

Methodolog



NOVEMBER 2021 #2021CHAS

Summary

The Colorado Health Institute (CHI) contracted with the National Opinion Research Center (NORC) to conduct the 2021 Colorado Health Access Survey (CHAS). The goal of the CHAS is to document health insurance coverage and access to and use of health care for the non-institutionalized population in Colorado. 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 the report.

The study was conducted for CHI utilizing address-based sampling (ABS) via a mixed-mode design including web and phone. The ABS version of the 2019 CHAS questionnaire served as the basis for the 2021 CHAS questionnaire. Additional variables topical to changes in health care and current events were added to the 2021 CHAS questionnaire.

Interviews — the term NORC uses to refer to completed surveys — were conducted from February 1, 2021 – June 7, 2021 among a sample of Colorado households containing at least one person age 18 or older. The selected sample was stratified by two dimensions: 21 health statistics regions (HSRs) and 8 demographically targeted strata, for a total of 168 strata overall, to ensure adequate representation both by region within the state of Colorado and demographic group. In total, 9,967 interviews were completed online, and 438 interviews were completed from call-ins, for a total of 10,405 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.





Sample Design

The sampling objectives of the CHAS are to produce estimates of health and healthrelated indicators for residents of Colorado. NORC utilized an address-based sample (ABS), push-to-web, and call-in design.

A multi-wave responsive survey design was executed to adjust for uncertainty in yields due to the change in sample design. The data collected during the earlier phases of production informed the design for later phases.

The sampling plan, survey instrument and materials were awarded Institutional Review Board (IRB) approval. The IRB has corporate responsibility for monitoring survey procedures to ensure the confidentiality of persons and establishments participating in a study.

Stratified ABS Sample

The 2021 CHAS employed an enhanced application of the Big Data modeled stratification sampling technique utilized in 2019. A large number of addresses was drawn from a sample frame of all households in Colorado. Data were obtained for these households in order to make predictions about them. Based on these predictions, the households were stratified into 8 groups:

Age 65 and over

- No health insurance ("uninsured")
- Household member is Black or African American
- Household member is Hispanic/Latino
- Household has a child under the age of 18
- Age 18 to 29
- Households not placed in any of the above strata ("residual")
- Households with no data available

A stratified random sample was drawn from each stratum/HSR combination, in order to i) account for historical differences in response rates across HSRs and subpopulations and ii) oversample subpopulations of interest. Each household in the sample was then mailed an invitation to participate in the survey.

The 2021 CHAS benefitted from NORC advancements in improving the effectiveness of the models. These advances include:

• <u>Machine Learning Techniques</u>: The 2019 CHAS utilized a basic random forest approach. NORC has experimented with a vast array of different machine learning algorithms to uncover a technique that consistently produces superior prediction accuracy than basic random forest.

<u>Improved Big Data Sources</u>: Prior CHAS models were built upon the combination of the Census Planning Database, surname information from Marketing Systems Group, and Aristotle Voter Registration/Consumer data. For the 2021 CHAS, NORC employed data from additional sources, including a wide range of Census data and publicly available consumer and financial data, when building predictive models for stratified sampling. These developments allowed the 2021 CHAS to have several advantages over the models utilized in 2019:

- <u>Higher incidence</u>: Higher incidences (accuracy in successfully predicting a given group) leads to lower costs and more interviews of the targeted population.
- <u>Higher coverage</u>: The models also attained a higher coverage rate than those in 2019. Higher coverage means one can under- and oversample with the modeled predictions more than in the past, without any increase in weighting variance (design effect).
- <u>New models of interest to Colorado</u>: The 2021 study introduced a new model, predicting the likelihood of a household having a member who was uninsured. The result was enhanced ability to target this important population.

A total of 114,613 addresses were sampled, yielding 10,405 completed interviews, for an overall yield of 11.02 households sampled per completed interview.

Exhibit 2	Sample	Frame and	Allocation	by	Stratum
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	First	Stage
Stratum	Count	%
Residual	247,793	38.5%
Age 65+	141,374	22.0%
African American	14,158	2.2%
Uninsured	45,439	7.1%
Hispanic	49,409	7.7%
Children	86,862	13.5%
Age 18-29	22,780	3.5%
No match	35,637	5.5%
Total	643,452	100%

		First	Stage	Second	l Stage
HSR	Region Name	Count	%	Count	%
1	Northeast	13,632	2.1%	5,224	4.6%
2	Larimer County	37,779	5.9%	3,839	3.3%
3	Douglas County	35,364	5.5%	3,523	3.1%
4	El Paso County	72,583	11.3%	9,443	8.2%
5	Central Eastern Plains	10,162	1.6%	4,571	4%
6	Southeast	15,183	2.4%	6,425	5.6%
7	Pueblo County	20,131	3.1%	5,589	4.9%
8	San Luis Valley	12,842	2%	4,599	4%
9	Southwest	10,788	1.7%	3,439	3%
10	Gunnison and Dolores Valleys	14,362	2.2%	4,492	3.9%
11	Northwest	10,474	1.6%	4,171	3.6%
12	I-70 Mountain Corridor	14,611	2.3%	4,533	4%
13	Upper Arkansas Valley	11,613	1.8%	4,052	3.5%
14	Adams County	47,749	7.4%	8,458	7.4%
15	Arapahoe County	66,042	10.3%	8,317	7.3%
16	Boulder-Broomfield	42,333	6.6%	3,549	3.1%
17	Gilpin, Clear Creek, Park, Teller Counties	12,145	1.9%	4,365	3.8%
18	Weld County	30,736	4.8%	5,596	4.9%
19	Mesa County	17,516	2.7%	4,919	4.3%
20	Denver County	84,459	13.1%	9,447	8.2%
21	Jefferson County	62,948	9.8%	6,062	5.3%
Total		643,452	100%	114,613	100%

