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COLORADO HEALTH ACCESS SURVEY 2023

Sampling Methodology

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Summary

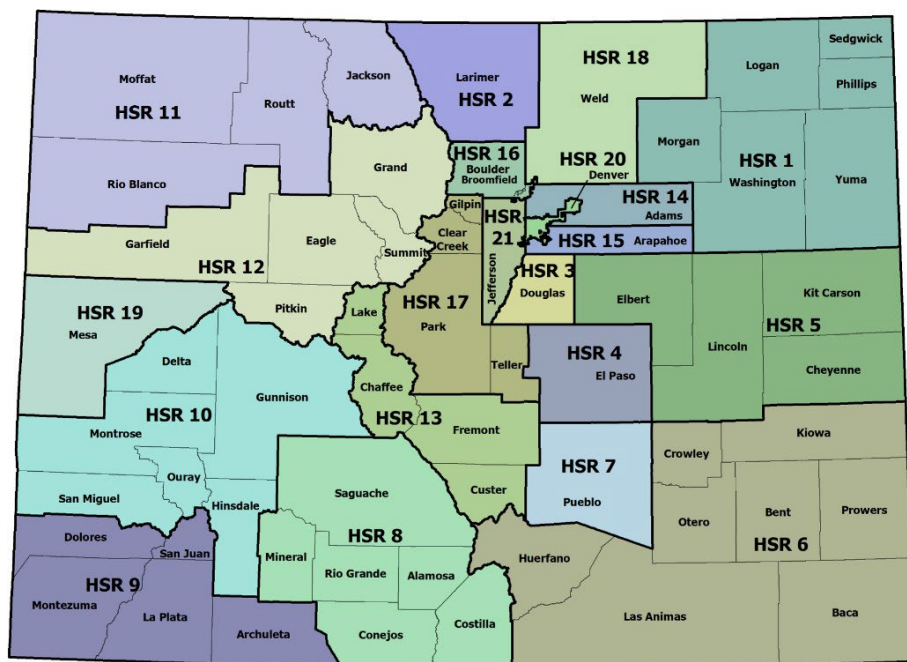
The Colorado Health Institute (CHI) contracted with NORC at the University of Chicago (NORC) to conduct the 2023 Colorado Health Access Survey (CHAS). The CHAS represents the non-institutionalized population in Colorado and aims to document health insurance coverage, access to and use of health care, and social factors influencing health, including housing, food access, experiences of discrimination, cyber security, and internet access. NORC developed this report to provide information about the methods used to collect, clean, and document the data in the CHAS data files. CHI provided additional details in the Data Management Procedures section of this report.

NORC conducted the study for CHI utilizing address-based sampling (ABS) via a multimode design including web and phone. The ABS version of the 2021 CHAS questionnaire served as the basis for the 2023 CHAS questionnaire. CHI added additional variables in 2023 that were topical to changes in health care and current events.

Interviews—or completed surveys—were conducted from March 22, 2023, to September 4, 2023, among a probability sample of Colorado households containing at least one person aged 18 or older. This excluded the unhoused population and people who are not full-time residents of Colorado. The selected sample was stratified by two dimensions: 21 health statistics regions (HSRs) as seen in Exhibit 1 and nine demographically targeted strata, for a total of 189 strata overall, to ensure adequate representation both by region within the state of Colorado and demographic group. In total, 9,636 interviews were completed online, and 325 interviews were completed from call-ins by phone, for a total of 9,961 interviews.

Details of the sample design, questionnaire development, data collection procedures, weighting, and response rates follow. To access more information including the survey questionnaire, go to <https://www.coloradohealthinstitute.org/research/colorado-health-access-survey-chas>.

Exhibit 1. Colorado Health Statistics Regions (HSRs)



Sample Design

The sampling objective of the CHAS is to produce estimates of health and health-related indicators for residents of Colorado. To accomplish this, NORC utilized a multimode ABS, push-to-web, and call-in design.

A three-wave responsive survey design was executed to account for differences in yields across HSRs and demographic groups, response rate variability since 2021, and the inclusion of a low-income oversample in 2023. The data collected during the earlier waves of production informed the design for later phases.

The sampling plan, survey instrument, and materials received Institutional Review Board (IRB) approval. NORC's IRB has corporate responsibility for monitoring survey procedures to ensure the confidentiality of persons and establishments participating in a study. To ensure that the practices and procedures designed to protect the rights and welfare of study participants are effectively implemented, NORC empowered its IRB to freely exercise appropriate administrative overview of all human subject issues on NORC research projects without having to consider the organization's financial concerns.

As with all research studies, this study possesses limitations, including the challenges associated with potential measurement and nonresponse bias. All data in this study are self-reported and therefore subject to recall bias. Additionally, while

ABS and respondent recruitment best practices were followed, results might be affected by sampling bias.

Stratified Two-Phase ABS Sample

The 2023 CHAS employed an enhanced application of the Big Data-modeled stratification sampling technique utilized in 2021. In this process, a surplus of sample lines in the form of addresses were obtained and characterized, and represented the larger pool, or sample frame, from which the 2023 CHAS sample were selected. For the first phase, a large number of addresses were drawn from a list of all households in Colorado. Third-party commercial data were obtained for these households to make predictions about their membership in subpopulations of interest to CHI. Based on these predictions, the households were stratified into nine groups:

- Low income (under 138% federal poverty level)
- Age 65 and over
- Black / African American
- No health insurance (“uninsured”)
- Hispanic
- Child in the household
- Age 18-29
- Commercial data available, with no positive predictions (“residual”)
- No commercial data available for the household (“no match”)

A total of 147,487 addresses were sampled, 145,349 of which were found to be eligible, mailable addresses. A stratified random sample was drawn from this overall sample frame to account for historical differences in response rates across HSRs and subpopulations, and oversample subpopulations of interest. The second phase increased attention to these oversampled subpopulations.

The 2023 CHAS was designed to increase the representation of households in the following income ranges:

- 0%-50% federal poverty level
- 50%-138% federal poverty level

To achieve this, a “low-income” stratum was introduced to the survey methodology. Households predicted to be low-income were assigned to a stratum and oversampled, relative to Colorado’s population.

The second phase of sample stratification also included a model for uninsured households, which boosted the number of uninsured interviews to ensure that the ABS design attained the most accurate estimate of insurance possible. This model also served as a proxy for households with relatively low incomes and levels of educational attainment. This strata assignment was important when selecting the sample for each of the three waves of sample release. Exhibit 2 shows the breakdown of the sample frame by Big Data Classifier (BDC) stratum in the first and second phases of sample stratification.

Exhibit 2. Sample Frame and Allocation by Big Data Classifier Stratum¹

| Stratum | First Phase | | Second Phase | |
|------------------|----------------|---------------|----------------|---------------|
| | Count | % | Count | % |
| Low Income | 78,524 | 9.0% | 50,317 | 34.1% |
| Age 65+ | 96,270 | 11.0% | 7,226 | 4.9% |
| African American | 29,352 | 3.3% | 10,194 | 6.9% |
| Uninsured | 46,768 | 5.3% | 11,493 | 7.8% |
| Hispanic | 125,425 | 14.3% | 8,689 | 5.9% |
| Children | 79,563 | 9.1% | 21,826 | 14.8% |
| Age 18-29 | 67,120 | 7.7% | 3,180 | 2.2% |
| Residual | 246,169 | 28.1% | 26,316 | 17.8% |
| No Match | 107,366 | 12.2% | 8,246 | 5.6% |
| Total | 876,557 | 100.0% | 147,487 | 100.0% |

A third subpopulation of interest was defined by geographic location, and households in HSRs 4 (El Paso County), 6 (Southeast), and 17 (Mountain Gateways) were oversampled to ensure that an adequate number of surveys were collected from each region for required analyses.

The geographic distribution of the sample across all HSRs within Colorado can be seen in Exhibit 3. Sample distribution by HSR is further broken down by the demographics comprising the BDC strata in Exhibit 4.

¹ The Big Data Classifier stratum is the predicted characteristic for the household, prior to sampling.

Exhibit 3. Sample Frame and Allocation by Region

| HSR | Region Name | First Phase | | Second Phase | |
|--------------|------------------------------|----------------|---------------|----------------|---------------|
| | | Count | % | Count | % |
| 1 | Northeast | 21,291 | 2.4% | 6,243 | 4.2% |
| 2 | Larimer County | 50,833 | 5.8% | 4,486 | 3.0% |
| 3 | Douglas County | 24,969 | 2.8% | 4,230 | 2.9% |
| 4 | El Paso County | 102,267 | 11.7% | 7,708 | 5.2% |
| 5 | Central Eastern Plains | 13,102 | 1.5% | 5,476 | 3.7% |
| 6 | Southeast | 25,039 | 2.9% | 7,515 | 5.1% |
| 7 | Pueblo County | 46,414 | 5.3% | 7,679 | 5.2% |
| 8 | San Luis Valley | 17,573 | 2.0% | 6,149 | 4.2% |
| 9 | Southwest | 17,187 | 2.0% | 4,508 | 3.1% |
| 10 | Gunnison and Dolores Valleys | 27,307 | 3.1% | 5,808 | 3.9% |
| 11 | Northwest | 14,757 | 1.7% | 5,722 | 3.9% |
| 12 | I-70 Mountain Corridor | 23,272 | 2.7% | 5,997 | 4.1% |
| 13 | Upper Arkansas Valley | 20,667 | 2.4% | 5,600 | 3.8% |
| 14 | Adams County | 70,425 | 8% | 13,183 | 8.9% |
| 15 | Arapahoe County | 73,252 | 8.4% | 10,931 | 7.4% |
| 16 | Boulder-Broomfield | 47,359 | 5.4% | 4,561 | 3.1% |
| 17 | Mountain Gateways | 17,541 | 2.0% | 4,739 | 3.2% |
| 18 | Weld County | 43,158 | 4.9% | 7,353 | 5.0% |
| 19 | Mesa County | 35,067 | 4.0% | 5,526 | 3.7% |
| 20 | Denver County | 121,731 | 13.9% | 15,986 | 10.8% |
| 21 | Jefferson County | 63,346 | 7.2% | 8,087 | 5.5% |
| Total | | 876,557 | 100.0% | 147,487 | 100.0% |

Exhibit 4. Final Sample Distribution by Big Data Classifier Stratum

| HSR | Region Name | Residual | Age 65+ | African American or Hispanic ² | Uninsured | Children | Age 18-29 | No Match | Low Income | Sample Selected |
|--------------|------------------------------|---------------|--------------|---|---------------|---------------|--------------|--------------|---------------|-----------------|
| 1 | Northeast | 941 | 309 | 417 | 614 | 906 | 63 | 251 | 2,742 | 6,243 |
| 2 | Larimer County | 1,062 | 290 | 233 | 369 | 916 | 285 | 304 | 1,027 | 4,486 |
| 3 | Douglas County | 1,209 | 241 | 294 | 127 | 1,811 | 182 | 250 | 116 | 4,230 |
| 4 | El Paso County | 1,107 | 275 | 988 | 299 | 1,256 | 163 | 223 | 3,397 | 7,708 |
| 5 | Central Eastern Plains | 1,549 | 448 | 220 | 143 | 1,760 | 95 | 338 | 923 | 5,476 |
| 6 | Southeast | 734 | 351 | 399 | 460 | 501 | 46 | 311 | 4,713 | 7,515 |
| 7 | Pueblo County | 666 | 389 | 679 | 552 | 500 | 38 | 203 | 4,652 | 7,679 |
| 8 | San Luis Valley | 834 | 302 | 676 | 781 | 395 | 50 | 538 | 2,573 | 6,149 |
| 9 | Southwest | 1,400 | 394 | 186 | 352 | 792 | 137 | 427 | 820 | 4,508 |
| 10 | Gunnison and Dolores Valleys | 1,229 | 428 | 214 | 354 | 908 | 103 | 379 | 2,193 | 5,808 |
| 11 | Northwest | 1,515 | 356 | 219 | 303 | 1,384 | 145 | 587 | 1,213 | 5,722 |
| 12 | I-70 Mountain Corridor | 1,581 | 297 | 627 | 913 | 864 | 146 | 771 | 798 | 5,997 |
| 13 | Upper Arkansas Valley | 1,608 | 570 | 183 | 347 | 889 | 101 | 516 | 1,386 | 5,600 |
| 14 | Adams County | 1,062 | 219 | 2,238 | 1,946 | 952 | 129 | 328 | 6,309 | 13,183 |
| 15 | Arapahoe County | 1,235 | 298 | 4,310 | 511 | 1,135 | 171 | 314 | 2,957 | 10,931 |
| 16 | Boulder-Broomfield | 1,272 | 265 | 338 | 281 | 937 | 314 | 360 | 794 | 4,561 |
| 17 | Mountain Gateways | 1,846 | 464 | 160 | 69 | 1,065 | 145 | 487 | 503 | 4,739 |
| 18 | Weld County | 920 | 228 | 683 | 898 | 1,213 | 101 | 237 | 3,073 | 7,353 |
| 19 | Mesa County | 952 | 326 | 192 | 497 | 871 | 105 | 246 | 2,337 | 5,526 |
| 20 | Denver County | 1,679 | 272 | 4,987 | 1,162 | 966 | 421 | 754 | 5,745 | 15,986 |
| 21 | Jefferson County | 1,915 | 504 | 640 | 515 | 1,805 | 240 | 422 | 2,046 | 8,087 |
| Total | | 26,316 | 7,226 | 18,883 | 11,493 | 21,826 | 3,180 | 8,246 | 50,317 | 147,487 |

² The counts for "African American" and "Hispanic" are summed in this table to protect respondents' privacy.

