroad. Trust in a sexual partner was the most commonly reported reason for condom non-use with regular partners, cited by 65.6% of respondents in Armenia and 49.7% abroad. Although reported sexual intercourse with casual partners (11.9% in Armenia and 18.7% abroad), commercial partners (6.5% in Armenia and 14.7% abroad), and male partners (4.0% in Armenia and 2.0% abroad) was relatively uncommon overall, condom use among these groups was not universal. For example, 40.6% of respondents reporting casual partners in Armenia, 43.0% reporting commercial partners in Armenia, and 81.6% reporting male partners in Armenia did not use a condom during their most recent sexual encounter. These findings indicate that opportunities for HIV and STI transmission remain present despite the low biological prevalence observed during the survey period.

Several regional differences were observed among survey participants, particularly in Lori. Compared with migrants from Shirak and Gegharkunik, migrants from Lori more frequently reported sexual intercourse within the past 30 days (78.7% vs. 41.2% and 40.3%, respectively), sexual intercourse with regular partners abroad (33.0% vs. 2.1% and 9.1%), casual partners abroad (52.3% vs. 9.7% and 6.8%), and commercial partners abroad (51.8% vs. 3.5% and 4.9%). Migrants from Lori also reported spending longer periods abroad and were more likely to report working in smaller cities than migrants from other regions. At the same time, condom use with casual and commercial partners abroad was generally higher among migrants from Lori than among migrants from the other regions. These findings suggest that migration experiences, social networks, and risk environments may differ considerably across regions of Armenia. Consequently, prevention strategies may benefit from greater regional tailoring rather than treating labor migrants as a homogeneous population.

A consistent finding across partner types was that trust in a sexual partner was the most commonly reported reason for not using condoms. This was particularly evident among regular partnerships but was also reported among some respondents with casual and commercial partners. Reduced sexual pleasure was the second most frequently reported reason for condom non-use across several partnership types. These findings suggest that decisions regarding condom use are often driven by relationship dynamics and perceptions of risk rather than by concerns regarding HIV or STI prevention. Prevention messaging may therefore benefit from addressing misconceptions surrounding trust and perceived partner safety, while also promoting condom use as a routine protective behavior regardless of partner type.

A notable finding was the high proportion of participants who did not respond to questions related to male sexual partners and condom use with male partners, with non-response rates ranging from approximately 49% to 60%, and even higher for some related indicators. These were the highest non-response rates observed in the survey and likely reflect the sensitivity of same-sex behavior questions within the study population, as well as the influence of stigma, privacy concerns, and social desirability bias. As a result, findings related to condom use and reasons for non-use with male partners should be interpreted with caution, as the responses may not be representative of all participants reporting male sexual partnerships. The substantial level of missing data limits the ability to draw firm conclusions regarding condom use patterns and barriers to condom use within this subgroup.

The relatively high level of non-response for sensitive sexual behavior questions was particularly evident among migrants from Lori. Across multiple indicators, Lori consistently demonstrated the highest levels of missing data. For example, 17 participants from Lori did not respond to questions regarding sexual intercourse in the past 30 days, 44 did not respond to questions on condom use during their most recent sexual intercourse, and 52 did not provide a reason for condom non-use. Similarly, Lori had the highest number of non-responses for several indicators related to regular partners, including sexual intercourse with a regular partner (n=34), condom use during most recent intercourse in Armenia (n=29) and abroad (n=26), reasons for condom non-use in Armenia (n=33), and lifetime condom use with regular partners in Armenia (n=30). While it is unclear whether this reflects differences in reporting comfort, survey administration, or other contextual factors, the pattern suggests that some regional findings should be interpreted cautiously. The elevated level of missing data may indicate discomfort discussing sexual behaviors and condom use practices, even within the confidential survey environment.

The migration profile observed in the current survey also provides important context for HIV vulnerability. Nearly all participants reported working in the Russian Federation (96.4%), most were employed in the construction sector (80.5%), and approximately one-quarter spent seven to twelve months abroad during the previous year. Extended periods away from home may increase opportunities for new sexual partnerships while simultaneously reducing access to familiar health services, prevention programs, and testing opportunities available in Armenia. Although the survey documented low HIV prevalence in the surveyed population, the combination of prolonged migration, inconsistent condom use, and engagement with casual and commercial partners supports the continued classification of labor migrants as a priority population for HIV prevention and testing services.

HIV testing indicators remain an important programmatic issue. Although the current survey demonstrated awareness of HIV testing and PrEP among many participants, prior findings from 2018 showed very low recent HIV testing uptake despite availability of services. This suggests that knowledge alone may not be sufficient to drive testing behavior. Barriers may include

stigma, low self-perceived risk, inconvenience, fear of diagnosis, and missed opportunities within routine health services. Given that migrants frequently interact with medical institutions for travel, employment, or general health needs, integrating opt-out or routinely offered HIV testing within existing services may improve coverage.