Exhibit 3. Sample Frame and Allocation by Region

Exhibit 4. Final Sample Distribution

HSR	Region Name	Residual	Age 65+	African American	Uninsured	Hispanic	Children	Age 18- 29	No match	Sample Selected
1	Northeast	1,122	377	36	1,326	674	908	113	668	5,224
2	Larimer County	787	138	114	1,444	131	880	208	137	3,839
3	Douglas County	959	134	102	175	153	1,699	190	111	3,523
4	El Paso County	1,402	257	1,483	3,360	505	1,925	313	198	9,443
5	Central Eastern Plains	1,639	427	<10	398	279	1,437	142	245	4,571
6	Southeast	1,464	552	37	1,459	1,539	785	162	427	6,425
7	Pueblo County	805	295	105	2,253	1,159	685	112	175	5,589
8	San Luis Valley	836	317	17	1,201	1,175	568	72	413	4,599
9	Southwest	1,340	361	<10	323	240	653	194	319	3,439
10	Gunnison and Dolores Valleys	1,543	476	14	652	433	820	181	373	4,492
11	Northwest	1,577	362	<10	507	235	837	213	438	4,171
12	I-70 Mountain Corridor	1,496	270	<10	538	713	792	189	529	4,533
13	Upper Arkansas Valley	1,619	611	<10	487	185	598	144	405	4,052
14	Adams County	780	155	1,674	3,337	1,015	1,169	170	158	8,458
15	Arapahoe County	903	165	3,895	1,474	380	1,110	230	160	8,317
16	Boulder-Broomfield	874	140	121	952	194	857	255	156	3,549
17	Gilpin, Clear Creek, Park, Teller Counties	2,064	515	<10	87	162	892	144	496	4,365
18	Weld County	958	235	110	1,668	736	1,164	168	557	5,596
19	Mesa County	1,292	419	34	1,230	343	1,187	188	226	4,919
20	Denver County	1,010	136	4,482	1,925	475	624	557	238	9,447
21	Jefferson County	1,383	278	598	1,156	468	1,654	300	225	6,062
Total		25,853	6,620	12,851	25,952	11,194	21,244	4,245	6,654	114,613

The sample stratification 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. The oversampling of the uninsured strata effectively increased the number of interviews of these important cohorts. The 2021 CHAS collected 580 interviews with people lacking insurance.

The invitation materials were provided in both English and Spanish to ensure Spanish-speaking households received bilingual materials.

The 2021 CHAS undersampled more rigorously from the 65+ stratum than in the past, instead of using the historical CHAS strategy of screening out a percentage of 65+ households. The net result was that the 2021 65+ cohort was substantially lower than was attained in 2019, and quite close to the Census point estimate for this population.

Exhibit 5. Comparison of Age Distribution in CHAS 2021 and General Population

Age Group	% CHAS 2019	% CHAS 2021	% Population (2021)
65 years and over	23.8%	14.5%	13.8%
Under 65 years	76.2%	85.5%	86.2%

Releasing the Sample in Waves

The 2021 CHAS was conducted in three waves. Wave 1 was designed to obtain an understanding of model performance and response rates for different strata and regions. Each wave utilized the same modeling and stratification method for sampling, but with varying sampling rates for each stratum, HSR, and wave based on HSR response rates.

Development of the Mail Materials

An initial invitation letter was mailed to all sampled addresses. This invitation letter included the survey URL and a secure access code unique to the household, as well as information enabling households to call in should they prefer to complete by phone. A percentage of respondents received a \$2 incentive within the first invitation mailing. A postcard reminder was sent after the initial invitation to all sampled addresses. The postcard also included the survey URL and a secure access code unique to the household. A final invitation letter was sent one week after the postcard reminder to any sampled addresses who did not have a confirmed survey completion or refusal. This invitation also included the survey URL and a secure access code unique to the household.

The letters, postcard, and envelope all contained the CHI logo as well as the Colorado state logo. Custom envelopes were developed for the incentive mailings that included a circular window on the back side which displayed part of the incentive \$2 bill; the window was included to maximize the impact of the mailing.

Developing the Survey Instrument

The questionnaire was originally developed by the Colorado Health Institute, 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 modified for the state of Colorado.

More significant additions and deletions from the 2019 to 2021 version of the CHAS are as follows:

Questions Added

- **H5a2.** Added question about generations in household.
- **A7c.** Added question regarding barriers to accessing dental care.
- **A7d**. Added question regarding dental pain.
- **A8.** Added question regarding telemedicine visits.
- **A8a.** Added question regarding type of services received via telemedicine.
- **A8b.** Added question regarding accessing a telemedicine visit.
- **A8c.** Added question regarding telemedicine visit quality.
- **A8d.** Added question regarding problems with telemedicine.
- **A8e.** Added question probing why telemedicine may not have been utilized.
- **A8f.** Added question about using telemedicine in the future.
- **A8g.** Added question regarding use of telemedicine versus in-person care.
- **A8h.** Added question regarding reasons in-person visits may be preferred.
- **CR1.** Added question regarding the importance of cultural factors in the health care experience.

CR2. Added question identifying what parts of culture and language factor into the health care experience.

CR3. Modified question A6, regarding if health care needs were met.

CR4. Modified question A6i, regarding how health care experience impacted health care delivery.

A9a1. Added question regarding health outcomes following unfilled prescriptions.