Releasing the Sample in Waves

The 2023 CHAS was conducted in three waves. Wave 1 was designed to establish an understanding of model performance and response rates for different BDC strata and regions. Subsequently, each wave used the same stratified random sampling design but with varying sampling rates for each stratum and HSR based on the performance of prior waves.

To maximize the size of the “low-income” oversample in Wave 2 based on progress in Wave 1, the amount of sample in Wave 2 increased the proportion of households that were both:

- in one of the 5% most impoverished block groups in Colorado, and
- were predicted to be low-income by the BDC.

Finally, a third wave of households was selected based on the combined progress of Waves 1 and 2 to fully optimize the 2023 CHAS sample and data representativeness.

Developing the Survey Instrument

The questionnaire was originally developed by CHI based on questions contained in the 2008 Massachusetts, Oklahoma, and Minnesota Household Surveys, which closely followed the State Health Access Data Assistance Center (SHADAC) model of health interview survey questionnaires. Specific sections were adjusted for the state of Colorado for the development of the CHAS.

Subsequent changes over the years were made to modernize terminology, remain topical, and reflect the research interests of CHI, stakeholders, and collaborating organizations. The final 2023 CHAS questionnaire is available for download in PDF and Excel format here:

<https://www.coloradohealthinstitute.org/programs/colorado-health-access-survey>

Updates made to the survey in 2023 are detailed in Appendix A.

Programming the Survey Instrument

CHI provided NORC with a revised version of the 2023 instrument. The instrument included language options for both the computer-assisted web interviewing (CAWI) and computer-assisted telephone interviewing (CATI) surveys. For example, language from CATI administration, such as “Now I’m going to read a list” or “Now please tell me” was modified to “Next is a list” or “Please indicate” in the self-administered CAWI version of the survey. English and Spanish language versions of the instrument were available for both the CAWI and CATI modes.

NORC programmed the instruments using CAWI/CATI software that integrates response data from both modes. While the mode of completion is tracked, the software resolves the sampled address as completed regardless of mode to prevent duplicating household data.

Team members reviewed all aspects of survey programming to confirm accuracy of skip patterns and flow of the instrument. In addition, reviewers scanned the programmed survey with an eye toward respondent usability and tested the CAWI survey on a variety of devices, including smartphones, tablets, and laptop and desktop computers, as well as platforms, such as Chrome, Safari, Firefox, Internet Explorer, and Microsoft Edge. The team also conducted a rigorous review of the English and Spanish versions of the survey instrument. Questions added to the 2023 CHAS received additional focus to ensure that the skip patterns and intent fulfilled the research need. The team also reviewed the CATI version of the survey to ensure proper administration by telephone interviewers. Simulated test cases were completed and reviewed by the research team to check for inconsistencies in question delivery, data capture, timing, and other points where improvements could be made.

Data Collection Procedures

Mail Materials

A multi-phase mailing process was utilized. Each wave followed this sequence: an invitation letter, a postcard reminder, a final reminder letter, and an additional final reminder letter for participants who had partially completed the survey. A mailing list consisting of all sampled addresses was run through the National Change of Address (NCOA), a system containing national change of address information that also corrects addresses per the US Postal System (USPS) standard and identifies unmailable addresses. Mailed materials were sent to all sampled, corrected addresses identified as mailable by NCOA. NCOA identified 2,138 addresses as unmailable.

Invitation Letter

An invitation letter was first sent to households emphasizing the importance of participation and how the results may help Colorado residents. This letter included the survey URL, a secure access code unique to the household to access the web survey, and information enabling households to call NORC's telephone survey research centers if they preferred to complete the survey by phone.

Pre-incentives in the form of a \$2 bill were included in the first invitation mailings sent to a majority of cases across all waves. The breakdown of who received the pre-incentive was:

1. 100% of households that were predicted to have an individual who is African American, low income, or uninsured.
2. 66% of the remaining households for which commercial data were available.
3. 0% of households predicted to have an individual age 65 and over.
4. 0% of households for which commercial data were not available.

In Waves 1 and 2, 81% of households received a \$2 pre-incentive following the above guidelines. To maximize the total number of households included in Wave 3, the percentage of households who received an incentive in the second category above decreased significantly. This resulted in 31% of Wave 3 households receiving the pre-incentive with all households predicted to be in a stratum of interest (category 1) receiving an incentive while allowing for the maximum number of households to be sampled.

Custom envelopes were developed for the pre-incentive invitation mailings that included a circular window on the back side to display part of the \$2 bill; the window was included to maximize the visible impact of the mailing.

Other Mail Materials

All remaining mail materials also included the survey URL, a secure access code to access the web survey, and information to complete the survey by phone. A postcard reminder was sent nine to 13 days after the initial invitation and reinforced the importance of the household’s participation in the survey. A final reminder letter was sent five to eight days after the postcard reminder. The final reminder letter was mailed to all sampled, corrected addresses in Wave 1. For Waves 2 and 3, the final reminder letter was mailed to sampled, corrected addresses that did not have a confirmed survey completion or refusal at that point. The final reminder letter was mailed to *all* sampled addresses in Wave 1 because the mailing cadence was slightly tighter. Exhibit 5 contains details on the mailing cadence specific to each wave.

Exhibit 5. Physical Mailing Dates

| Wave | First Invitation Letter | Postcard Reminder | Final Reminder Letter | Additional Reminder Letter to Partial Completes |
|------|-------------------------|-------------------|-----------------------|---|
| 1 | 3/22/2023 | 3/31/2023 | 4/5/2023 | 8/3/2023 |
| 2 | 5/11/2023 | 5/24/2023 | 6/1/2023 | 8/3/2023 |
| 3 | 6/22/2023 | 7/5/2023 | 7/13/2023 | 8/3/2023 |

To increase the number of completed interviews, a letter was sent to respondents who partially completed the survey four weeks prior to the end of data collection. To test different recruitment messages, two versions of this additional reminder letter were sent to 2,528 households, split evenly between the two groups. The groups were similar to each other demographically. One version had a more personalized and stronger messaging about completing the survey. There was no significant difference in response based on letter type.

The initial invitation letters and the additional reminder letters to partial completes were sent by first-class mail, while the postcard reminders and final reminder letters were sent by bulk/standard mail. All mail materials were printed in English and Spanish to ensure Spanish-speaking households received bilingual materials. The letters, envelopes, and postcard all contained the CHI logo as well as the Colorado state logo. CHI’s return address was used on the envelopes. Mail that was unable to be delivered was returned to the research team offices for processing.

Email

As a supplement to mail outreach, emails were sent to all sampled records that had an email address associated with the sampled address as provided by a third-party commercial data provider. An initial email invitation was sent containing a clickable survey URL and a secure access code unique to the household to access the web survey, as well as information enabling households to call in if they preferred to complete the survey by phone. A reminder email was sent one week after the email invitation to all cases that did not have a confirmed survey completion or refusal. To further increase response, a final reminder email was sent to all cases that did not have a confirmed survey completion or refusal three weeks before the end of data collection. All emails were in English with corresponding Spanish text.

Exhibit 6. Email Dates

| Wave | Email Invite | Email Reminder | Additional Email Reminder to Partial Completes |
|------|--------------|----------------|--|
| 1 | 3/29/2023 | 4/5/2023 | 8/9/2023 |
| 2 | 5/22/2023 | 5/30/2023 | 8/10/2023 |
| 3 | 7/3/2023 | 7/11/2023 | 8/11/2023 |

All printed materials and emails are in Appendix B.

Survey Support

Recipients could call a central phone number or email a help desk if they had questions about the survey, or if they wanted to be removed from sampling. In the latter instance, no further outreach was made.

CATI Procedures

Inbound

A toll-free number was provided to respondents to allow them to call with questions about the web survey or to complete the survey over the phone. English and Spanish inbound phone calls were fielded by NORC. Interviewers were available to take calls from 9 a.m. to 9 p.m. MST/MDT for the duration of the project. If respondents called outside these hours, they could leave a message and an interviewer would return their call.

Household and Target Selection

Upon entry into either the online or phone survey, respondents were asked a series of questions to determine their eligibility. These are described below:

1. Household-level selection
 - Screening to determine if the respondent resided at the address to which the letter was mailed.
 - Screening to exclude out-of-state homeowners and vacation homes.
 - Screening to exclude respondents under 18 years of age.
 - Screening to include adult respondents who can answer questions about health insurance for every member of the household.
2. Individual-level (target) selection
 - Roster of all household members, including age, gender, and relationship to respondent.
 - Random selection of a “target” person. If the household contained at least one person under age 18, then a person under age 18 was selected as the target with a 50% probability.

Data Collection Reports and Final Status

A weekly data collection report examined the status of data collection throughout the field period. The report contained detailed response information by mode, region, and key demographic groups. The following exhibits provide the final status of completed interviews by those same factors, as well as the final status of all sampled addresses. In total, 9,636 web interviews and 325 inbound phone interviews were completed.