An important contextual finding in the current survey was the identification of several HIV-positive migrant cases shortly after formal data collection ended, including cases that met study eligibility criteria but were diagnosed through routine testing after recruitment had closed. This highlights that low prevalence measured in a cross-sectional survey does not necessarily indicate absence of transmission risk. Rather, HIV may remain present at low but ongoing levels that require sustained surveillance and routine case-finding systems. These findings reinforce the importance of maintaining accessible testing services and continuing surveillance activities even when measured prevalence remains low.

Several findings, particularly those related to sexual behaviors with male partners and certain regional subgroup analyses, should be interpreted cautiously. The relatively small number of respondents reporting some behaviors resulted in wide confidence intervals and reduced precision of several estimates. While these findings remain important from a public health perspective, they should be viewed as indicative of potential behavioral patterns rather than precise population-level estimates.

The current survey also demonstrates the operational feasibility of implementing a lower-cost BBS-Lite model through decentralized medical centers using digital data collection tools and integrated biological testing. Recruitment was successfully completed across all twelve participating medical centers, and several sites achieved substantial recruitment chain depth, demonstrating the ability of migrant social networks to support peer-driven recruitment and sustained participant enrollment. These findings suggest that BBS-Lite approaches can successfully reach socially connected migrant populations across diverse regions of Armenia while requiring fewer resources than traditional IBBS surveys. This is especially relevant in a resource-constrained environment where full-scale IBBS surveys may be conducted infrequently. BBS-Lite approaches can therefore provide timely interim data to guide programming between larger surveillance rounds.

An additional point of consideration is the potential broader demand for HIV/STI testing among labor migrants beyond those formally captured through the respondent-driven sampling process. During study implementation, there was discussion regarding the possibility that individuals might present to participating medical centers with expired coupons after recruitment had officially ended, motivated by personal interest or curiosity about their health status. However, no participating medical center reported presentations of individuals with expired coupons following the close of data collection, and no additional participants were enrolled or tested through the study after the official recruitment period. While this may suggest that recruitment chains had largely reached the socially connected networks engaged during the survey period, it is also possible that some individuals interested in testing were unable or unwilling to present after recruitment ended. The absence of post-survey presentations should therefore not necessarily be interpreted as an absence of unmet testing needs among migrant populations, particularly given the broader contextual evidence of continued HIV case detection in participating regions after the survey period concluded.

In summary, compared with 2018, the current findings suggest lower measured prevalence of HIV and HCV among Armenian labor migrants, but continued exposure to behavioral risks,

substantial regional heterogeneity, inconsistent condom use, and ongoing gaps in HIV testing uptake. Migrants remain a priority population within Armenia's HIV response due to ongoing mobility, prolonged periods spent abroad, separation from regular partners, and continued connections to higher-prevalence external labor markets. Continued targeted prevention, decentralized testing, risk communication, and periodic surveillance are warranted to sustain gains, identify emerging trends early, and ensure that low observed prevalence does not lead to complacency in HIV prevention efforts.

Post-Survey HIV Case Identification

While the survey identified only one HIV-positive case during the survey period, additional HIV-positive cases were detected at several participating medical centers shortly after data collection concluded. These cases, although not included in the study results due to timing or eligibility criteria, provide important contextual insight into ongoing transmission patterns within the same geographic areas and populations. It is also important to note that these individuals did not present with study referral coupons and were identified through routine testing services rather than through the RDS recruitment chains.

- **Enrico Mattei Polyclinic:** No HIV-positive cases were identified during the survey period, which concluded on January 21, 2026. However, on February 2, 2026, an HIV-positive case was diagnosed in a migrant individual, age 57, through routine testing. This individual did not meet the study's eligibility criteria due to his age and presented after the survey period.
- **Sevan Medical Center:** The survey period concluded on January 30, 2026, with no positive cases detected. Shortly after, on February 2, 2026, a 30-year-old patient tested HIV-positive. Although the individual had a history of labor migration, this was not within the last year and therefore did not meet the inclusion criteria. The case was identified through routine testing.
- **Vanadzor Medical Center:** No HIV-positive cases were identified during the survey period. However, within a few days after completion of data collection, two HIV-positive cases were detected at the same site through routine testing. Importantly, both individuals met the study eligibility criteria, including being male labor migrants aged 18–49 who had worked abroad for at least three months within the past year.