- **A14.** Added question regarding effects of the COVID-19 pandemic.
- **A15.** Added question regarding child care availability.
- **A15a**. Added question regarding reasons for an inability to find child care.
- **HS3.** Added question regarding how mental health impacts daily life.
- **HS4**. Added question regarding prescription medication.
- **HS4a**. Added question regarding affordability of prescription medication.
- MH1a1. Added question about using mental health care services.
- MH1a2. Added question regarding quality of mental health care services.
- MH1a3. Added question about patient involvement in mental health care services.
- **MH4**. Added question regarding anticipated need for mental health care services.
- **D1a.** Added question regarding gender identity.
- D3a. Added question regarding Asian identity.
- **D3b.** Added question regarding Native Hawaiian or Other Pacific Islander identity.
- **D3c.** Added question regarding Black or African American identity.
- **D3d**. Added question regarding Middle Eastern or North African identity.
- **S1.** Added question regarding military status.

Questions Deleted

INTRO1. Deleted introductory text referencing outbound calling

SA2A. Deleted question verifying respondent's ability to complete the survey for outbound calling.

- **S1**. Deleted question for outbound calling.
- **S1aa.** Deleted question for outbound calling.
- **S1a.** Deleted question regarding address.
- **S1b.** Deleted question for outbound calling.
- **A3a.** Deleted question regarding emergency room visits.
- **A3b.** Deleted question regarding reasons for emergency room visits.
- A6d, A6e, A6f. Revised questions to focus on discrimination in health care.
- **AD1-AD2.** Deleted questions regarding advance directives.
- **SU3**. Deleted question regarding impact of substance use disorders.

- **SU5**. Deleted question regarding opioid addiction in respondent community.
- A6f. Deleted question regarding unfair treatment
- HR1-HR2. Deleted questions regarding views on the Colorado health care system.
- L1 and C1. Deleted questions regarding telephone use.
- **D12**. Deleted question regarding U.S. citizenship.

Questions Changed

Note: In the survey questions that follow, the term "TARGET" refers to the randomly selected person in the household about whom most survey questions are completed. Occasionally the person completing the survey (the respondent) is selected as the target.

INTRO4. Updated contact information for questions about the survey

S4. Changed item wording to "*Include in this number, children, foster children, roommates, housemates not related to you, college students living away while attending college, and National Guard members who are typically live in your household but are deployed temporarily.*

Do not include people who live or stay at another place most of the time, people in a correctional facility, nursing home, or residential facility, or active-duty military members stationed elsewhere or serving a lengthy deployment."

- H1. Question wording for phone changed to "I am going to read you a list of different types of health insurance coverage. Please tell me if (you are/ TARGET is) currently covered by any of the following types of insurance.", question wording for web changed to "Are you/is TARGET currently covered by...", and
- **H1 item f.** Response option wording updated to "Veteran's Affairs, Military Health, or TRICARE? (IF NECESSARY: TRICARE is formerly known as CHAMPUS, the Civilian Health and Medical Program of the Uniformed Services, a health care program of the United States Department of Defense Military Health System.)"
- H1ia item I. Response option changed to "Health insurance bought directly by (you / TARGET) (WEB SHOW/ CATI PROBE: For example, bought directly from Anthem, Kaiser, United or another company, or bought through an insurance broker or Connect for Health Colorado, Colorado's health insurance marketplace or exchange. This would also include a Medicare supplement you bought directly."
- **H2.** Question wording updated to "(Are you/Is TARGET) currently covered by any other type of insurance? (CATI: DO NOT READ, ALLOW MULTIPLE)"

- **H3a.** Question wording updated to "What insurance (are you/is TARGET) covered by? (CATI: DO NOT READ, ENTER ONE ONLY)", response option updated to "Veteran's Affairs, Military Health, or TRICARE? (IF NECESSARY: TRICARE is formerly known as CHAMPUS, the Civilian Health and Medical Program of the Uniformed Services, a health care program of the United States Department of Defense Military Health System.)"
- H4. Response option updated to "Veteran's Affairs, Military Health, or TRICARE? (IF NECESSARY: TRICARE is formerly known as CHAMPUS, the Civilian Health and Medical Program of the Uniformed Services, a health care program of the United States Department of Defense Military Health System.)"
- **H5b.** Response option updated to "Veteran's Affairs, Military Health, or TRICARE? (IF NECESSARY: TRICARE is formerly known as CHAMPUS, the Civilian Health and Medical Program of the Uniformed Services, a health care program of the United States Department of Defense Military Health System.)"
- H7a. Response option updated to "Veteran's Affairs, Military Health, or TRICARE? (IF NECESSARY: TRICARE is formerly known as CHAMPUS, the Civilian Health and Medical Program of the Uniformed Services, a health care program of the United States Department of Defense Military Health System.) "
- A2b. Response options updated to include possessive pronoun "their."
- **A2d**. Question wording updated to include reference to telemedicine visits.
- **A5.** Question wording updated to include reference to telemedicine visits.
- **A5b.** Question wording updated to include reference to telemedicine visits.
- A6. Question wording updated to include reference to telemedicine visits.
- **A6b.** Question wording updated to include reference to telemedicine visits and included detail regarding appointment scheduling timeframe.
- **A7**. Question wording updated to include reference to telemedicine visits.
- **A7a.** Deleted phrase "prepaid plans" to clarify question.
- **A9 item b**. Added word "general" to clarify response option.
- **A9b item h.** Added response option, "(You/TARGET) went without health care because (you/TARGET/TARGET's parent or guardian) could not find a health care provider who spoke (your/their) language."
- **HS3.** Modified question HS2 to read, "(Do you/Does TARGET) have any difficulty performing daily activities because of any physical, mental, or emotional condition? (Prompt: This includes things like bathing, climbing stairs, or doing errands alone.)"