Exhibit 7. Completed Surveys by Health Statistics Region (HSR)

| HSR | Region Name | Completes |
|--------------|------------------------------|--------------|
| 1 | Northeast | 380 |
| 2 | Larimer County | 418 |
| 3 | Douglas County | 387 |
| 4 | El Paso County | 459 |
| 5 | Central Eastern Plains | 411 |
| 6 | Southeast | 492 |
| 7 | Pueblo County | 387 |
| 8 | San Luis Valley | 407 |
| 9 | Southwest | 406 |
| 10 | Gunnison and Dolores Valleys | 416 |
| 11 | Northwest | 411 |
| 12 | I-70 Mountain Corridor | 397 |
| 13 | Upper Arkansas Valley | 407 |
| 14 | Adams County | 543 |
| 15 | Arapahoe County | 679 |
| 16 | Boulder-Broomfield | 460 |
| 17 | Mountain Gateways | 423 |
| 18 | Weld County | 390 |
| 19 | Mesa County | 414 |
| 20 | Denver County | 958 |
| 21 | Jefferson County | 716 |
| Total | | 9,961 |

Exhibit 8. Total Completed Interviews by Region by Gender and Education

| HSR | Region Name | Gender ³ | | | Education | | | |
|--------------|------------------------------|---------------------|--------------|---|-----------------------|---------------------|--------------|---|
| | | Male | Female | Another gender, non-binary, or not provided | Less than High School | High School Diploma | Some College | College Degree+, or not provided ⁴ |
| 1 | Northeast | 190 | 180 | 10 | 80 | 92 | 76 | 132 |
| 2 | Larimer County | 120 | 190 | 10 | 62 | 33 | 60 | 263 |
| 3 | Douglas County | 190 | 200 | 10 | 97 | 18 | 36 | 236 |
| 4 | El Paso County | 220 | 230 | 10 | 87 | 47 | 92 | 233 |
| 5 | Central Eastern Plains | 200 | 200 | 10 | 75 | 50 | 96 | 190 |
| 6 | Southeast | 270 | 210 | 10 | 75 | 89 | 90 | 238 |
| 7 | Pueblo County | 220 | 160 | 0 | 57 | 82 | 90 | 158 |
| 8 | San Luis Valley | 230 | 180 | 0 | 55 | 71 | 94 | 187 |
| 9 | Southwest | 200 | 200 | 10 | 65 | 43 | 66 | 232 |
| 10 | Gunnison and Dolores Valleys | 230 | 170 | 10 | 65 | 63 | 94 | 194 |
| 11 | Northwest | 200 | 200 | 10 | 73 | 41 | 78 | 219 |
| 12 | I-70 Mountain Corridor | 190 | 200 | 0 | 67 | 36 | 39 | 255 |
| 13 | Upper Arkansas Valley | 210 | 180 | 10 | 47 | 71 | 83 | 206 |
| 14 | Adams County | 250 | 280 | 10 | 121 | 90 | 88 | 244 |
| 15 | Arapahoe County | 360 | 300 | 20 | 117 | 66 | 129 | 367 |
| 16 | Boulder-Broomfield | 230 | 220 | 10 | 62 | 34 | 38 | 326 |
| 17 | Mountain Gateways | 200 | 220 | 10 | 42 | 39 | 94 | 248 |
| 18 | Weld County | 210 | 180 | 0 | 92 | 66 | 67 | 165 |
| 19 | Mesa County | 210 | 200 | 10 | 71 | 80 | 84 | 179 |
| 20 | Denver County | 510 | 420 | 20 | 129 | 92 | 141 | 596 |
| 21 | Jefferson County | 380 | 330 | 10 | 129 | 68 | 94 | 425 |
| Total | | 5,120 | 4,650 | 190 | 1,668 | 1,271 | 1,729 | 5,293 |

³ The counts in the "Gender" columns are rounded to the nearest multiple of ten to protect respondents' privacy.

⁴ The counts for "College Degree+" and "not provided" are summed in this table to protect respondents' privacy.

Exhibit 9. Total Completed Interviews by Region by Age⁵ and Race/Ethnicity⁶

| HSR | Region Name | 0-17 | 18-34 | 35-64 | 65+ | White | Black/ African American, or not provided ⁷ | Hispanic/ Latino | Other |
|-----|------------------------------|------|-------|-------|-----|-------|--|---------------------|-------|
| 1 | Northeast | 61 | 48 | 142 | 123 | 285 | 12 | 63 | 20 |
| 2 | Larimer County | 56 | 76 | 180 | 101 | 353 | 10 | 29 | 26 |
| 3 | Douglas County | 97 | 53 | 155 | 78 | 316 | 10 | 31 | 30 |
| 4 | El Paso County | 76 | 79 | 211 | 88 | 312 | 46 | 67 | 34 |
| 5 | Central Eastern Plains | 64 | 37 | 179 | 123 | 353 | 12 | 24 | 22 |
| 6 | Southeast | 51 | 35 | 219 | 181 | 319 | 16 | 124 | 33 |
| 7 | Pueblo County | 36 | 51 | 186 | 114 | 206 | 22 | 136 | 23 |
| 8 | San Luis Valley | 39 | 46 | 170 | 146 | 253 | 8 | 123 | 23 |
| 9 | Southwest | 59 | 37 | 173 | 134 | 348 | 6 | 23 | 29 |
| 10 | Gunnison and Dolores Valleys | 49 | 48 | 170 | 141 | 341 | 11 | 42 | 22 |
| 11 | Northwest | 68 | 43 | 194 | 104 | 362 | 8 | 21 | 20 |
| 12 | I-70 Mountain Corridor | 58 | 43 | 193 | 99 | 336 | 9 | 44 | 8 |
| 13 | Upper Arkansas Valley | 37 | 39 | 173 | 156 | 340 | 16 | 30 | 21 |
| 14 | Adams County | 98 | 111 | 226 | 97 | 311 | 40 | 149 | 43 |
| 15 | Arapahoe County | 108 | 117 | 313 | 135 | 446 | 91 | 90 | 52 |
| 16 | Boulder-Broomfield | 60 | 71 | 195 | 128 | 375 | 16 | 36 | 33 |
| 17 | Mountain Gateways | 39 | 32 | 209 | 138 | 359 | 7 | 24 | 33 |

⁵ There were 125 respondents whose age is unknown.

⁶ The race/ethnicity categories in this table are mutually exclusive. If an individual is Hispanic or Latino (based on question D1), they are counted in the Hispanic/Latino column. If an individual is not Hispanic/Latino but is Black or African American (based on question D3), they are counted in the Black/African American column (including individuals of two or more races). If an individual is not Hispanic/Latino or Black or African American but is white (based on question D3), they are counted in the White column (including individuals of two or more races). All other individuals are counted in the Other column, which includes:

- American Indian or Alaska Native
- Asian
- Middle Eastern or North African
- Native Hawaiian or Other Pacific Islander
- Some other race
- Two or more of the options listed above

⁷ The counts for "Black/African American" and "not provided" are summed in this table to protect respondents' privacy.

| HSR | Region Name | 0-17 | 18-34 | 35-64 | 65+ | White | Black/ African American, or not provided ⁷ | Hispanic/ Latino | Other |
|--------------|------------------|--------------|--------------|--------------|--------------|--------------|--|---------------------|------------|
| 18 | Weld County | 72 | 70 | 154 | 88 | 262 | 10 | 87 | 31 |
| 19 | Mesa County | 57 | 53 | 168 | 133 | 339 | 18 | 27 | 30 |
| 20 | Denver County | 104 | 226 | 411 | 196 | 560 | 164 | 147 | 87 |
| 21 | Jefferson County | 117 | 137 | 301 | 153 | 601 | 12 | 63 | 40 |
| Total | | 1,406 | 1,452 | 4,322 | 2,656 | 7,377 | 544 | 1,380 | 660 |

Exhibit 10. Summary of Data Collection Dispositions and Rates

| Status | Frequency | Details |
|--------------------------|-----------|---|
| Cases sampled | 147,487 | Number of addresses sampled. |
| Ineligible | 2,138 | Number of unmailable addresses. |
| Phone complete | 325 | |
| Web complete | 9,636 | |
| Partial interview | 2,501 | Interviews that were started but not completed. |
| Screened out | 723 | Began the interview and then were deemed ineligible. These cases are considered resolved but not complete (or partial). |
| No phone or web activity | 128,472 | Unresolved – cases that had no activity. |
| Measure | | |
| Response rate | 6.8% | |

Length of Interview

Interviews were administered using a web and phone interviewing platform. Across the two modes, web interviews took an average of 31% percent less time to complete than phone interviews (24.4 minutes compared to 35.2 minutes).

Break Offs

There were 2,501 (19%) households that started the survey but did not complete it. Some variables of abandonment tended to be questions of a sensitive or personal nature, including:

- Mental health
- Substance abuse
- Income (particularly questions asking for specific amount versus responding to provided ranges)
- Sexual orientation
- Gender identity

The decision was made to include any interviews that were completed through the race/ethnicity questions (HR3), which appeared near the end of the survey, as completed interviews. Including these interviews added 356 completes.

Speeders and Skippers

Some interviews were completed in a short amount of time (speeders) and/or contained many variables with missing responses (i.e., marked as “don’t know,” “refused to answer,” or “web skip”) (skippers). NORC reviewed the data to discard these interviews from the data file. Eleven web interviews and sixteen phone interviews were completed in less than 33% of the median completion time; these were flagged as speeders and were discarded. After removing speeders, six interviews had missing data for 50% or more variables among a set of 10 variables that were:

- considered particularly important, and
- asked of every respondent.

Removing speeders and skippers reduced the number of completed interviews from 9,994 to 9,961.

Back Coding

Open-ended (OE) survey questions are useful to gain a deeper understanding of the experiences of survey respondents. OE responses may capture concepts that were not originally considered when developing the survey, and these concepts may be considered when developing additional response options for subsequent data collection efforts. In addition, when faced with longer lists of response options and an OE option, respondents may skip reading each response option in favor of writing out an OE response. This results in OE responses that do not represent alternate responses, but rather repeat the same concept as an existing option. Back coding reallocates OE responses that fit into existing response options back into the code frame and accurately represents the frequency of those existing responses.

For 2023, NORC back coded five OE variables and included these updated data in the 2023 CHAS data file. These variables were the following:

1. CWA4_L_O (In the past 12 months, which of the following tasks (have you/has TARGET/) used the internet to complete?)
2. A9A2_J_O (Which costs, specifically, were the reason (you/TARGET) didn’t get the health care or prescription (you/they) needed?)
3. CWA6_O (What is the MAIN reason (you/they) are not enrolled in a government internet discount program?)
4. CC1 (How has Colorado’s changing climate affected (your health/the health of your family in the past 12 months?)
5. A2_O (If (you/TARGET) were to get sick or need a medical professional, where would (you/TARGET) go?)

Weighting Procedures

The survey data were weighted to account for discrepancies between sample and population characteristics. The 2023 CHAS survey data were weighted to:

- Adjust for the fact that not all survey respondents were selected with the same probability; and
- Account for gaps in coverage in the sample frame.

Weighting involved three stages:

1. Designing the weights
2. Making weight adjustments
3. Raking and trimming

Design Weights

Design weights (also known as base weights) address the differential sampling rates across sampling strata and demographic groups of interest. Design weights are the product of:

1. **First phase sampling weight:** The inverse probability of the address being drawn from the Delivery Sequence File (DSF) into the “first phase” sample frame.
2. **Second phase sampling weight:** The inverse probability of the address being drawn from the “first phase” sample frame and invited to participate in the survey. Addresses in the “first phase” sample frame were stratified by:
 - HSR; and
 - BDC predictions about the household. These predictions were made prior to data collection, based on information from a commercial data vendor. The frame was separated into mutually exclusive BDC strata:
 - Low income (under 138% federal poverty level)
 - Age 65 and over
 - Black / African American
 - No health insurance (“uninsured”)
 - Hispanic
 - Child in the household
 - Age 18-29
 - Commercial data available, no positive predictions (“residual”)
 - No commercial data available for the household (“no match”)

The sampling design involved 189 strata (21 HSRs by nine BDC strata). Design weights help to account for unequal sampling probability across strata. For example, the 2023 CHAS oversampled from:

- Addresses in HSR 4 (*El Paso County*), HSR 6 (*Southeast*), and HSR 17 (*Mountain Gateways*); and
- Addresses predicted to be “low income” by the BDC.

These oversamples are accounted for by the design weights.

Weight Adjustments

Design weights are multiplied by adjustment factors based on the following:

- **Response propensity:** This statistic is calculated by fitting a generalized linear model (GLM) to the set of all eligible households,⁸ where the response is a binary variable indicating whether the household completed the survey and the predictors are:
 - BDC stratum; and
 - Self-Response Score at the tract level from the American Community survey (ACS) 2016-2020 5-year data release, as recorded in the 2022 Census Planning Database.

The GLM is then applied to the data to make predictions, and the data are binned into quintiles based on the predictions. Finally, the adjustment factor is calculated as the inverse of the probability of completing the survey for each quintile.

- **Household size:** Correction for the number of persons in the household (capped at three).
- **Age:** 18 years and younger down-weighted by a factor of 0.5 to rebalance from oversampling via the eligibility screener.

Raking and Trimming

The adjusted weights were raked to reflect the control totals obtained from the ACS. These counts were indexed by HSR, gender, education, age, home ownership, and race/ethnicity. HSR, family income, and Medicaid insurance status were included in the state-level raking procedure. The control totals for Medicaid insurance status were provided by CHI based on March 2023 data. Raking involved the repetition of the following series of steps:

⁸ Eligible households are completed interviews, partial interviews, speeders/skippers, and households for which mail was delivered but no response was received. Ineligible households are those that were screened out and those to which mail was undeliverable.