These findings underscore that, despite only one HIV-positive case being identified during the survey period, HIV transmission remains present within the target population and may not be fully captured within the limited recruitment timeframe and sample size. Another possible explanation is that the selected seeds and subsequent recruitment chains may have entered social networks that systematically excluded some higher-risk individuals. As a result, eligible labor migrants living with HIV may not have been reached through peer referral, particularly if they were not socially connected to participants already engaged in the recruitment chains.

These findings highlight a key limitation of cross-sectional surveys with capped sample sizes at each site, where the absence of detected cases during the survey period does not necessarily indicate absence of infection in the population. The detection of additional cases shortly after data collection suggests that HIV transmission persists at low but present levels in these communities. At the same time, it is important to contextualize these findings within broader programmatic trends. Overall, we have observed a decline in HIV-positive cases compared to the previous year within the Global Fund-supported migrant program. More broadly, national data also indicate a reduction in newly diagnosed HIV cases in 2025.

11. LIMITATIONS

Several limitations should be considered when interpreting the findings of this survey. Participants were recruited through a chain-referral (snowball) approach and through participating medical centers, which does not produce a statistically representative sample of all Armenian labor migrants. Individuals who are more socially connected or already engaged with healthcare services may have been more likely to participate, while migrants who are less connected to health services or social networks may be underrepresented. In addition, recruitment through healthcare facilities and HIV-related service structures may have biased the sample toward migrants who are more connected to and engaged with healthcare services. As a result, individuals who are less health-seeking, less connected to healthcare systems, or otherwise harder to reach may have been underrepresented in the study sample. Recruitment patterns also varied considerably across seeds, with several seeds generating long recruitment chains while others produced few or no recruits. As a result, recruitment may have been concentrated within a limited number of interconnected social networks, increasing the possibility that more socially connected migrants were overrepresented while more isolated or less socially connected individuals were underrepresented. In addition, the RDS analytical approach relies on several assumptions required for generation of weighted population estimates, including sufficient recruitment waves, random recruitment within social networks, and interconnected participant networks. Given the operational realities and recruitment dynamics of this survey, these assumptions may not have been fully met in all settings, and therefore weighted estimates should be interpreted with caution. Possible seed selection bias should also be considered, as the characteristics and social networks of initial seeds may have influenced which segments of the migrant population were ultimately reached through recruitment chains.

Formal RDS convergence diagnostics were not conducted as part of the current analysis. Consequently, weighted estimates should be interpreted primarily for descriptive purposes and should not be considered definitive population-level estimates. While RDS weighting was applied to improve representation of participant networks, the results should be viewed as indicative of potential population patterns rather than precise prevalence estimates for all Armenian labor migrants.

Behavioral information was collected through self-reported questionnaires on sensitive topics such as sexual behavior and substance use. As with similar surveys, responses may be subject to social desirability bias, with some participants potentially underreporting stigmatized behaviors. This limitation is particularly relevant for behaviors such as sex between men, injecting drug use, commercial sex, and sexual relationships with casual partners, which may be highly stigmatized within the local context. The healthcare-based recruitment setting may also have influenced participant willingness to disclose sensitive information, as questionnaires were completed within participating medical centers and respondents were often interacting with healthcare workers from their own communities. In addition, some questions required participants to recall behaviors over the previous year, which may introduce recall bias. A proportion of participants selected “no response” for certain questions. While this option was made available to respect participant autonomy and comfort when answering sensitive items, higher non-response for some variables may have reduced completeness of the dataset and should be considered when interpreting specific findings. In some cases, questionnaire skip logic and participant non-response further reduced the number of observations available for specific analyses, particularly for more sensitive behavioral questions.

The highest levels of non-response in the survey were observed for questions related to sexual intercourse with male partners, condom use with male partners, and reasons for condom non-use. Non-response rates for some indicators approached or exceeded 50%, suggesting substantial discomfort reporting same-sex behaviors. These high levels of non-response, combined with the very low reported prevalence of several stigmatized behaviors, suggest that underreporting may have occurred despite efforts to ensure privacy during data collection. As a result, estimates related to male sexual partnerships may be affected by underreporting and should be interpreted cautiously. The true prevalence of these behaviors may differ from reported findings, and conclusions regarding condom use patterns among men reporting male partners are therefore limited.

Operational challenges were also encountered during data collection. Participation rates varied across sites, and some medical centers required a longer recruitment period due to slower participant flow. Recruitment was further affected by the year-end holiday period, as many participating medical centers were closed from December 31 through January 4, with additional closures on January 6 and 7. In addition, the implementation of UHC starting January 1, 2026 introduced an additional operational burden, as medical staff were concurrently adapting to new system requirements, which impacted workflow and temporarily reduced availability for study-related activities. To mitigate these disruptions, the validity period of referral coupons was extended to allow participants sufficient time to return and complete the survey. Participants recruited immediately before or after the holiday period may also represent a somewhat different risk or healthcare-seeking profile compared with those enrolled during peak recruitment periods, introducing the potential for temporal recruitment bias.