- **DHC1.** Modified question A6d to read, "In the last 12 months when seeking health care, did you feel you were treated with less respect or received services that were not as good as what other people get?"
- DHC2. Updated response options.
- **DHC3.** Updated question wording to read, "Who do you feel did not treat you with respect?" and updated response options.
- **D3.** Updated question wording. Added Middle Eastern/North African response option and re-ordered response options.

Programming the Survey Instrument

CHI provided NORC with a revised version of the 2021 instrument. The instrument included language options for both the telephone and web survey. For example, language from CATI administration, such as "Now I'm going to read a list" or "Now please tell me" was "Next is a list" or "Please indicate" in the self-administered survey. For both the phone and web modes, English and Spanish language versions of the instrument were available.

NORC programmed the web instruments using web/CATI software that integrates data from all modes and dispositions sample as completed in the mode used by the respondent to avoid duplicating household data. The survey screens were optimized for mobile devices as well as desktop computer and tablets.

Team members reviewed all aspects of survey programming to confirm accuracy of skip patterns and reasonable flow of the instrument. In addition, reviewers scanned the programs with an eye toward respondent usability – to this end the web survey was tested on a variety of devices and platforms: including smart phones, tablets, and lap/desktop computers, as well as Chrome, Safari, Firefox, Internet Explorer, and Microsoft Edge. Rigorous review of the survey instrument in English and Spanish occurred over several weeks and was completed by a team with a variety of expertise. Questions newly added to the 2021 CHAS were afforded additional focus to ensure that the universe and intent fulfilled the research need. In addition to reviewing the web survey, review of the phone survey experience was conducted simultaneously. Simulated test cases were recorded and reviewed by the research team to check for inconsistencies in question delivery, timing, and other points where improvements could be made.

Data Collection Procedures

An initial invitation was sent to all sampled addresses. The letter emphasized the importance of participation and how the results may help Colorado residents. The letter included the survey URL and a secure access code unique to the household, as well as a toll-free number for those who did not wish to participate online. In Waves 1-3, a date was indicated to "Please respond by."

A postcard reminder was sent to all sampled addresses after the initial invitation. The postcard reinforced the importance of the household's participation in the survey. It included the survey URL and a secure access code unique to the household, as well as a toll-free number.

A final invitation was sent to any sampled addresses who did not have a confirmed adult survey completion or refusal. This final reminder letter was similar to the first, emphasizing the importance of participation and how the results may help all Coloradoans. The letter also included the survey URL, secure access code unique to the household, and toll-free number.

Three waves of data collection were utilized. For Waves 1 and 2, the sequence of three mailings outlined above was implemented – an invitation letter, a postcard, and a final reminder letter. For Wave 3, only an initial letter was sent to the selected households.

Pre-incentives in the form of a \$2 bill were included in the first invitation mailings sent to 77% of total cases across all waves. The incentive breakdown was:

- 1. 100% of households that were predicted to have an individual who is African American, Hispanic, uninsured, or age 0-29, and
- 2. 48.29% of households that were *not* predicted to have an individual specified in (1) *or* an individual age 65 and over.

The initial invitation letters for Waves 1-3 were sent by first-class mail, while the postcard and final invitation in Waves 1 and 2 were sent bulk/standard mail. All letters were printed on letterhead featuring the CHI and state of Colorado logos, which also were featured on the envelopes. This is a significant difference from prior CHAS data collection efforts which only contained the CHI logo. Envelopes that are clearly from the government or governmental agency and do not resemble a marketing mailing have a higher likelihood of getting opened.^{1,2} CHI's return address was used on the envelopes.

¹ Heberlein, T. Baumgartner, R. (1978)). Factors Affecting Response Rates to Mailed Questionnaires: A Quantitative Analysis of the Published Literature. American Sociological Review, 43(4), 447-462

² Goyder, J. (1982). Further Evidence on Factors Affecting Response Rates to Mailed Questionnaires. American Sociological Review, 47(4), 550-553

Wave	First invitation letter	Postcard	Second invitation letter
1	2/2/2021; 2/8/2021; 2/15/2021	2/19/2021	3/3/2021
2	3/22/2021	4/15/2021	4/21/2021
3a	5/19/2021	NA	NA
3b	6/15/2021	NA	NA

Exhibit 6. Physical mailing dates Waves 1-3.

Email

In addition to physical mailings, emails were sent to cases in Waves 1 and 2. An experiment in Wave 1, where 50% of cases that had an email match received the invitation email the day data collection launched, showed a slight improvement in survey completion when comparing the email versus no email groups. Emails were also sent to Wave 2 cases, and follow-up emails were sent to Wave 1 cases which did not initially receive an email invitation toward the end of Wave 2 data collection.

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 surveys, 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.
- 2. Individual-level (target) selection
 - Screening to include adults who can answer questions about health insurance for every member of the household.
 - 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 50% probability.

Data Collection Reports and Final Status

A bi-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 tables provide the final status of interviewing. In total, 9,967 web interviews were conducted and 438 inbound phone interviews were conducted. Mail that was unable to be delivered was returned to the research team offices for processing. Recipients were able to 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.