- Raking the weights with respect to the control totals of demographic groups for each HSR and for the state of Colorado.
- Trimming the weights within appropriate parameters at state- and HSR-levels. Finally, weights were rescaled to sum to the total population of Colorado as estimated by the June 2023 Current Population Survey.⁹ The 2021 ACS¹⁰ benchmarks are outlined in Exhibit 11 below.

⁹ <https://www.census.gov/data/datasets/time-series/demo/cps/cps-basic.html>

¹⁰ <https://www.census.gov/programs-surveys/acs/microdata/access.2021.html>

Exhibit 11. Gender, Education, and Homeowner Distribution by HSR (ACS Benchmarks)

| HSR | Region Name | Gender | | Education | | | Homeownership | |
|-----|------------------------------|--------|--------|---------------------|--------------|-----------------|---------------|----------------|
| | | Male | Female | High School or less | Some College | College Degree+ | Own | Rent or Occupy |
| 1 | Northeast | 52.8% | 47.2% | 60.0% | 18.0% | 22.0% | 69.2% | 30.8% |
| 2 | Larimer County | 50.0% | 50.0% | 38.1% | 19.9% | 42.0% | 68.6% | 31.4% |
| 3 | Douglas County | 50.3% | 49.7% | 38.0% | 15.4% | 46.5% | 81.8% | 18.2% |
| 4 | El Paso County | 50.7% | 49.3% | 45.2% | 20.2% | 34.5% | 68.3% | 31.7% |
| 5 | Central Eastern Plains | 51.9% | 48.1% | 50.5% | 19.7% | 29.8% | 84.6% | 15.4% |
| 6 | Southeast | 53.0% | 47.0% | 57.8% | 20.0% | 22.2% | 69.2% | 30.8% |
| 7 | Pueblo County | 49.5% | 50.5% | 53.8% | 20.9% | 25.3% | 67.6% | 32.4% |
| 8 | San Luis Valley | 51.2% | 48.8% | 55.4% | 19.6% | 25.0% | 69.7% | 30.3% |
| 9 | Southwest | 50.4% | 49.6% | 44.3% | 19.2% | 36.5% | 73.7% | 26.3% |
| 10 | Gunnison and Dolores Valleys | 51.2% | 48.8% | 50.2% | 19.2% | 30.5% | 72.0% | 28.0% |
| 11 | Northwest | 51.6% | 48.4% | 47.4% | 17.4% | 35.2% | 75.6% | 24.4% |
| 12 | I-70 Mountain Corridor | 52.8% | 47.2% | 45.1% | 15.2% | 39.8% | 68.1% | 31.9% |
| 13 | Upper Arkansas Valley | 55.6% | 44.4% | 53.7% | 18.8% | 27.5% | 76.7% | 23.3% |
| 14 | Adams County | 50.8% | 49.2% | 59.7% | 16.3% | 24.0% | 70.0% | 30.0% |
| 15 | Arapahoe County | 49.9% | 50.1% | 46.3% | 15.7% | 37.9% | 67.5% | 32.5% |
| 16 | Boulder-Broomfield | 50.5% | 49.5% | 34.0% | 16.9% | 49.1% | 65.9% | 34.1% |
| 17 | Mountain Gateways | 51.6% | 48.4% | 38.7% | 20.8% | 40.5% | 84.2% | 15.8% |
| 18 | Weld County | 50.8% | 49.2% | 55.0% | 18.5% | 26.4% | 75.9% | 24.1% |
| 19 | Mesa County | 49.7% | 50.3% | 50.5% | 22.0% | 27.6% | 72.1% | 27.9% |
| 20 | Denver County | 50.3% | 49.7% | 41.3% | 14.4% | 44.3% | 54.3% | 45.7% |
| 21 | Jefferson County | 50.2% | 49.8% | 40.7% | 17.1% | 42.2% | 73.3% | 26.7% |

Exhibit 12. Age and Race/Ethnicity Distribution by HSR (ACS Benchmarks)

| HSR | Region Name | Age | | | | Race/Ethnicity | | |
|-----|---------------------------------|-------|-------|-------|-------|----------------|---------------------|------------------------------------|
| | | 0-17 | 18-34 | 35-64 | 65+ | White | Hispanic/ Latino | Black/African American or Other |
| 1 | Northeast | 24.4% | 22.2% | 36.5% | 16.9% | 68.0% | 26.6% | 5.4% |
| 2 | Larimer County | 19.4% | 28.6% | 36.1% | 15.8% | 81.3% | 12.0% | 6.7% |
| 3 | Douglas County | 25.4% | 18.9% | 43.5% | 12.3% | 80.3% | 9.2% | 10.5% |
| 4 | El Paso County | 24.0% | 26.7% | 36.5% | 12.9% | 67.6% | 17.9% | 14.5% |
| 5 | Central Eastern Plains | 22.3% | 17.3% | 43.0% | 17.3% | 81.6% | 11.5% | 6.9% |
| 6 | Southeast | 20.7% | 20.6% | 37.2% | 21.6% | 56.5% | 36.6% | 6.9% |
| 7 | Pueblo County | 22.6% | 21.7% | 37.3% | 18.4% | 50.9% | 43.5% | 5.6% |
| 8 | San Luis Valley | 22.7% | 21.6% | 36.7% | 19.0% | 48.8% | 46.1% | 5.2% |
| 9 | Southwest | 19.1% | 19.6% | 40.5% | 20.8% | 75.8% | 13.8% | 10.5% |
| 10 | Gunnison and Dolores Valleys | 19.3% | 19.4% | 38.6% | 22.7% | 79.9% | 15.7% | 4.4% |
| 11 | Northwest | 20.8% | 21.3% | 41.5% | 16.5% | 83.3% | 10.3% | 6.5% |
| 12 | I-70 Mountain Corridor | 21.0% | 22.4% | 42.4% | 14.1% | 71.0% | 23.3% | 5.7% |
| 13 | Upper Arkansas Valley | 16.2% | 20.3% | 41.4% | 22.1% | 78.9% | 14.0% | 7.2% |
| 14 | Adams County | 26.3% | 24.9% | 38.3% | 10.5% | 48.3% | 40.9% | 10.8% |
| 15 | Arapahoe County | 23.4% | 23.6% | 39.7% | 13.2% | 58.5% | 19.9% | 21.6% |
| 16 | Boulder- Broomfield | 19.5% | 27.3% | 38.6% | 14.6% | 76.5% | 13.8% | 9.7% |
| 17 | Mountain Gateways | 15.6% | 15.0% | 48.2% | 21.2% | 86.6% | 7.4% | 6.0% |
| 18 | Weld County | 26.1% | 24.2% | 37.6% | 12.1% | 64.3% | 30.0% | 5.7% |
| 19 | Mesa County | 21.5% | 21.8% | 37.3% | 19.4% | 80.2% | 15.0% | 4.8% |
| 20 | Denver County | 19.2% | 31.1% | 37.9% | 11.7% | 54.0% | 29.4% | 16.6% |
| 21 | Jefferson County | 19.6% | 22.5% | 41.4% | 16.5% | 77.0% | 15.7% | 7.3% |

Design Effects

Complex survey designs and post-data collection statistical adjustments affect variance estimates and the resulting significance tests and confidence intervals. The impact of the survey design on variance estimates is measured by the design effect, which represents the extent of departure from a simple random sample where all sample units respond. The design effect measures the variance inflation of the sample estimate relative to the variance of an estimate based on a hypothetical random sample of the sample size. Note that such a sample is not feasible or financially viable, as it would require obtaining a full list of the residents of Colorado and ensuring a 100% response rate for all sampled individuals. The design effect thus only serves as a measure of how inaccurate standard errors would be if they were computed using software that does *not* support statistical analysis with complex survey designs.

Design Effect for "Overall" Weights

The estimated design effect for the "overall" weights (**WEIGHT_POP** and **WEIGHT_SAMP**) is 3.96. Exhibit 13 shows design effects for several key subgroups.

Exhibit 13. Design Effects for Subgroups

| Group | Group | Design Effect |
|----------------|---------------------------------|---------------|
| Age | 0-17 | 2.87 |
| | 18-34 | 2.98 |
| | 35-64 | 4.00 |
| | 65+ | 5.13 |
| Race/Ethnicity | White | 3.98 |
| | Hispanic/Latino | 3.33 |
| | Black/African American or Other | 3.82 |
| Education | High School or less | 3.21 |
| | Some College | 4.22 |
| | College Degree+ | 4.00 |
| Homeownership | Own | 4.01 |
| | Rent or Occupy | 3.60 |

The estimated design effect for the "adult" weights (**ADULT_WEIGHT_POP** and **ADULT_WEIGHT_SAMP**) is 6.23.

Response Rates

The response rate for this study was 6.8%, using the American Association for Public Opinion Research’s (AAPOR) RR3 formula.¹¹ The response rate is defined as follows:

$$\frac{\text{Complete interviews}}{\text{Complete} + \text{partial} + (\text{eligible, non - interview}) + (\text{unknown eligibility, non - interview}) + \text{not eligible}}$$

A survey was considered to be complete when the respondent answered through survey question HR3. The "Completed Interview" disposition category includes all such instances. Response rates varied across the three waves. Detailed tables by region and wave are included in the appendix.

Exhibit 14. Response Rates by Wave

| Disposition | Wave 1 | Wave 2 | Wave 3 | Total |
|---|--------|--------|--------|---------|
| Complete Interview | 4,557 | 4,368 | 1,036 | 9,961 |
| Partial Interview | 1,121 | 1,164 | 250 | 2,535 |
| Eligible Non-Interview | 330 | 383 | 67 | 780 |
| Unknown Eligibility, Non-Interview | 57,702 | 61,208 | 14,566 | 133,476 |
| Not Eligible | 312 | 344 | 79 | 735 |
| Response Rate | 7.1% | 6.5% | 6.5% | 6.8% |

Data Management Procedures¹²

Consistent with prior iterations of the CHAS, CHI incorporated two data processing procedures to facilitate the analysis.

Insurance Categorization

CHI created a hierarchical insurance variable to categorize individuals who indicated multiple types of insurance into a primary source of coverage. The order of the hierarchy is: Medicaid, Medicare, employer-sponsored insurance, Child Health Plan *Plus*, individual market insurance, and other types of insurance (such as TRICARE

¹¹ The American Association for Public Opinion Research. 2016. Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. 9th edition. AAPOR.

¹² CHI appended this section to NORC’s report.

or a student health plan). CHI then categorized individuals who did not report any source of coverage as uninsured.

Income Imputation

About 34% of the survey sample had missing yearly income data for 2022. As in previous years, CHI developed a model to impute missing income data. CHI first log transformed data for a normal distribution. CHI used a procedure in SAS 9.4—PROC SURVEYIMPUTE—to impute missing income data on the 2023 survey. The model included the following predictor variables: age; race/ethnicity; marital status; education level; impact of limitation from physical, mental, or cognitive condition; uninsurance; general health status; employment status; and size of the household. The predictor problems paying medical bills was removed from the 2023 CHAS survey and thus could not be used in the imputation method. All other predictors used were included in previous imputation analyses for past CHAS surveys. CHI then inversely transformed the imputed values to get the final estimates for yearly income.

In previous survey years, income from the previous month was included in the income analysis. However, due to differences in reported monthly income in 2021 compared to reported yearly income in 2020 (due to job loss, COVID-19, and other circumstances), monthly income was excluded. This method was kept consistent for imputation in 2023.

Appendices

Appendix A – 2023 CHAS Updates

Questions Added

A8J. Added variables for each response of A8J:

A8JA, A8JB, A8JC, A8JD, A8JE, A8JF, A8JG, A8JH, A8JI, A8JJ, A8JK, A8JL, A8JM, A8JN, A8JO

CATI_INTRO3 and CATI_INTRO4. Added introductory text for inbound calls.