Although efforts were made to provide participants with a private setting for survey completion and testing, confidentiality may have been perceived differently by participants because recruitment and data collection were conducted through local primary healthcare facilities. Participants were generally recruited, surveyed, and tested within their own communities and were not permitted to complete study procedures in other participating regions or cities. Consequently, some individuals may have had concerns regarding anonymity or confidentiality, particularly when responding to questions about sensitive behaviors, which could have influenced participation decisions and response patterns.

In addition, minor technical issues related to the questionnaire software occurred during implementation. In some instances, technical glitches or rapid progression through eligibility screening required participants to be enrolled as seeds and later linked to their recruitment chains offline. Differences in tablet models used for data collection also resulted in some variation in software performance across devices. These issues were identified through routine monitoring and addressed promptly through communication with participating medical centers, offline tracking of coupon distribution and participant flow, and coordination with the software developer to adjust and improve the data collection platform as needed. Differences in digital literacy among medical center staff also affected implementation in some settings, particularly during the initial stages of data collection and troubleshooting of the electronic platform. In addition, although the study population was limited to adults aged 18–49 years, some participants demonstrated varying levels of familiarity and comfort with tablet-based self-administered questionnaires, which may have affected the pace of survey completion and occasionally required additional support from survey administrators. To support data quality, extensive data cleaning and validation procedures were required following data collection, including detailed spot-checking of participant responses, review of recruitment linkages, and verification that key

variables—particularly self-reported network size, which is central to RDS weighting—contained plausible and meaningful responses rather than erroneous or inconsistent entries.

Because weighted estimates were derived using self-reported network size measures, inaccuracies in participants' understanding or reporting of network size may have influenced weighting procedures and population estimates. Although extensive spot-checking, data cleaning, and validation procedures were conducted to identify implausible responses and improve data quality, some degree of measurement error cannot be excluded. This limitation is particularly relevant given the importance of network size within respondent-driven sampling estimation procedures.

Additional analytical and data management limitations were encountered during post-collection processing. Exported data required substantial cleaning and restructuring before analysis, including recoding questionnaire responses from Armenian into English to ensure compatibility with analytical software, as RDS Analyst does not accommodate Armenian-language variable labels. In addition, exported data were not consistently structured in solely coded numeric format, requiring additional manual cleaning and recoding before analysis. Challenges were also encountered with exported recruitment data, including issues related to seed numbering, recruitment codes, and linkage tracking, which required manual verification and reconstruction in some cases. These additional processing steps increased the potential for human error despite careful quality assurance procedures.

The analytical software used for RDS estimation also imposed important methodological constraints. RDS Analyst, while appropriate for generating weighted population estimates, offers limited flexibility for more complex exploratory or stratified analyses compared with standard statistical software. Fragmentation of datasets and restructuring of variables were required to conduct certain subgroup analyses, and some desired analyses were not feasible within the platform. These limitations should be considered when interpreting both the scope and precision of the reported findings.

Several key sub-populations identified within the survey population, including men reporting sex with men, people reporting injecting drug use, and participants reporting commercial sexual partners, represented relatively small sample sizes. Consequently, estimates for these groups should be interpreted cautiously, as the limited number of observations reduced the reliability and precision of subgroup-specific analyses and, in some cases, resulted in wide confidence intervals. This limitation was particularly relevant for partner-specific analyses, including those examining male and commercial sexual partners, as well as condom use behaviors, reasons for condom non-use, and other detailed behavioral indicators. Therefore, these findings should be interpreted as indicative patterns rather than precise population-level estimates. In addition, important regional heterogeneity was observed across the three participating regions, and aggregate Armenia-level estimates may mask meaningful regional differences in behaviors, service access, and risk patterns. Furthermore, the selected study regions may not be fully representative of all Armenian labor migrants nationally.

For partner-specific analyses, some respondents reported sexual partnerships in both Armenia and abroad and were therefore included in both subgroup analyses. In addition, several follow-up behavioral questions (e.g., condom use at last sexual intercourse, reasons for condom non-use, and condom use frequency) were not location-specific. Consequently, comparisons between Armenia and abroad should be interpreted with caution, as observed differences may partly reflect overlapping participant populations and shared behavioral responses rather than entirely independent groups.

For partner-specific analyses, respondents could report sexual partnerships occurring both in Armenia and abroad. As a result, individuals reporting partnerships in both settings were included in both subgroup analyses. In addition, several downstream behavioral questions, including condom use during most recent sexual intercourse, reasons for condom non-use, and frequency of condom use, were not location-specific. Consequently, the same behavioral response may contribute to both Armenia and abroad analyses. This should be considered when interpreting differences between settings, as some observed patterns may reflect overlapping participant populations rather than entirely distinct groups.