HSR	Region Name	Completes
1	Northeast	414
2	Larimer County	432
3	Douglas County	407
4	El Paso County	759
5	Central Eastern Plains	403
6	Southeast	425
7	Pueblo County	404
8	San Luis Valley	400
9	Southwest	397
10	Gunnison and Dolores Valleys	404
11	Northwest	391
12	I-70 Mountain Corridor	408
13	Upper Arkansas Valley	419
14	Adams County	571
15	Arapahoe County	705
16	Boulder-Broomfield	479
17	Gilpin, Clear Creek, Park, Teller Counties	408
18	Weld County	404
19	Mesa County	425
20	Denver County	1001
21	Jefferson County	749
Total		10,405

Exhibit 7. Final completed surveys by Health Services Region (HSR)

		Gen	der ³		Education			
HSR	Region Name	Male	Female	<h.s.< th=""><th>H.S. Diploma</th><th>Some College</th><th>College Degree+</th></h.s.<>	H.S. Diploma	Some College	College Degree+	
Total		5,326	4,992	1,859	1,221	1,832	5,273	
1	Northeast	232	182	90	80	76	156	
2	Larimer County	219	206	67	32	71	250	
3	Douglas County	178	226	85	30	48	241	
4	El Paso County	388	363	148	80	166	350	
5	Central Eastern Plains	204	196	84	43	89	176	
6	Southeast	206	215	63	95	96	167	
7	Pueblo County	208	194	66	70	94	170	
8	San Luis Valley	202	195	73	63	81	180	
9	Southwest	217	175	71	37	74	211	
10	Gunnison and Dolores Valleys	214	187	64	66	68	199	
11	Northwest	183	205	56	43	77	209	
12	I-70 Mountain Corridor	200	203	81	28	64	228	
13	Upper Arkansas Valley	216	201	50	62	79	220	
14	Adams County	314	253	132	86	91	239	

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

³ 69 respondents reported being a person of a different gender or a non-binary person.

		Gen	der ³		Education			
HSR	Region Name	Male	Female	<h.s.< th=""><th>H.S. Diploma</th><th>Some College</th><th>College Degree+</th></h.s.<>	H.S. Diploma	Some College	College Degree+	
15	Arapahoe County	375	325	130	72	118	363	
16	Boulder-Broomfield	225	252	101	33	55	282	
17	Gilpin, Clear Creek, Park, Teller Counties	193	213	59	40	75	227	
18	Weld County	195	207	87	50	68	185	
19	Mesa County	219	204	65	64	86	201	
20	Denver County	545	439	138	82	144	615	
21	Jefferson County	393	351	149	65	112	404	

HSR	Region Name	0-17	18-34	35-64	65+	White	Black or African American	Hispanic/ Latino	Other
Total		1,610	1,974	5,224	1,491	7,542	462	1,501	634
1	Northeast	72	58	195	84	308	<10	68	15
2	Larimer County	67	129	180	49	347	10	39	24
3	Douglas County	80	79	209	37	321	11	34	32
4	El Paso County	120	183	385	61	496	69	123	53
5	Central Eastern Plains	76	46	210	67	346	<10	22	17
6	Southeast	46	51	236	89	286	<10	100	28
7	Pueblo County	59	63	217	62	210	18	145	22
8	San Luis Valley	63	52	202	81	229	<10	142	15
9	Southwest	63	55	200	77	334	<10	29	24

Exhibit 9. Total Completed Interviews by Region by Target Age and Race/Ethnicity⁴

⁴ The race/ethnicity categories in this table are mutually exclusive. If an individual is Hispanic or Latino (based on question D1), then 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), then they are counted in the Black or African American column (including individuals of two or more races). If an individual is not Hispanic/Latino or African American but is white (based on question D3), then 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.

HSR	Region Name	0-17	18-34	35-64	65+	White	Black or African American	Hispanic/ Latino	Other
10	Gunnison and Dolores Valleys	53	50	202	94	329	<10	42	21
11	Northwest	52	57	214	66	332	<10	26	20
12	I-70 Mountain Corridor	72	57	225	52	333	<10	47	17
13	Upper Arkansas Valley	38	45	226	107	360	<10	19	23
14	Adams County	94	126	296	50	310	26	167	47
15	Arapahoe County	115	165	342	72	433	104	99	53
16	Boulder-Broomfield	99	102	216	58	376	10	43	40
17	Gilpin, Clear Creek, Park, Teller Counties	56	41	212	94	355	<10	23	17
18	Weld County	72	81	183	63	283	<10	82	20
19	Mesa County	51	68	218	86	342	<10	43	28
20	Denver County	117	324	482	63	623	157	140	56
21	Jefferson County	145	142	374	79	589	14	68	62

Status	Frequency	Details
Cases attempted	114,613	Number of invitations sent for Wave 1 and Wave 2
Phone complete	438	
Web complete	9,967	
Partial interview	2,145	Partial interviews have been started but not completed
Screened out	651	Began the interview and then were deemed ineligible. These cases are considered resolved but not complete (or partial).
No phone or web activity	101,399	Unresolved – cases which have not had any activity. This count also includes cases that have had some activity but have not yet been fully processed by the system.
Complete target	10,000	
Measure	Rate	
Resolution rate	11.5%	All resolved addresses / All attempted addresses
Percent of completes toward target	104.1%	All completes (phone and web) / 10,000
Interview completion rate	82.9%	Completed Interviews / All Screened Households

Exhibit 10. Summary of data collection dispositions and rates

Length of Interview

Interviews were administered using NORC's preferred CAWI/CATI platform. Across the two modes in the ABS design, web interviews took an average of 42% percent less time to complete than phone interviews (20.17 minutes vs 34.8 minutes).

Web Break-Offs

NORC regularly reported to CHI where in the web survey participants were abandoning the survey. Past the initial screening questions, some frequent questions of abandonment tend to be questions of a sensitive or a personal nature, including:

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

Upon completion of the data collection, the decision was made to include any interviews that completed through the race/ethnicity questions, which appear near

the end of the survey, as completed interviews. Including these interviews added 281 respondents.