S7A2. Added question regarding sex assigned at birth.

S7A3. Added question regarding current gender.

S7A(b-j). Added question regarding other person in household's current gender.

CaC1. Added question regarding care coordination.

CWA1. Added question regarding household's internet service.

CWA2. Added question regarding reasons household does not have internet service. Added variables for each response of CWA2: **CWA2_A, CWA2_B, CWA2_C, CWA2_D, CWA2_E, CWA2_F, CWA2_G, CWA2_H, CWA2_O**

CWA3. Added question with series of statements about internet access to judge agreement or disagreement with. Added variables for each response of CWA3: **CWA3_A, CWA3_B, CWA3_C, CWA3_D, CWA3_E, CWA3_F**

CWA4. Added question regarding tasks completed using the internet. Added variables for each response of CWA4: **CWA4_A, CWA4_B, CWA4_C, CWA4_D, CWA4_E, CWA4_F, CWA4_G, CWA4_H, CWA4_I, CWA4_J, CWA4_K, CWA4_L, CWA4_L_O**

CWA5. Added question regarding enrollment in government internet discount program.

CWA6. Added question regarding main reason not enrolled in government internet discount program. Added variables for each response of CWA6: **CWA6_A, CWA6_B, CWA6_C, CWA6_D, CWA6_E, CWA6_F, CWA6_G, CWA6_H, CWA6_I, CWA6_J, CWA6_O**

Info1. Added question about sources consulted for health information. Added variables for each response of Info1: **INFO1_1, INFO1_2, INFO1_3, INFO1_4, INFO1_5, INFO1_6, INFO1_7, INFO1_8, INFO1_9, INFO1_10, INFO1_11, INFO1_12, INFO1_O**

RH1. Added question about information on birth control received from doctor.

RH2. Added question about birth control options discussed with doctor. Added variables for each response of RH2: **RH2_1, RH2_2, RH2_3, RH2_4, RH2_5, RH2_6, RH2_7, RH2_8, RH2_9, RH2_10, RH2_11, RH2_12, RH2_O**

RH3. Added question about ability to get preferred birth control option.

RH4. Added question regarding reasons person was unable to get preferred birth control option. Added variables for each response of RH4: **RH4_1, RH4_2, RH4_3, RH4_4, RH4_5, RH4_O**

MG1. Added question about health care providers ignoring medical concerns.

MG2. Added question about reasons why health care providers ignored medical concerns.

A9a2. Added question about cost-related reasons person did not get health care needed. Added variables for each response of A9A2: **A9A2_A, A9A2_B, A9A2_C, A9A2_D, A9A2_E, A9A2_F, A9A2_G, A9A2_H, A9A2_I, A9A2_J, A9A2_J_O**

HS5a. Added question regarding doctor telling person they tested positive for COVID-19.

HS5b. Added question regarding COVID-19 symptoms lasting three months or longer.

HS5c. Added question about activities COVID-19 symptoms caused person to do.

CC1. Added question about ways Colorado's changing climate affecting person's health. Added variables for each response of CC1: **CC1_1, CC1_2, CC1_3, CC1_4, CC1_5, CC1_6, CC1_7, CC1_8, CC1_9, CC1_10, CC1_O**

CC2. Added question about preparedness local community is to respond to and recover from changing climate events or disasters.

TRAN1. Added question about problems with transportation in community. Added variables for each response of TRAN1: **TRAN1_1, TRAN1_2, TRAN1_3, TRAN1_4, TRAN1_5, TRAN1_6, TRAN1_7, TRAN1_8, TRAN1_9, TRAN1_10, TRAN1_11, TRAN1_12, TRAN1_13**

MH4a. Added question about belief person can get mental health or substance use services.

MH4b. Added question about preferred place to get mental health or substance use services.

HR3. Added question regarding agreement or disagreement with Colorado's health care system meeting health care needs.

D12. Added question regarding problems paying rent or mortgage.

S13. Added question regarding active-duty military members in household.

IN1a. Added question regarding number of immediate family members in household.

CA1. Added question regarding knowledge of cash assistance programs.

CA2. Added question regarding applying for cash assistance.

CA3. Added question regarding receiving cash assistance. Added variables for each response of CA3: **CA3A, CA3B, CA3C, CA3D**

CA4. Added question regarding barriers to applying for cash assistance. Added variables for each response of CA4: **CA4A, CA4B, CA4C, CA4D, CA4E, CA4F, CA4G, CA4H, CA4I, CA4J, CA4K**

CA5. Added question regarding reasons why person does not qualify for cash assistance. Added variables for each response of CA5: **CA5A, CA5B, CA5C, CA5D, CA5E, CA5F**

CA6. Added question regarding sources of information about government programs and services.

COUNTRY. Added question about country where person was born.

Questions Deleted

S7A1. Deleted question regarding respondent's gender.

S7(b-j). Deleted question regarding other household member's gender.

H1caa, H1mbb, H3ac, H3mbb, H4ab, H4mbb, E7, E8, E9. Deleted questions regarding number of employees at person's employer.

H5a2. Deleted question regarding how many generations of family lived in the household.

H5a3. Deleted question regarding how many people in household are covered by health insurance.

H8fa. Deleted question regarding person's lack of need for health insurance.

- H8fb.** Deleted question asking if person participated in health care sharing ministry.
- E11.** Deleted question asking if health insurance was offered through employer.
- A3.** Deleted question regarding number of emergency room visits.
- A8c.** Deleted question regarding telemedicine visit quality.
- A8g.** Deleted question regarding telemedicine versus in person care.
- A9a1.** Deleted question regarding health outcomes following unfilled prescriptions.
- A11.** Deleted question regarding problems paying medical bills.
- A11a.** Deleted question regarding situations that resulted from having expensive medical bills.
- A14.** Deleted question regarding effects of the COVID-19 pandemic.
- A15a.** Deleted question regarding reasons for an inability to find childcare.
- HS4.** Deleted question regarding prescription medication.
- HS4a.** Deleted question regarding affordability of prescription medication.
- MH1a1.** Deleted question about using mental health care services.
- MH1a3.** Deleted question about patient involvement in mental health care services.
- MH4.** Deleted question regarding anticipated need for mental health care services.
- DHC3.** Deleted question regarding source of lack of respect when seeking health care.
- INT1.** Deleted question regarding internet usage.
- INT3.** Deleted question regarding device to access internet.
- SO1.** Deleted question regarding sexual orientation.
- SO2.** Deleted question regarding whether person identifies as transgender.

Questions Changed

“His/Hers” language was replaced throughout the survey with “TARGET” or “they.”

Questions referencing the previous year were updated to “2022” throughout the survey.

S6. The prompting text was updated to "Reluctance to give your age is understandable..."

The response text was updated to "Years (RANGE 18-110)."

H1IA_INSIST. The question text was updated to "Since CHP+ [Chip Plus] only covers children under the age of 19 and pregnant women, the survey will record that (you do/TARGET does) not have CHP+ coverage."

H5c. Response options 1, 2, and 8 additional computer-assisted telephone interviewing (CATI) language was updated to "had to obtain coverage on one's own)."

H5e. Response option 12 was removed.

H6. Question text was updated to "In the past 12 months, how many months (were you/was TARGET) without health insurance coverage?"

A2. Response option 7 text was updated to "Don't go to one place most often."

A2b. Question text was updated to "What is the main reason (you/TARGET) (do/does) not have a regular place that (you they) go for health care?"

A5. Question text was updated to "Please do not include care (you/they) received if (you were/they were) in hospital emergency rooms."

A5c and A6b. Question text was updated to "In the past 12 months, thinking back to the last time..." and "...preferred appointment date and the date the health care provider was able to schedule your appointment..."

The response text was updated to "Number of days (0-365)."

The response text "Number of weeks" was removed.

A7c. The question text was updated to "In the past 12 months, were any of the following reasons (you/TARGET) did not get the dental care (you/TARGET) needed?"

The subsequent screens text was updated to "Please indicate if, in the past 12 months, any of the following were reasons (you/TARGET) did not get the dental care (you/they) needed."

Response item c text was updated to "(You/TARGET) was concerned about catching COVID-19 or another virus."

Response item d was removed.

A8. Question text was updated to "In the past 12 months, (have/has) (you/TARGET) had an appointment with a doctor, nurse, or other health care professional by video or phone?"

A8aa. Response option 2 text was updated to "Mental health care (WEB SHOW/CATI PROBE: therapy or counseling)."

Response option 6 text was updated to "... (WEB SHOW/CATI PROBE: rehabilitation or substance use-focused therapy or counseling)."

Response option 7 text was updated to "Other (please specify):"

Response option 10 was added "Case management for mental health or substance use treatment (*WEB SHOW/CATI PROBE: Case management refers to helping people gain access to medical, behavioral health, housing, employment, social, educational, training, and other services.*)"

Response option 11 was added "Peer support for mental health or substance use treatment (*WEB SHOW/CATI PROBE: Peer support workers are people who have been successful in the recovery process who help others experiencing similar situations.*)"

A8b. Question text was updated to "How did (you/TARGET) access (your/their) **most recent** telemedicine appointment?"

A8d. Response option c was removed.

Response option e text was updated to "(You/TARGET) had interpretation/translation problems."

Response option i text was updated to "Other problem (Please specify):"

Response option j was added "It was not clear to (you/TARGET/TARGET's parent or guardian) what was supposed to happen before, during, or after the telemedicine visit."

Response option k was added "The visit felt rushed and/or the health care provider did not spend enough time with (you/TARGET)."

Response option l was added "(You/TARGET/TARGET's parent or guardian) did not receive instructions before the visit or the instructions were not helpful."

Response option m was added "(You/TARGET) did not feel comfortable discussing (your/TARGET'S) health care needs over telemedicine."

A8e. Question text was updated to "In the past 12 months, why (haven't you/hasn't TARGET) had a telemedicine visit?"

Response option f text was updated to "(Your/TARGET's) health care provider did not offer telemedicine visits."

Response option l was removed.

Response option o text was updated to "Other problem (Please specify):"

A8i (previously A8f). Question text was updated to "In the future, how likely (are you/is TARGET) to use telemedicine visits? (WEB SHOW/ CATI PROBE: Telemedicine refers to having an appointment with a doctor, nurse, or other health care professional by video or phone.)"

A8j (previously A8h). Question text was updated to "Why would (you/TARGET/TARGET's parent or guardian) be unlikely to use telemedicine?"

Response option e text was updated to "Health care provider has not offered (you/TARGET) telemedicine visits."

Response option n text was updated to "Other problem (Please specify):"

Response option o was added "Don't anticipate needing care."

CR1. Question text was updated to "Does (your/TARGET's)...disability, chronic disease, weight, or other personal history, such as domestic violence, immigration status, or refugee status, make a difference in the kind of health care (you need/TARGET needs)?"

CR2. Response option l was added "Immigration status."

Response option m was added "Chronic or rare disease."

Response option n was added "Weight."

CR5 (previously CR4). Response option 1 was updated to "Yes, it affected the ability to get needed care."

Response option 2 was added "Yes, it affected the quality of care."

Response option 3 was added "Yes, it affected both the ability to get needed care and the quality of care."

Response option 4 was added "No, it had no effect."

A9a. Question text was updated to "In the past 12 months, was there any time that..."

A9b. Question text was updated to "{CATI: Please tell me if/WEB: Please indicate if}, in the past 12 months, (you have/TARGET has) had these problems."

{CATI IF NECESSARY: Please tell me if, in the past 12 months, (you have/TARGET has) had these problems.

SHOW FOR SUBSEQUENT SCREENS: Please indicate if, in the past 12 months, (you have/TARGET has) had these problems.

Response option d text was updated to "(You/TARGET) had to delay or go without health care that (you/TARGET) needed because of transportation problems."

Response option e text was updated to "(You were/TARGET was/TARGET's parent/guardian was) unable..."

Response options g and h were removed.