Some inconsistencies were observed in responses to the HIV testing history questions. A small number of participants reported that they had never been tested for HIV and provided a reason for never testing, but subsequently reported having been tested for HIV within the past 12 months, often specifying a testing location abroad. These contradictory responses suggest that some participants may have misunderstood the distinction between lifetime HIV testing and HIV testing within the past year. Combined with skip-logic limitations within the questionnaire, these inconsistencies may have affected the accuracy of certain HIV testing indicators and should be considered when interpreting findings related to HIV testing history and recent testing practices.

A questionnaire programming error affected the HIV testing section. While respondents who selected "No response" or "Don't know" for ever having been tested for HIV were not asked the subsequent question on reasons for never testing, respondents selecting these same response options for HIV testing within the past 12 months were incorrectly routed to the follow-up question on testing location. This may have introduced inconsistencies in the testing location data and should be considered when interpreting these findings.

A limitation related to participant incentives should also be considered. Although financial compensation was provided to support participation and peer recruitment, the incentive amounts may not have been sufficient to motivate participation for all eligible individuals. Changes in the economic situation and increases in the cost of living in Armenia may have reduced the perceived value of the incentives, particularly given the time required to complete the survey and testing procedures. This may have contributed to slower recruitment at some sites and potential underrepresentation of labor migrants who were less motivated or less able to participate.

The study eligibility criteria also limited participation to men aged 18–49 years. However, post-survey HIV case identification at Enrico Mattei Polyclinic included a migrant individual aged 57 years, suggesting that HIV-related risk behaviors and vulnerabilities may persist among older migrant populations who were not captured within the survey sample.

Finally, the BBS-lite methodology uses a shorter questionnaire and simplified recruitment approach compared with traditional integrated bio-behavioral surveillance surveys. While this approach allows for faster and more cost-effective data collection, it may limit the depth of information collected on certain behavioral and structural factors.

12. RECOMMENDATIONS

- Medical centers participating in the Global Fund-supported migrant worker program should continue offering routine HIV testing to migrant workers during periods of return migration, particularly in Shirak, Lori, and Gegharkunik. Facilities with high volumes of

migrant clients should be prioritized for HIV rapid test allocation and prevention activities.

- Substantial regional variation was observed across several behavioral and service utilization indicators. Future HIV prevention programming should prioritize regions where higher-risk behavioral profiles were observed among survey participants, ensuring that resources, prevention messaging, testing activities, and outreach efforts are aligned with locally identified needs.
- Free condoms should be routinely offered through participating medical centers, particularly to migrants reporting frequent travel abroad and extended periods away from their families. Condom distribution should be integrated into existing counseling and testing services rather than implemented as a separate activity.
- The study demonstrated that labor migrants can successfully recruit peers through social networks. Existing migrant worker programs should explore using peer referral approaches for HIV testing campaigns, particularly during periods when large numbers of workers return from abroad.
- Information on HIV prevention, testing services, and condom use should be provided to migrant workers during periods of departure and return. This could be incorporated into existing services offered through participating medical centers and migrant-focused programs.
- Additional qualitative research should be conducted in regions demonstrating higher-risk behavioral patterns, lower condom use, lower HIV testing uptake, or lower HIV knowledge to better understand the factors influencing these differences and inform future interventions.

13. CONCLUSION

This BBS-Lite survey provides updated evidence on HIV-related behaviors, service utilization, and blood-borne infection prevalence among male seasonal labor migrants in Shirak, Lori, and Gegharkunik regions of Armenia. The findings indicate that HIV prevalence among surveyed migrants remains low, with only one HIV-positive participant identified during the study period. The prevalence of HBV, HCV, and syphilis was also low, suggesting that the burden of these infections among the surveyed population remains limited.

At the same time, the survey identified several behavioral vulnerabilities that remain relevant for HIV prevention programming. Condom use was inconsistent across partner types, particularly among migrants reporting casual, commercial, and male sexual partners. Among the reported partnerships, condom use estimates tended to be higher in analyses involving partnerships reported abroad than those reported in Armenia suggesting that perceptions of HIV and STI risk may differ depending on the setting. Although HIV testing coverage was high and knowledge of HIV transmission and prevention was generally good, some misconceptions persisted and important differences were observed between regions.

The findings also highlight substantial regional variation across a range of indicators, including sexual behaviors, condom use, HIV knowledge, and service utilization. These differences suggest that HIV prevention needs are not uniform across migrant populations and that future programming may benefit from a more targeted approach. Regions demonstrating higher-risk behavioral profiles or lower uptake of prevention services may require tailored interventions and intensified prevention efforts compared with regions demonstrating lower levels of risk.