Speeders and Skippers

A few web interviews were completed in a particularly short amount of time (*speeders*), and a few interviews contained a large number of responses that were missing or marked as "don't know"/"refused to answer" (*skippers*). NORC reviewed the data to discard these interviews from the data file. Eight (8) phone interviews were completed in less than 33% of the median completion time – these were flagged as *speeders* and were discarded. Five (5) interviews were found to have missing data for 50% or more variables among a set of 10 variables that were i) considered particularly important and ii) never skipped due to prior responses. This procedure reduced the number of completed interviews from 10,418 to 10,405.

Weighting Procedures

Survey data were weighted to account for discrepancies between sample and population parameters. The 2021 CHAS survey data were weighted to:

1. Adjust for the fact that not all survey respondents were selected with the same probability.

2. Account for gaps in coverage in the survey frame.

Base weights are calculated to address the differential sampling rates across sampling strata and HSRs. Subsequently, the base weights were raked along several dimensions to reflect the control totals obtained from the 2019 American Community Survey 5-Year Public Use Microdata Sample (2019 ACS PUMS). These counts were indexed by region, gender, education, age, homeownership, and race/ethnicity. Region (HSR), family income, and Medicaid insurance status (as of January 2021) were included in the state-level raking procedure.

In the 2019 CHAS, "households with internet access" was used as a control total for raking. The 2021 CHAS raking procedure does not include this control total; it would require that a few observations have very extreme weights, which would drastically increase the design effect of estimates involving those observations. Consequently, data users should avoid calculating "number of internet users" as a weighted statistic and should be cautious when using the "internet use" questions to stratify the sample.

The ACS PUMS identifies cases as belonging to Public Use Microdata Areas (PUMAs), which may encompass part of an HSR, all of an HSR, or parts of multiple HSRs. Therefore, NORC implements SAMS, a proprietary procedure that rakes the weighted ACS PUMS data to the tract-level, which is then summarized to the HSR-level. This method allows for the production of HSR-level control totals for any data

contained in the ACS PUMS, while still adhering to key control totals from the ACS base tables.

Design weights were calculated based on the elements below:

- **Eligibility Weight** = The number of completes / number eligible to be completed (or response rate). These were adjusted separately per strata.
- **Number of persons weight** = Correction for the number of persons in the household (capped at 3 or more).
- **Stratification Weight** = A correction was applied to adjust for the oversampling of certain strata and HSRs.
- **Age weight** = 18 years and younger down-weighted by a factor of 0.5 to rebalance from oversampling via the screener.

The **initial design weight** is calculated as:

Eligibility weight * number of persons weight * stratification weight * age weight

Final Weight Creation

Population control totals were obtained for raking based on 2019 ACS PUMS benchmarks. Medicaid status control totals were provided by CHI based on January 2021 data from the Colorado Department of Health Care Policy and Financing (HCPF). Raking was done in the following manner:

- 1. Code the variables used for raking and apply hot deck imputation to ensure the raking variables have no missing values.
- Rake the weights with respect to control totals for each HSR, then trim the weights at the 1st and 99th percentile for each HSR to ensure that no weights are too extreme (thus preventing individual interviews from having too much influence on estimates). The controls used for this step were age, homeownership, race/ethnicity, gender, and education.
- 3. Rake the weights from (2) with respect to control totals for the state of Colorado at large, adding income and region (HSR) to the list of controls from (2), then trim the weights.
- 4. Rake the weights from (3) with only insurance status (Medicaid, uninsured or other) and region (HSR) used as controls, then trim.
- 5. Create a separate weight for *adult respondents only* by subsetting to only interviews for which the respondent is also the target, then raking the weights from (2) with respect to control totals for *adults* in the state of Colorado. The *adult* control variables were those used in step (3), plus household size and Medicaid enrollment status.
- 6. Repeat steps (2)-(5) five times, to ensure that the state-level weights are reasonably aligned with the HSR-level weights that preceded them.
- Rescale the weights to sum to 5,760,870 the size of Colorado's civilian (non-military) population as estimated by the June 2021 Current Population Survey Basic Monthly dataset.

Because some questions are only asked of the adult respondent, an "adult weight was developed in order to generate accurate point estimates on these questions. The data file contains four weight variables:

- Weights assigned to all interviews:
 - **WEIGHT_POP** sums to the Colorado's population total of 5,760,870.
 - **WEIGHT_SAMP** sums to the sample total of 10,405.
- Weights assigned only to interviews for which the target is the (adult) respondent:
 - **ADULT_WEIGHT_POP** sums to Colorado's *adult* population total of 4,466,698.
 - **ADULT_WEIGHT_SAMP** sums to 5,596, the sample total for which the respondent is the (adult) target.

NORC implemented quality control procedures for weighting that involved a full review and re-run of the code to verify the final weights. Imputed variables used in the raking procedure were discarded after raking.