MH1a. Question text was updated to "In the past 12 months, did (TARGET) or (TARGET'S) parent or guardian see or talk to any of the following health care providers about (TARGET)'s own mental health?" asked of anyone under the age of 18. If the TARGET was over the age of 18 the question text was updated to "In the past 12 months, did (you/TARGET) see or talk to any of the following health care providers about (your/their) own mental health?"

MH1a2. Question text was updated to "...what number would (you/TARGET/TARGET's parent or guardian) use to rate all (your/their) **mental health care** in the past 12 months?"

MH1a4. Question text was updated to "In the past 12 months, how often did (you/TARGET/TARGET's parent or guardian) feel that the staff respectfully engaged with (you/them) in (your/TARGET's treatment?"

MH3. Response option b text was updated to "(You/TARGET/TARGET's parents/guardian) did not feel comfortable talking with a professional about (your/their/TARGET's) personal problems."

DHC1. Question text was updated to "In the past 12 months when seeking health care..."

DHC2. Response option n was added "Weight."

Response option o was added "Chronic or rare disease."

Response option p was added "Immigration status."

D1a. Question text was updated to "Please indicate how (you identify or represent yourself/TARGET identifies or represents themselves)."

Response option f text was updated to "LatinX."

D3d. Question text was updated to "You said Middle Eastern or North African, which geographic region best represents..."

Response option x text was updated to "... (Please specify what other term best represents your Middle Eastern or North African heritage or ancestry)."

IN1. Question text was updated to "...that is (your/ TARGET's/TARGET's parent or guardian's) income PLUS the income of (your/their) immediate family. Immediate family is anyone living with (you/them) who is: a spouse or partner; a parent or guardian;..."

IN4. Response option 0 was added "Less than (INSERT AMT0)."*

Response option 1 was updated to "(INSERT AMT0) to (INSERT AMT1)."*

*Please note that the AMTs were text fills based on 2022 poverty guidelines.

IN7. Response option 0 was added "Less than (INSERT AMT0a)."*

Response option 1 was updated to "(INSERT AMT0a) to (INSERT AMT1a)."*

*Please note that the AMTs were text fills based on 2022 poverty guidelines.

TFAM_COUNT. IN1a was used to calculate TFAM_COUNT in place of S4.

Appendix B – Mail Materials and Emails

Initial Invitation Letter – Incentive



Colorado Resident
<address1> <address2>
<city>, <state> <zip>

March x, 2023

Dear Colorado Resident,
Your household has been randomly selected to complete this year's **Colorado Health Access Survey**.

This important survey is conducted by the Colorado Health Institute in collaboration with the state of Colorado. The survey collects information about the health of people in Colorado and about issues they may have gotten health care. The results may help people and families in your community. Your household has been selected to represent many other households like yours.

Who should complete the survey?

Please have an adult in your household, age 18 or older, who can answer questions about health care for everyone in the household complete the survey by going to the website below and typing in the secure access code provided.

www.colohealthsurvey.com

Your secure access code is: <XXXXXXX>

We are not selling anything or asking for money. To thank you in advance for your participation, we are enclosing a \$2 bill. This small gift is for you to keep whether or not you decide to participate.

If you do not have access to the internet or would prefer to complete the survey over the phone, please call **1-877-888-8703**.

Your help is very important to this survey's success. For more information about the Colorado Health Institute, please visit our website at www.coloradohealthinstitute.org. Thank you for your assistance.

Sincerely,

A handwritten signature in black ink that reads "Jeff Bontrager".

Jeff R. Bontrager
Principal Investigator
Colorado Health Access Survey

Residente del estado de Colorado

xx de marzo, 2023

<address1> <address2>

<city>, <state> <zip>

Estimado(a) residente del estado de Colorado:

Su hogar fue seleccionado al azar para completar la **Encuesta de Acceso a la Salud de Colorado** de este año.

Esta importante encuesta es realizada por el Instituto de Salud de Colorado con el estado de Colorado. Esta encuesta recopila información sobre la salud de los residentes de Colorado y los problemas que pueden tener para obtener atención médica. Los resultados pueden ayudar a las personas y familias en su comunidad. Su hogar fue seleccionado para representar muchos otros hogares como el suyo.

¿Quién debería completar la encuesta?

Un adulto de su hogar, de 18 años o más, que pueda responder preguntas sobre la atención médica de todas las personas del hogar, debería responder la encuesta en el sitio web a continuación y escribir el código de acceso seguro que se brinda.

www.cohealthsurvey.com/espanol

Su código de acceso seguro es: <XXXXXXX>

No vendemos nada ni estamos pidiendo dinero. Para agradecerle de antemano por su participación, adjuntamos \$2. Esta pequeña gratificación es para usted, independientemente de que decida participar o no.

Si no tiene acceso a Internet o prefiere contestar la encuesta por teléfono, llame al 1-877-888-8703.

Su ayuda es muy importante para el éxito de este estudio. Para obtener más información sobre el Instituto de Salud de Colorado, visite nuestro sitio web en www.coloradohealthinstitute.org. Gracias por su cooperación.

Atentamente,



Jeff R. Bontrager

Investigador principal

Encuesta de Acceso a la Salud de Colorado

Initial Invitation Letter – No Incentive



Colorado Resident
<address1> <address2>
<city>, <state> <zip>

March x, 2023

Dear Colorado Resident,

Your household has been randomly selected to complete this year's **Colorado Health Access Survey**.

This important survey is conducted by the Colorado Health Institute in collaboration with the state of Colorado. The survey collects information about the health of people in Colorado and about issues they may have getting health care. The results may help people and families in your community. Your household has been selected to represent many other households like yours.

Who should complete the survey?

Please have an adult in your household, age 18 or older, who can answer questions about health care for everyone in the household complete the survey by going to the website below and typing in the secure access code provided.

www.coloradohealthsurvey.com

Your secure access code is: <XXXXXXX>

If you do not have access to the internet or would prefer to complete the survey over the phone, please call 1-877-888-8703.

Your help is very important to this survey's success. For more information about the Colorado Health Institute, please visit our website at www.coloradohealthinstitute.org. Thank you for your assistance.

Sincerely,

A handwritten signature in black ink that reads 'Jeff Bontrager'.

Jeff R. Bontrager
Principal Investigator
Colorado Health Access Survey

Residente del estado de Colorado
<address1> <address2>
<city>, <state> <zip>

xx de marzo, 2023

Estimado(a) residente del estado de Colorado:

Su hogar fue seleccionado al azar para completar la Encuesta de Colorado sobre el Acceso a los Servicios de Salud de este año.

Esta importante encuesta es realizada por el Instituto de Salud de Colorado con el estado de Colorado. Esta encuesta recopila información sobre la salud de los residentes de Colorado y los problemas que pueden tener para obtener atención médica. Los resultados pueden ayudar a las personas y familias en su comunidad. Su hogar fue seleccionado para representar muchos otros hogares como el suyo.

¿Quién debería completar la encuesta?

Un adulto de su hogar, de 18 años o más, que pueda responder preguntas sobre la atención médica de todas las personas del hogar, debería responder la encuesta en el sitio web a continuación y escribir el código de acceso seguro que se brinda.

www.cohealthsurvey.com/espanol

Su código de acceso seguro es: <XXXXXXX>

Si no tiene acceso a Internet o prefiere contestar la encuesta por teléfono, llame al **1-877-888-8703**.

Su ayuda es muy importante para el éxito de este estudio. Para obtener más información sobre el Instituto de Salud de Colorado, visite nuestro sitio web en www.coloradohealthinstitute.org. Gracias por su cooperación.

Atentamente,



Jeff R. Bontrager
Investigador principal
Encuesta de Colorado sobre el Acceso a los Servicios de Salud

Postcard Reminder

Dear Colorado Resident,

About a week ago, we mailed you a letter asking for your help with this year's Colorado Health Access Survey, a study about the health of people in Colorado and issues they may have getting health care.

If you or someone in your household has already completed the questionnaire, please accept our sincere thanks. If you have not already responded, please have the adult age 18 or older in your household, who can answer questions about health care for everyone in the household, go to the website listed below to complete the survey.

Please respond by visiting www.colohealthsurvey.com

Your secure access code is: <<XXXXXXXX>>

Your help is very important to this study's success. For more information on the Colorado Health Institute and this survey, please visit our website at **www.coloradohealthinstitute.org**.

If you do not have access to the internet or would prefer to complete the survey over the phone, please call **1-877-888-8703**.

Thank you.

Estimado(a) residente del estado de Colorado:

Hace una semana, le enviamos una carta solicitándole su colaboración en la **Encuesta de Acceso a la Salud de Colorado** de este año, un estudio acerca de la salud de las personas en Colorado y los problemas que enfrentan para obtener atención médica.

Le agradecemos si usted o alguien de su hogar ya ha completado el cuestionario. Si no lo han respondido, pídale a un adulto de 18 años o más de su hogar, que pueda responder preguntas sobre la atención médica de todas las personas del hogar, visite el sitio web a continuación para completar la encuesta.

Responda en www.colohealthsurvey.com/index.html

Su código de acceso seguro es: <<XXXXXXXX>>

Si no tiene acceso a Internet o prefiere completar la encuesta por teléfono, llámenos al **1-877-888-8703**.

Muchas gracias.

Final Reminder Letter



Colorado Resident
<address1> <address2>
<city>, <state> <zip>

March x, 2023

Dear Colorado Resident,

Your household has been randomly selected to complete this year's **Colorado Health Access Survey**.

This important survey is conducted by the Colorado Health Institute in collaboration with the state of Colorado. The survey collects information about the health of people in Colorado and about issues they may have getting health care. The results may help people and families in your community. Your household has been selected to represent many other households like yours.

Who should complete the survey?

Please have an adult in your household, age 18 or older, who can answer questions about health care for everyone in the household complete the survey by going to the website below and typing in the secure access code provided.

www.colohealthsurvey.com

Your secure access code is: <XXXXXXXX>

If you do not have access to the internet or would prefer to complete the survey over the phone, please call **1-877-888-8703**.

Your help is very important to this survey's success. For more information about the Colorado Health Institute, please visit our website at www.coloradohealthinstitute.org. Thank you for your assistance.

Sincerely,

A handwritten signature in black ink that reads "Jeff Bontrager".

Jeff Bontrager
Principal Investigator
Colorado Health Access Survey

Residente del estado de Colorado
<address1> <address2>
<city>, <state> <zip>

xx de marzo, 2023

Estimado(a) residente del estado de Colorado:

Su hogar fue seleccionado al azar para completar la **Encuesta de Acceso a la Salud de Colorado** de este año.

Esta importante encuesta es realizada por el Instituto de Salud de Colorado con el estado de Colorado. Esta encuesta recopila información sobre la salud de los residentes de Colorado y los problemas que pueden tener para obtener atención médica. Los resultados pueden ayudar a las personas y familias en su comunidad. Su hogar fue seleccionado para representar muchos otros hogares como el suyo.

¿Quién debería completar la encuesta?

Un adulto de su hogar, de 18 años o más, que pueda responder preguntas sobre la atención médica de todas las personas del hogar, debería responder la encuesta en el sitio web a continuación y escribir el código de acceso seguro que se brinda.

www.cohealthsurvey.com/espanol

Su código de acceso seguro es: <XXXXXXX>

Si no tiene acceso a Internet o prefiere contestar la encuesta por teléfono, llame al **1-877-888-8703**.

Su ayuda es muy importante para el éxito de este estudio. Para obtener más información sobre el Instituto de Salud de Colorado, visite nuestro sitio web en www.coloradohealthinstitute.org. Gracias por su cooperación.

Atentamente,



Jeff Bontrager,
Investigador principal
Encuesta de Acceso a la Salud de Colorado

Reminder Letter for Partially-Completed Surveys – Version 1



Colorado Resident
<address1> <address2>
<city>, <state> <zip>

August x, 2023

Dear Colorado Resident,

The 2023 **Colorado Health Access Survey** is closing soon, and we need your help to finish!

Someone in your household started the Colorado Health Access Survey, and we need them to finish. Please give this letter to them so they can continue where they stopped. Depending on their progress, the survey may only take 10-15 more minutes to finish.