The survey further demonstrated the operational feasibility of implementing a BBS-Lite approach through routine healthcare facilities using chain-referral recruitment. The successful recruitment of 900 migrant workers across 12 medical centers illustrates the potential of this approach to generate timely, practical, and cost-effective surveillance data among migrant populations that may otherwise be difficult to reach through conventional survey methods.

Overall, while the findings do not indicate a high burden of HIV among labor migrants in the surveyed regions, continued prevention, testing, and surveillance efforts remain important given the scale of labor migration in Armenia and the ongoing potential for HIV exposure during migration. The results support the continuation of migrant-focused HIV services while highlighting the importance of using regional surveillance data to guide resource allocation, target interventions, and monitor trends over time. Periodic implementation of BBS-Lite surveys can provide valuable information to inform program planning and ensure that HIV prevention efforts remain responsive to the evolving needs of migrant workers in Armenia.

14. ANNEX A – Eligibility Questionnaire

Migrant Screening Questionnaire

Instructions: The survey coordinator must complete this screening questionnaire during the participant's first visit to the survey site for every individual presenting to participate in the study.

Hello. Thank you for taking the time and agreeing to participate in this study. Before we begin, I need to determine whether you meet the inclusion criteria. If you do, I will explain the study objectives and procedures in detail. You can be assured that the confidentiality of your personal information is fully protected, and the study results will be analyzed and reported in an aggregated form.

May I begin? ☐ No

No	Question / Instruction	Response Options	Skip / Selection Instructions
1	Have you already participated in this study?	☐ Yes ☐ No	If 'yes', does not meet participation criteria
2	How old are you now? (completed years)	_____ (18–49 years)	If <18 or >49, does not meet participation criteria
3	Do you currently live in this city?	☐ Yes ☐ No	If 'no', does not meet participation criteria
4	During the past 1 year, have you spent 3 months or more abroad?	☐ Yes ☐ No	If 'no', does not meet participation criteria
5	Please remember that the confidentiality of your responses is protected, and the person who gave you the coupon will not know your answer. Has anyone forced you to participate in this study against your will?	☐ Yes ☐ No ☐ No response	If 'yes', does not meet participation criteria
6	How did you receive this coupon?	☐ From a friend/acquaintance ☐ From a stranger ☐ Found it/Bought it/Exchanged it	If from a stranger or found/bought/exchanged, does not meet participation criteria

Staff-Only Questions (Do Not Ask Participant)

No	Question / Instruction	Response Options	Instructions
7	Are you confident in the accuracy of the participant's responses?	☐ Confident ☐ Not confident	If confident, proceed to Question 15
8	Indicate why you are not confident.	☐ Under 18 ☐ Not a migrant ☐ Does not live in study area ☐ Other	Additional notes
9	Is the participant under the influence of drugs or alcohol to the extent that it may affect informed consent or questionnaire completion?	☐ Yes ☐ No	If 'yes', does not meet participation criteria
10	Does the participant have mental health problems and is unable to provide informed consent or complete the questionnaire?	☐ Yes ☐ No	If 'yes', does not meet participation criteria
11	Does the participant meet the inclusion criteria? (Verify using passport stamp)	☐ Yes ☐ No	

15. ANNEX B – Behavioral Questionnaire

Questionnaire for BBS-Lite Behavioral Survey

Section 1. Demographics

No	Question	Response Options	Skip Logic
101	Age	_____ years	
102	Place of residence	☐ City/Town ☐ Village ☐ No response	
103	Education	☐ Incomplete secondary ☐ Secondary ☐ Secondary technical ☐ Incomplete higher ☐ Higher ☐ No response	
104	Family status	☐ Single ☐ Married ☐ Divorced ☐ Civil marriage ☐ Widowed ☐ No response	
105	Total years worked abroad	_____ 99 = No response	
106	Total time worked abroad the last time they worked aboard	☐ 3-6 months ☐ 7-12 months ☐ No response	

107	Main foreign country worked in past 12 months (≥ 3 months)	☐ Russia ☐ Ukraine ☐ Other_____ ☐ No response	
107a	If other, please specify	_____	
108	Type of settlement worked last time you were out of the country for labor (≥ 3 months)	☐ Big city ☐ City ☐ Suburbs ☐ Village ☐ No response	
109	Main type of work done in last time you were out of the country for labor (≥ 3 months)	☐ Construction ☐ Agriculture ☐ Trade ☐ Service sector ☐ Other ☐ No response	
109a	If other, please specify.	_____	

Section 2. Network Size

No	Question	Response Options	Skip Logic
201	In your opinion, approximately how many male migrants aged 18–49 living in your city have been abroad for work purposes for 3 months or more (but no longer than one year) during the past 12 months?	Minimum_____ Mean_____ Maximum_____	
202	How many migrants do you know?	_____	
203	Out of those that you know, how many have you seen in the past 30 days?	_____	
204	Finally, of those that you have seen in the past 30 days, how many would you consider inviting to participate in this survey?	_____	

Section 3. Sexual Life and Condom Use

We would like to ask you some questions regarding your sexual behavior. We understand how personal those questions are, but at the same time we would like to note once again that the study confidentiality is fully maintained, and the same questions are asked to all the study participants. When we speak about sexual relations, we mean oral, vaginal and anal sex.