The 2019 ACS PUMS benchmarks are outlined below. ⁵

⁵ https://www.census.gov/programs-surveys/acs/microdata/access.2019.html

		Ger	Gender Education				Homeov	vnership	
HSR	Region Name	Male	Female	<h.s.< th=""><th>H.S. Diploma</th><th>Some College</th><th>College Degree+</th><th>Own</th><th>Rent or Occupy</th></h.s.<>	H.S. Diploma	Some College	College Degree+	Own	Rent or Occupy
1	Northeast	51.5%	48.5%	31%	25.6%	19.4%	24%	71.6%	28.4%
2	Larimer County	49.9%	50.1%	20.4%	16.3%	20.5%	42.8%	66.9%	33.1%
3	Douglas County	49.9%	50.1%	26.3%	10.6%	16.2%	46.8%	81.8%	18.2%
4	El Paso County	50.5%	49.5%	25.7%	16.7%	20.9%	36.7%	66.4%	33.6%
5	Central Eastern Plains	52.9%	47.1%	25.3%	21.8%	18.1%	34.8%	78.8%	21.2%
6	Southeast	52.6%	47.4%	29.1%	26%	21.4%	23.5%	71.9%	28.1%
7	Pueblo County	49.2%	50.8%	28.9%	23.6%	21.5%	26%	67.7%	32.3%
8	San Luis Valley	50.3%	49.7%	32.1%	22.7%	22.4%	22.8%	71.9%	28.1%
9	Southwest	50.2%	49.8%	22.7%	19.6%	19.8%	37.9%	74%	26%
10	Gunnison and Dolores Valleys	50.7%	49.3%	24.7%	24.2%	20.9%	30.2%	73.6%	26.4%
11	Northwest	51.8%	48.2%	24.5%	23%	18.1%	34.4%	71.1%	28.9%
12	I-70 Mountain Corridor	52.5%	47.5%	26.1%	17.1%	15.3%	41.4%	69.5%	30.5%
13	Upper Arkansas Valley	56.5%	43.5%	22.1%	29.9%	19.5%	28.5%	78.8%	21.2%
14	Adams County	50.5%	49.5%	35.4%	22%	17.3%	25.2%	70.6%	29.4%
15	Arapahoe County	49.5%	50.5%	27.3%	17.4%	16.7%	38.6%	68.7%	31.3%
16	Boulder-Broomfield	50.2%	49.8%	21.5%	11.6%	19.2%	47.8%	68.8%	31.2%

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

		Ger	ıder	Education			Homeownership		
HSR	Region Name	Male	Female	<h.s.< th=""><th>H.S. Diploma</th><th>Some College</th><th>College Degree+</th><th>Own</th><th>Rent or Occupy</th></h.s.<>	H.S. Diploma	Some College	College Degree+	Own	Rent or Occupy
17	Gilpin, Clear Creek, Park, Teller Counties	51.5%	48.5%	18.6%	19.2%	20.5%	41.7%	81.4%	18.6%
18	Weld County	50.5%	49.5%	31.7%	20.5%	19.1%	28.7%	73.8%	26.2%
19	Mesa County	49.3%	50.7%	26.8%	21.2%	22.8%	29.2%	69.8%	30.2%
20	Denver County	50.1%	49.9%	25.6%	14.9%	14.9%	44.5%	53.3%	46.7%
21	Jefferson County	49.8%	50.2%	22.3%	17.2%	17.8%	42.8%	73.2%	26.8%
Total		50.3%	49.7%	26.2%	17.7%	18.3%	37.8%	68.8%	31.2%

			Age				Race / Ethnicity			
HSR	Region Name	0-17	18-34	35-64	65+	White	Black or African American	Hispanic/ Latino	Other	
1	Northeast	24.2%	22.6%	36.1%	17%	70.3%	1.6%	25.2%	3.0%	
2	Larimer County	19.8%	28.9%	36.1%	15.1%	82.6%	0.9%	11.5%	4.9%	
3	Douglas County	26.6%	18.4%	43.6%	11.4%	82.4%	1.3%	8.7%	7.6%	
4	El Paso County	24.3%	26.8%	36.4%	12.5%	69.1%	5.9%	17.1%	7.9%	
5	Central Eastern Plains	22.3%	17.5%	43.8%	16.3%	82.9%	1.8%	11.8%	3.5%	
6	Southeast	20.4%	21.3%	37.2%	21.1%	59.3%	1.1%	36.2%	3.4%	
7	Pueblo County	22.7%	21.9%	37.3%	18.2%	52.3%	1.5%	43%	3.2%	
8	San Luis Valley	23.4%	21.5%	36.8%	18.3%	49.7%	0.4%	46.3%	3.6%	
9	Southwest	19.6%	20.3%	40.8%	19.3%	77.1%	0.5%	13.3%	9.1%	
10	Gunnison and Dolores Valleys	19.9%	19.7%	38.9%	21.6%	81%	0.5%	15.4%	3.0%	
11	Northwest	21.1%	22.5%	41.5%	14.8%	86.1%	0.9%	10.2%	2.8%	
12	I-70 Mountain Corridor	21.1%	23.3%	42.6%	13%	73.8%	0.8%	22.8%	2.6%	

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

			Ag	ge		Race / Ethnicity			
HSR	Region Name	0-17	18-34	35-64	65+	White	Black or African American	Hispanic/ Latino	Other
13	Upper Arkansas Valley	15.8%	20.4%	41.9%	22%	79.2%	3.3%	14.1%	3.5%
14	Adams County	27%	25%	37.9%	10.1%	50.2%	3.1%	40.0%	6.6%
15	Arapahoe County	23.8%	23.8%	39.6%	12.7%	60.3%	10.4%	19.2%	10.0%
16	Boulder- Broomfield	20.0%	27.6%	38.8%	13.6%	77.4%	0.8%	13.6%	8.1%
17	Mountain Gateways	16.3%	15.3%	48.2%	20.1%	88.6%	0.6%	6.7%	4.1%
18	Weld County	26.3%	24.5%	37.3%	11.9%	65.6%	1.1%	29.4%	3.9%
19	Mesa County	21.8%	22.5%	37.1%	18.6%	81.5%	0.5%	14.5%	3.5%
20	Denver County	19.8%	31.2%	37.5%	11.5%	54.4%	8.8%	29.9%	7.0%
21	Jefferson County	20.0%	22.4%	41.5%	16.0%	78.1%	1.1%	15.4%	5.4%
Total		22.5%	24.9%	38.9%	13.8%	68.1%	3.9%	21.5%	6.4%

Design Effects

Complex survey designs and post-data collection statistical adjustments affect variance estimates and resulting tests of significance 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.