This important survey is conducted by the Colorado Health Institute in collaboration with the state of Colorado. The survey collects information about the health of people in Colorado and about issues they may have getting health care. The results may help people and families in your community, and we need your help to complete the survey.

How to complete the survey

Please go to the link below and enter your PIN to continue.

www.coloradohealthsurvey.com

Your PIN is: <XXXXXXXX>

If you do not have access to the internet or would prefer to complete the survey over the phone, please call **1-877-888-8703**.

Your help is very important to this survey's success. For more information about the Colorado Health Institute, please visit our website at www.coloradohealthinstitute.org. Thank you for your assistance.

Sincerely,

A handwritten signature in black ink that reads 'Jeff Bontrager'.

Jeff Bontrager
Principal Investigator
Colorado Health Access Survey

Residente del estado de Colorado
<address1> <address2>
<city>, <state> <zip>

x de agosto 2023

Estimado/a Residente del estado de Colorado,

La **Encuesta de Acceso a la Salud de Colorado** de 2023 se cerrará pronto y necesitamos su ayuda para terminar.

Alguien en su hogar comenzó la Encuesta de Acceso a la Salud de Colorado y necesitamos que la terminen. Por favor, entrégueles esta carta para que puedan continuar donde se detuvieron. Dependiendo de su progreso, la encuesta solo puede tardar entre 10-15 minutos más en completarse.

Esta encuesta importante es realizada por el Instituto de Salud de Colorado en colaboración con el estado de Colorado. La encuesta recopila información sobre la salud de las personas en Colorado y sobre los problemas que pueden tener para obtener atención médica. Los resultados pueden ayudar a las personas y familias de su comunidad, y necesitamos su ayuda para completar la encuesta.

Cómo completar la encuesta

Vaya al siguiente enlace e ingrese su PIN para continuar.

www.cohealthsurvey.com/espanol

Su PIN es: <XXXXXXX>

Si no tiene acceso al Internet o prefiere contestar la encuesta por teléfono, llame al **1-877-888-8703**.

Su ayuda es muy importante para el éxito de este estudio. Para obtener más información sobre el Instituto de Salud de Colorado, visite nuestro sitio web en www.coloradohealthinstitute.org. Gracias por su cooperación.

Sinceramente,



Jeff Bontrager,
Investigador principal
Encuesta de Acceso a la Salud de Colorado

Reminder Letter for Partially-Completed Surveys – Version 2



Colorado Resident
<address1> <address2>
<city>, <state> <zip>

August x, 2023

Dear <city> Resident,

The 2023 **Colorado Health Access Survey** is closing soon, and we need your help to finish. This important survey is conducted by the Colorado Health Institute in collaboration with the state of Colorado. The survey collects information about the health of people in Colorado and about issues they may have getting health care.

Someone in your household started the Colorado Health Access Survey, and we need them to finish. Please give this letter to them so they can continue where they stopped. Depending on their progress, the survey may only take 10-15 more minutes to finish.

Your household's responses are important to help us get accurate results and help people and families in your community. It is only by hearing from nearly everyone in the sample that we can be sure that the results truly represent <city> residents. Thus, we hope that you finish the survey soon.

The results will be made available at www.coloradohealthinstitute.org in 2024.

How to complete the survey

Please go to the link below and enter your PIN to continue.

www.colohealthsurvey.com

Your PIN is: <XXXXXXX>

If you do not have access to the internet or would prefer to complete the survey over the phone, please call **1-877-888-8703**.

Your help is very important to this survey's success. For more information about the Colorado Health Institute, please visit our website at www.coloradohealthinstitute.org. Thank you for your assistance.

Sincerely,

A handwritten signature in blue ink that reads 'Jeff Bontrager'.

Jeff Bontrager
Principal Investigator
Colorado Health Access Survey

Residente del estado de Colorado
<address1> <address2>
<city>, <state> <zip>

x de agosto 2023

Estimado/a Residente de <city>,

La **Encuesta de Acceso a la Salud de Colorado** de 2023 se cerrará pronto y necesitamos su ayuda para terminar. Esta encuesta importante es realizada por el Instituto de Salud de Colorado en colaboración con el estado de Colorado. La encuesta recopila información sobre la salud de las personas en Colorado y sobre los problemas que pueden tener para obtener atención médica.

Alguien en su hogar comenzó la Encuesta de Acceso a la Salud de Colorado y necesitamos que la terminen. Por favor, entrégueles esta carta para que puedan continuar donde se detuvieron. Dependiendo de su progreso, la encuesta solo puede tardar entre 10-15 minutos más en completarse.

Las respuestas de su hogar son importantes para ayudarnos en obtener resultados precisos y ayudar a las personas y familias de su comunidad. Solo escuchando a casi todos en la muestra podemos estar seguros de que los resultados realmente representan a los residentes de <city>. Por lo tanto, esperamos que termine la encuesta pronto.

Los resultados estarán disponibles en www.coloradohealthinstitute.org en 2024.

Cómo completar la encuesta

Vaya al siguiente enlace e ingrese su PIN para continuar.

www.cohealthsurvey.com/espanol

Su PIN es: <XXXXXXX>

Si no tiene acceso al Internet o prefiere contestar la encuesta por teléfono, llame al **1-877-888-8703**.

Su ayuda es muy importante para el éxito de este estudio. Para obtener más información sobre el Instituto de Salud de Colorado, visite nuestro sitio web en www.coloradohealthinstitute.org. Gracias por su cooperación.

Sinceramente,



Jeff Bontrager,
Investigador principal
Encuesta de Acceso a la Salud de Colorado

Email Invitation

Subject: Invitation to Complete the Colorado Health Access Survey



Desplácese hacia abajo para leer en español

Dear Colorado Resident,

Your household has been randomly selected for this year's **Colorado Health Access Survey**.

This important survey is conducted by the [Colorado Health Institute](#) in collaboration with the State of Colorado. The survey collects information about the health of people in Colorado and about issues they may have getting health care. The results may help people and families in your community. Your household has been selected to represent many other households like yours. We are not selling anything or asking for money. You can expect a physical letter in the mail inviting you to complete the survey.

Who should complete the survey?

Please have an adult in your household, age 18 or older, who can answer questions about health care for everyone in the household complete the survey by going to the website below and typing in the secure access code provided.

www.colohealthsurvey.com

Your secure access code is: <XXXXXXX>

If you do not have access to the internet or would prefer to complete the survey over the phone, please call **1-877-888-8703**.

Your help is very important to this survey's success. For more information about the Colorado Health Institute, please visit our website at www.coloradohealthinstitute.org. Thank you for your assistance.

PLEASE NOTE: The Colorado Health Access Survey will never make unsolicited calls as part of this survey, will never try to sell you anything, and will never ask for a donation. Nobody will ask you for any credit card, bank account, or social security number information. If you are contacted

by anybody requesting this information, do not share it and contact the appropriate authorities.

Estimado/a Residente de Colorado,

Su hogar ha sido seleccionado al azar para la **Encuesta de Acceso a la Salud de Colorado** de este año.

Esta importante encuesta es realizada por el Instituto de Salud de Colorado en colaboración con el Estado de Colorado. La encuesta recopila información sobre la salud de las personas en Colorado y sobre los problemas que pueden tener para obtener cuidado de salud. Los resultados pueden ayudar a las personas y familias de su comunidad. Su hogar ha sido seleccionado para representar a muchos otros hogares como el suyo.

No vendemos nada ni pedimos dinero. Ud. puede recibir una carta en el correo que lo/a invita a completar la encuesta.

Si Ud. no tiene acceso a Internet o prefiere completar la encuesta por teléfono, llame al **1-877-888-8703**.

¿Quién debería completar esta encuesta?

Por favor, pida a un adulto en su hogar, de 18 años de edad o más, que pueda responder preguntas sobre el cuidado de salud para todos los miembros del hogar que complete la encuesta visitando el sitio web a continuación y escribiendo el código de acceso seguro proporcionado.

www.cohealthsurvey.com

Su código de acceso seguro es: <XXXXXXX>

Su ayuda es muy importante para el éxito de esta encuesta. Para obtener más información sobre el Instituto de Salud de Colorado, visite nuestro sitio web en www.coloradohealthinstitute.org. Gracias por su ayuda.

AVISO: La Encuesta de Colorado sobre el acceso a servicios de salud nunca hará llamadas no solicitadas, ni intentará venderle nada, ni le pedirá donaciones. Nadie le pedirá información de su tarjeta de crédito, ni su cuenta bancaria, ni su número de Seguridad Social. Si alguien le contacta a Ud. y solicita esta información, por favor, no la comparta y avise a las autoridades apropiadas.

Email Reminder

Subject: Reminder to Complete the Colorado Health Access Survey



Desplácese hacia abajo para leer en español

Dear Colorado Resident,

About a week ago, we emailed you to ask for your help with this year's Colorado Health Access Survey, a study about the health of people in Colorado and issues they may have getting health care. You may have also received physical mail inviting you to do the same.

If you or someone in your household has already completed the questionnaire, please accept our sincere thanks. If you have not already responded, please have an adult age 18 or older in your household, who can answer questions about health care for everyone in the household, go to the website listed below to complete the survey.

Please respond by visiting www.colohealthsurvey.com
Your secure access code is: <<XXXXXXX>>

Your help is very important to this study's success. For more information on the Colorado Health Institute and this survey, please visit our website at www.coloradohealthinstitute.org.

If you do not have access to the internet or would prefer to complete the survey over the phone, please call **1-877-888-8703**.

Thank you.

PLEASE NOTE: The Colorado Health Access Survey will never make unsolicited calls as part of this survey, will never try to sell you anything, and will never ask for a donation. Nobody will ask you for any credit card, bank account, or social security number information. If you are contacted

by anybody requesting this information, do not share it and contact the appropriate authorities.

Estimado/a Residente de Colorado,

Hace aproximadamente una semana, le enviamos a Ud. un correo electrónico para pedirle ayuda con la **Encuesta de Acceso a la Salud de Colorado** de este año, un estudio sobre la salud de las personas en Colorado y los problemas que pueden tener para obtener cuidado de salud. Es posible que Ud. también haya recibido una invitación en el correo que lo/a invita a hacer lo mismo.

Si Ud. o alguien de su hogar ya ha completado el cuestionario, acepte nuestro más sincero agradecimiento. Si Ud. aún no ha respondido, pida a un adulto de 18 años de edad o más en su hogar, que pueda responder preguntas sobre el cuidado de salud para todos los miembros del hogar, visite el sitio web que se indica a continuación para completar la encuesta.

Por favor responda para el a www.coloradohealthsurvey.com
Su código de acceso seguro es: <<XXXXXXX>>

Su ayuda es muy importante para el éxito de este estudio. Para obtener más información sobre el Instituto de Salud de Colorado y esta encuesta, visite nuestro sitio web en www.coloradohealthinstitute.org.

Si Ud. no tiene acceso a Internet o prefiere completar la encuesta por teléfono, llame **1-877-888-8703**.

Gracias.

AVISO: La Encuesta de Colorado sobre el acceso a servicios de salud nunca hará llamadas no solicitadas, ni intentará venderle nada, ni le pedirá donaciones. Nadie le pedirá información de su tarjeta de crédito, ni su cuenta bancaria, ni su número de Seguridad Social. Si alguien le contacta a Ud. y solicita esta información, por favor, no la comparta y avise a las autoridades apropiadas.

Additional Email Reminder

Subject: Last Chance! Reminder to Complete the Colorado Health Access Survey



Desplácese hacia abajo para leer en español

Dear Colorado Resident,

We previously emailed you to ask for your help with this year's Colorado Health Access Survey, a study about the health of people in Colorado and issues they may have getting health care. You may have also received physical mail inviting you to do the same.

The 2023 Colorado Health Access Survey is closing soon, and we need your help to finish! Your household's responses are important to help us get accurate results and help people and families in your community. It is only by hearing from nearly everyone in the sample that we can be sure that the results truly represent Colorado residents.