No	Question	Response Options	Skip Logic

301	Does your spouse accompany you when you work abroad?	☐ Yes ☐ No ☐ Not married ☐ No response	
302	Have you had sexual intercourse in the past 30 days?	☐ Yes ☐ No ☐ No response	**If 'no', go to Q304**
303	Did you or your partner use a condom the last time you had sex (in the past 30 days)?	☐ Yes ☐ No ☐ No response	**If 'yes', go to Q304**
303a	If not, then why? *(select all that apply)*	☐ Very expensive ☐ Ashamed to buy ☐ Difficult to use ☐ Abates pleasure ☐ Ashamed to ask sexual partner to use it ☐ Trust my partner ☐ Don't trust that condoms work ☐ Other _____ ☐ No response	
303b	If other, please specify.	____	
Regular Partners in Armenia and Abroad: these are partners who are your husband or wife (whether in a civil marriage or registered marriage) or a boyfriend/girlfriend (someone with whom you have been having regular sex with for at least three months).			
304	Have you had sexual intercourse with a regular partner in the past 12 months? *(select all that apply)*	☐ Yes, in Armenia ☐ Yes, abroad ☐ No ☐ No response	**If 'no', go to Q307**
305	Did you use a condom during your most recent sexual intercourse with your regular partner?	☐ Yes ☐ No ☐ No response	**If 'yes', go to Q306**
305a	If not, then why? *(select all that apply)*	☐ Very expensive ☐ Ashamed to buy ☐ Difficult to use ☐ Abates pleasure ☐ Ashamed to ask sexual partner to use it ☐ Trust my partner ☐ Don't trust that condoms work ☐ Other _____ ☐ No response	
305b	If other, please specify.	____	

306	How often do you use condoms with regular partner(s)?	☐ Always ☐ Sometimes ☐ Never ☐ No response	
Casual Non-Regular Partners in Armenia and Abroad: these are partners who are NOT your husband or wife (whether in a civil marriage or registered marriage) or a boyfriend/girlfriend			
307	Have you had sexual intercourse with a non-regular (casual) partner in the past 12 months? *(select all that apply)*	☐ Yes, in Armenia ☐ Yes, abroad ☐ No ☐ No response	**If 'no', go to Q310**
307a	If yes, how many non-regular (casual) partners have you had in the past 12 months?	_____	
308	Did you use a condom the last time you had sex with a non-regular partner (casual)?	☐ Yes ☐ No ☐ No response	**If 'yes', go to Q309**
308a	If not, then why? *(select all that apply)*	☐ Very expensive ☐ Ashamed to buy ☐ Difficult to use ☐ Abates pleasure ☐ Ashamed to ask sexual partner to use it ☐ Trust my partner ☐ Don't trust that condoms work ☐ Other _____ ☐ No response	
308b	If other, please specify.	____	
309	How often do you use condoms with non-regular (casual) partner(s)?	☐ Always ☐ Sometimes ☐ Never ☐ No response	
Commercial Partners in Armenia and Abroad: these are partners to whom you gave money in exchange for sex.			
310	Have you had sexual intercourse with a commercial sex worker in the past 12 months? *(select all that apply)*	☐ Yes, in Armenia ☐ Yes, abroad ☐ No ☐ No response	**If 'no', go to Q313**
311	Did you use a condom the last time you had sex with a commercial sex worker?	☐ Yes ☐ No ☐ No response	**If 'yes', go to Q312**
311a	If not, then why? *(select all that apply)*	☐ Very expensive ☐ Ashamed to buy	

		☐ Difficult to use ☐ Abates pleasure ☐ Ashamed to ask sexual partner to use it ☐ Trust my partner ☐ Don't trust that condoms work ☐ Other _____ ☐ No response	
311b	If other, please specify.	____	
312	How often do you use condoms with commercial sex worker(s)?	☐ Always ☐ Sometimes ☐ Never ☐ No response	
313	Have you had sexual intercourse with a male partner in the past 12 months? *(select all that apply)*	☐ Yes, in Armenia ☐ Yes, abroad ☐ No ☐ No response	**If 'no', go to Q401**
314	Did you use a condom the last time you had sex with a male partner?	☐ Yes ☐ No ☐ No response	**If 'yes', go to Q315**
314a	If not, then why? *(select all that apply)*	☐ Very expensive ☐ Ashamed to buy ☐ Difficult to use ☐ Abates pleasure ☐ Ashamed to ask sexual partner to use it ☐ Trust my partner ☐ Don't trust that condoms work ☐ Other _____ ☐ No response	
314b	If other, please specify.	____	
315	How often do you use condoms with a male partner(s)?	☐ Always ☐ Sometimes ☐ Never ☐ No response	

Section 4. Drug and Injecting Behavior

No	Question	Response Options	Skip Logic
401	Have you ever used drugs for non-medical purposes?	☐ Yes ☐ No ☐ No response	**If 'no', go to Q501**

402	Have you used drugs for non-medical purposes within the past 12 months? *(select all that apply)*	☐ Injecting ☐ Oral ☐ Nasal ☐ Smoking ☐ Other ☐ No response	**If 'injecting', go to Q403**
402a	If other, please specify.	____	
403	Have you shared injecting equipment in the past 12 months with others?	☐ Yes ☐ No ☐ No response	
404	How often have you used new sterile needles in the past 12 months while injecting drugs?	☐ Always ☐ Sometimes ☐ Never ☐ No response	
405	Did you use a new sterile needle the last time you injected drugs?	☐ Yes ☐ No ☐ No response	

Section 5. HIV Knowledge and Testing

No	Question	Response Options	Skip Logic
501	In the past 12 months, have you experienced any unusual genital discharge, burning during urination, itching, sores, or ulcers?	☐ Yes ☐ No ☐ Don't know ☐ No response	**If 'yes', 'don't know', or 'no response', go to Q502**
502	Where do you usually seek treatment or counseling for sexually transmitted infections (STIs)?	☐ Primary health care clinic ☐ Hospital ☐ NGO ☐ Pharmacy ☐ Online telemedicine ☐ I self-medicate without consulting a specialist ☐ I do not seek treatment for STIs ☐ Other ☐ No Response	
502b	If other, please specify.	____	
503	Have you ever been tested for HIV? *(select all that apply)*	☐ Yes, in Armenia ☐ Yes, abroad ☐ No ☐ Don't know ☐ No response	**If 'no', 'don't know', or 'no response' go to Q503a**

503a	If not, why not? (select all that apply)	☐ Fear of discrimination or disrespectful treatment ☐ Concerns about confidentiality ☐ I don't know where to get tested ☐ I only have sexual relations with trusted partners ☐ I always use condoms ☐ I am confident that I will not get infected ☐ I did not avoid ☐ Other ☐ No Response	
503b	If other, please specify.	_____	
504	Have you been tested for HIV in the past 12 months? (select all that apply)	☐ Yes, in Armenia ☐ Yes, abroad ☐ No ☐ Don't know ☐ No response	**If 'no' then go to Q505**
504a	If yes, where can you get tested? (select all that apply)	☐ Polyclinic ☐ Hospital ☐ Private Laboratory ☐ Mobile Clinics ☐ NGO ☐ Pharmacy ☐ Other_____ ☐ No response	
504b	If other, please specify.	_____	
505	Are you aware of pre-exposure prophylaxis (PrEP)?	☐ Yes ☐ No ☐ Don't know ☐ No response	
506	How would you assess your likelihood of acquiring HIV	☐ High ☐ Medium ☐ No risk ☐ No response	
507	Can the risk of HIV infection be reduced by having one uninfected faithful partner?	☐ Yes ☐ No ☐ Don't know ☐ No response	
508	Can the risk of HIV infection be reduced by using a condom?	☐ Yes ☐ No ☐ Don't know ☐ No response	

509	Can a healthy-looking person be infected with HIV?	☐ Yes ☐ No ☐ Don't know ☐ ☐ No response	
510	What can a person get HIV infection from? *(select all that apply)*	☐ Sharing needles/syringes when using drugs ☐ From a mosquito bite ☐ From the use of non-sterilized medical equipment ☐ Through everyday contact ☐ During unprotected sex ☐ From mother to child ☐ Don't know ☐ No response	
511	Can a person get HIV from general contact? *(select all that apply)*	☐ When sharing food ☐ During a handshake ☐ When kissing ☐ When using the same towel ☐ When using the same toilet ☐ None of the above ☐ Don't know ☐ No response	
512	Have you ever received HIV services at this medical center?	☐ Yes ☐ No ☐ Not sure ☐ No response	
513	Do you feel comfortable accessing HIV/STI testing services in this community?	☐ Yes ☐ No ☐ Not sure ☐ No response	