If you or someone in your household has already completed the questionnaire, please accept our sincere thanks. If you have not already responded, please have an adult age 18 or older in your household, who can answer questions about health care for everyone in the household, go to the website listed below to complete the survey. If someone in your household has already started the survey, please share this email with them so they can pick up where they left off.

Please respond by visiting www.colohealthsurvey.com
Your PIN is: <<XXXXXXX>>

Your help is very important to this study's success. For more information on the Colorado Health Institute and this survey, please visit our website at www.coloradohealthinstitute.org.

If you do not have access to the internet or would prefer to complete the survey over the phone, please call **1-877-888-8703**.

Thank you.

PLEASE NOTE: The Colorado Health Access Survey will never make unsolicited calls as part of this survey, will never try to sell you anything, and will never ask for a donation. Nobody will ask you for any credit card, bank account, or social security number information. If you are contacted

by anybody requesting this information, do not share it and contact the appropriate authorities.

Estimado/a Residente de Colorado,

Anteriormente le enviamos un correo electrónico para pedirle ayuda con la **Encuesta de Acceso a la Salud de Colorado** de este año, un estudio sobre la salud de las personas en Colorado y los problemas que pueden tener para obtener cuidado de salud. Es posible que Ud. también haya recibido una invitación en el correo que lo/a invita a hacer lo mismo.

La **Encuesta de Acceso a la Salud de Colorado** de 2023 se cerrará pronto y necesitamos su ayuda para terminar. **Las respuestas de su hogar son importantes para ayudarnos en obtener resultados precisos y ayudar a las personas y familias de su comunidad.** Solo escuchando a casi todos en la muestra podemos estar seguros de que los resultados realmente representan a los residentes de Colorado.

Si Ud. o alguien de su hogar ya ha completado el cuestionario, acepte nuestro más sincero agradecimiento. Si Ud. aún no ha respondido, pida a un adulto de 18 años de edad o más en su hogar, que pueda responder preguntas sobre el cuidado de salud para todos los miembros del hogar, visite el sitio web que se indica a continuación para completar la encuesta. Si alguien en su hogar ya comenzó la encuesta, comparta este correo electrónico con ellos para que puedan continuar donde la dejaron.

Por favor responda para el a www.colohealthsurvey.com

Su PIN es: <<XXXXXXX>>

Su ayuda es muy importante para el éxito de este estudio. Para obtener más información sobre el Instituto de Salud de Colorado y esta encuesta, visite nuestro sitio web en www.colohealthsurvey.com.

Si Ud. no tiene acceso a Internet o prefiere completar la encuesta por teléfono, llame **1-877-888-8703**.

Gracias.

AVISO: La Encuesta de Colorado sobre el acceso a servicios de salud nunca hará llamadas no solicitadas, ni intentará venderle nada, ni le pedirá donaciones. Nadie le pedirá información de su tarjeta de crédito, ni su cuenta bancaria, ni su número de Seguridad Social. Si alguien le contacta a Ud. y solicita esta información, por favor, no la comparta y avise a las autoridades apropiadas.

Appendix C – Detailed Response Rates by HSR

Response Rate by HSR, Overall

| HSR | Region Name | Complete Interview | Partial Interview, Eligible Non-Interview, or Not Eligible ¹³ | Unknown Eligibility, Non- Interview | Response Rate |
|--------------|------------------------------|--------------------|--|-------------------------------------|---------------|
| 1 | Northeast | 380 | 159 | 5,704 | 6.1% |
| 2 | Larimer County | 418 | 152 | 3,916 | 9.3% |
| 3 | Douglas County | 387 | 166 | 3,677 | 9.1% |
| 4 | El Paso County | 459 | 202 | 7,047 | 6.0% |
| 5 | Central Eastern Plains | 411 | 127 | 4,938 | 7.5% |
| 6 | Southeast | 492 | 171 | 6,852 | 6.5% |
| 7 | Pueblo County | 387 | 215 | 7,077 | 5.0% |
| 8 | San Luis Valley | 407 | 169 | 5,573 | 6.6% |
| 9 | Southwest | 406 | 142 | 3,960 | 9.0% |
| 10 | Gunnison and Dolores Valleys | 416 | 158 | 5,234 | 7.2% |
| 11 | Northwest | 411 | 153 | 5,158 | 7.2% |
| 12 | I-70 Mountain Corridor | 397 | 191 | 5,409 | 6.6% |
| 13 | Upper Arkansas Valley | 407 | 147 | 5,046 | 7.3% |
| 14 | Adams County | 543 | 296 | 12,344 | 4.1% |
| 15 | Arapahoe County | 679 | 278 | 9,974 | 6.2% |
| 16 | Boulder-Broomfield | 460 | 152 | 3,949 | 10.1% |
| 17 | Mountain Gateways | 423 | 138 | 4,178 | 8.9% |
| 18 | Weld County | 390 | 169 | 6,794 | 5.3% |
| 19 | Mesa County | 414 | 132 | 4,980 | 7.5% |
| 20 | Denver County | 958 | 467 | 14,561 | 6.0% |
| 21 | Jefferson County | 716 | 266 | 7,105 | 8.9% |
| Total | | 9,961 | 4,050 | 133,476 | 6.8% |

¹³ The counts for "Partial Interview", "Eligible Non-Interview", and "Not Eligible" are summed in this table to protect respondents' privacy.

Response Rate by HSR, Wave 1

| HSR | Region Name | Complete Interview | Partial Interview, Eligible Non-Interview, or Not Eligible ¹⁴ | Unknown Eligibility, Non- Interview | Response Rate |
|--------------|------------------------------|--------------------|--|-------------------------------------|---------------|
| 1 | Northeast | 193 | 85 | 2,965 | 6.0% |
| 2 | Larimer County | 173 | 55 | 1,571 | 9.6% |
| 3 | Douglas County | 180 | 80 | 1,592 | 9.7% |
| 4 | El Paso County | 321 | 138 | 4,668 | 6.3% |
| 5 | Central Eastern Plains | 208 | 74 | 2,563 | 7.3% |
| 6 | Southeast | 304 | 101 | 4,344 | 6.4% |
| 7 | Pueblo County | 194 | 84 | 3,096 | 5.7% |
| 8 | San Luis Valley | 163 | 78 | 2,626 | 5.7% |
| 9 | Southwest | 172 | 67 | 1,709 | 8.8% |
| 10 | Gunnison and Dolores Valleys | 189 | 71 | 2,471 | 6.9% |
| 11 | Northwest | 169 | 68 | 2,361 | 6.5% |
| 12 | I-70 Mountain Corridor | 170 | 75 | 2,347 | 6.6% |
| 13 | Upper Arkansas Valley | 159 | 50 | 2,048 | 7.0% |
| 14 | Adams County | 208 | 104 | 4,058 | 4.8% |
| 15 | Arapahoe County | 286 | 104 | 3,430 | 7.5% |
| 16 | Boulder-Broomfield | 188 | 57 | 1,476 | 10.9% |
| 17 | Mountain Gateways | 250 | 83 | 2,281 | 9.6% |
| 18 | Weld County | 190 | 75 | 2,828 | 6.1% |
| 19 | Mesa County | 215 | 69 | 2,433 | 7.9% |
| 20 | Denver County | 317 | 131 | 4,290 | 6.7% |
| 21 | Jefferson County | 308 | 114 | 2,545 | 10.4% |
| Total | | 4,557 | 1,763 | 57,702 | 7.1% |

¹⁴ The counts for "Partial Interview", "Eligible Non-Interview", and "Not Eligible" are summed in this table to protect respondents' privacy.

Response Rate by HSR, Wave 2

| HSR | Region Name | Complete Interview | Partial Interview, Eligible Non-Interview, or Not Eligible ¹⁵ | Unknown Eligibility, Non- Interview | Response Rate |
|--------------|------------------------------|--------------------|--|-------------------------------------|---------------|
| 1 | Northeast | 158 | 60 | 2,186 | 6.6% |
| 2 | Larimer County | 190 | 87 | 1,943 | 8.6% |
| 3 | Douglas County | 184 | 67 | 1,690 | 9.5% |
| 4 | El Paso County | 87 | 45 | 1,602 | 5.0% |
| 5 | Central Eastern Plains | 160 | 45 | 1,818 | 7.9% |
| 6 | Southeast | 167 | 61 | 2,204 | 6.9% |
| 7 | Pueblo County | 128 | 95 | 2,700 | 4.4% |
| 8 | San Luis Valley | 244 | 91 | 2,947 | 7.4% |
| 9 | Southwest | 208 | 61 | 1,920 | 9.5% |
| 10 | Gunnison and Dolores Valleys | 170 | 73 | 2,128 | 7.2% |
| 11 | Northwest | 202 | 73 | 2,272 | 7.9% |
| 12 | I-70 Mountain Corridor | 181 | 76 | 2,420 | 6.8% |
| 13 | Upper Arkansas Valley | 217 | 85 | 2,525 | 7.7% |
| 14 | Adams County | 285 | 176 | 7,267 | 3.7% |
| 15 | Arapahoe County | 298 | 136 | 5,087 | 5.4% |
| 16 | Boulder-Broomfield | 215 | 82 | 1,921 | 9.7% |
| 17 | Mountain Gateways | 145 | 41 | 1,476 | 8.7% |
| 18 | Weld County | 139 | 72 | 2,967 | 4.4% |
| 19 | Mesa County | 156 | 55 | 2,072 | 6.8% |
| 20 | Denver County | 531 | 284 | 8,688 | 5.6% |
| 21 | Jefferson County | 303 | 126 | 3,375 | 8.0% |
| Total | | 4,368 | 1,891 | 61,208 | 6.5% |

¹⁵ The counts for "Partial Interview", "Eligible Non-Interview", and "Not Eligible" are summed in this table to protect respondents' privacy.

Response Rate by HSR, Wave 3

| HSR | Region Name | Complete Interview | Partial Interview, Eligible Non-Interview, or Not Eligible ¹⁶ | Unknown Eligibility, Non-Interview | Response Rate |
|--------------|-------------------------------|--------------------|--|------------------------------------|---------------|
| 1 | Northeast | 29 | 14 | 553 | 4.9% |
| 2 | Larimer County | 55 | 10 | 402 | 11.8% |
| 3 | Douglas County | 23 | 19 | 395 | 5.3% |
| 4 | El Paso County | 51 | 19 | 777 | 6.0% |
| 5 | Central Eastern Plains | 43 | 8 | 557 | 7.1% |
| 6 | Southeast | 21 | 9 | 304 | 6.3% |
| 7 | Pueblo County | 65 | 36 | 1,281 | 4.7% |
| 8 | San Luis Valley ¹⁷ | 0 | 0 | 0 | 0.0% |
| 9 | Southwest | 26 | 14 | 331 | 7.0% |
| 10 | Gunnison and Dolores Valleys | 57 | 14 | 635 | 8.1% |
| 11 | Northwest | 40 | 12 | 525 | 6.9% |
| 12 | I-70 Mountain Corridor | 46 | 40 | 642 | 6.3% |
| 13 | Upper Arkansas Valley | 31 | 12 | 473 | 6.0% |
| 14 | Adams County | 50 | 16 | 1,019 | 4.6% |
| 15 | Arapahoe County | 95 | 38 | 1,457 | 6.0% |
| 16 | Boulder-Broomfield | 57 | 13 | 552 | 9.2% |
| 17 | Mountain Gateways | 28 | 14 | 421 | 6.0% |
| 18 | Weld County | 61 | 22 | 999 | 5.6% |
| 19 | Mesa County | 43 | 8 | 475 | 8.2% |
| 20 | Denver County | 110 | 52 | 1,583 | 6.3% |
| 21 | Jefferson County | 105 | 26 | 1,185 | 8.0% |
| Total | | 1,036 | 396 | 14,566 | 6.5% |

¹⁶ The counts for "Partial Interview", "Eligible Non-Interview", and "Not Eligible" are summed in this table to protect respondents' privacy.

¹⁷ The goal for completed interviews from HSR 8 (San Luis Valley) was achieved with Waves 1 and 2. Therefore, no invitations were mailed to HSR 8 in Wave 3.