Design Effect for "Overall" Weights

The estimated design effect for the "overall" weights (**WEIGHT_POP** and **WEIGHT_SAMP**) is 2.86. The estimated design effect for the "adult" weights (**ADULT_WEIGHT_POP** and **ADULT_WEIGHT_SAMP**) is 4.60.

Response Rates

The response rate for this study was 9.1 percent, using AAPOR's RR3 formula.⁶ Response rate is defined as follows:

Complete interviews

Complete + partial + (eligible, non – interview) + (unknown eligibility, non – interview) + not eligible

A completed web survey was considered as one that answered through the raceethnicity question. The overwhelming majority of web respondents completed through the end of the survey. Just 2.7 percent of completed interviews were completed through the race-ethnicity questions and then abandoned.

Response rates varied across the three waves. Detailed tables by region and wave are included in the appendix.

Exhibit 13. Response rates by Wave

Disposition	Wave 1	Wave 2	Wave 3	Total
Complete Interview	4,728	5,295	382	10,405
Partial Interview	941	1,126	91	2,158
Eligible, non- interview	230	315	40	585
Unknown eligibility, non- interview	35,220	57,459	8,155	100,834
Not eligible	271	339	21	631
Response Rate	11.4%	8.2%	4.4%	9.1%

⁶ The American Association for Public Opinion Research. 2016. Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. 9th edition. AAPOR.

Data Management Procedures⁷

Consistent with prior CHAS surveys, 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 type of insurance (such as TRICARE or a student health plan). CHI then categorized individuals who did not report any source of coverage as uninsured.

Income Imputation

About 33% of the survey sample had missing yearly income data for 2020. 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 2021 survey. The model included the following predictor variables: age; race/ethnicity; marital status; education level; problems paying medical bills; impact of limitation from physical, mental, or cognitive condition; uninsurance; general health status; employment status; and size of the household. These are predictors used in previous imputation analyses for past 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 versus reported yearly income in 2020 (due to job loss, COVID-19, and other circumstances), monthly income was excluded.

⁷ CHI appended this section to NORC's report

Appendices

Appendix A Initial invitation Letter – Incentive





Colorado Resident <address1> <address2> <city>, <state> <zip> February 1, 2021

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.

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.

Please respond by March 1

www.colohealthsurvey.com

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 (888) 326-9412.

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

Sincerely,

Dontrage

Jeff R. Bontrager Principal Investigator Colorado Health Access Survey





Residente del estado de Colorado <address1> <address2> <city>, <state> <zip> 1 de febrero, 2021

Estimado(a) residente del estado de Colorado:

Su hogar fue seleccionado al azar para participar en la **Encuesta de Colorado sobre el** acceso a servicios de salud.

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.



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 **(888) 326-9412.**

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 servicios de salud

Initial Invitation Letter – No Incentive



COLORADO **HEALTH** INSTITUTE

February 1, 2021

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

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.



If you do not have access to the internet or would prefer to complete the survey over the phone, please call (888) 326-9412.

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

Sincerely,

Dontrage

Jeff R. Bontrager Principal Investigator Colorado Health Access Survey





Residente del estado de Colorado <address1> <address2> <city>, <state> <zip> 1 de febrero, 2021

Estimado(a) residente del estado de Colorado:

Su hogar fue seleccionado al azar para participar en la **Encuesta de Colorado sobre el** acceso a servicios de salud.

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.

Responda antes del 1 de marzo

www.colohealthsurvey.com

Su código de acceso seguro es: <XXXXXX>

Si no tiene acceso a Internet o prefiere contestar la encuesta por teléfono, llame al **(888) 326-9412**.

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,

ontrage

Jeff R. Bontrager Investigador principal Encuesta de Colorado sobre el acceso a servicios de salud

Postcard

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.



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 <u>www.coloradohealthinstitute.org</u>.

If you do not have access to the internet or would prefer to complete the survey over the phone, please call (888) 326-9412.

Thank you.

Estimado(a) residente del estado de Colorado,

Hace una semana, le enviamos una carta solicitándole su colaboración en la **Encuesta de Colorado sobre el acceso a servicios de salud** 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.



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**.

Si no tiene acceso a Internet o prefiere completar la encuesta por teléfono, llámenos al **(888) 326-9412**.

Muchas gracias.

Final Invitation Letter





February 22, 2021

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

Dear Colorado Resident,

Your household has been randomly selected to complete 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.



If you do not have access to the internet or would prefer to complete the survey over the phone, please call (888) 326-9412.

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

Sincerely,

Jeff R. Bontrager Principal Investigator Colorado Health Access Survey





Residente del estado de Colorado <address1> <address2> <city>, <state> <zip> 22 de febrero, 2021

Estimado(a) residente del estado de Colorado:

Su hogar fue seleccionado al azar para participar en la **Encuesta de Colorado sobre el** acceso a servicios de salud.

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.



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.

¡SE AMPLIÓ EL PLAZO! ¡Responda antes del 30 de marzo!

www.colohealthsurvey.com

Su código de acceso seguro es: <XXXXXX>

Si no tiene acceso a Internet o prefiere contestar la encuesta por teléfono, llame al (888) 326-9412.

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,

ontrager

Jeff Bontrager Investigador principal Encuesta de Colorado sobre el acceso a servicios de salud

Email Subject: Invitation to Complete the Colorado Health Access Survey



Desplácese hacia abajo para leer in español

Dear Colorado Resident,

Your household has been randomly selected for this year's <u>Colorado Health Access</u> <u>Survey</u>.

This important survey is conducted by the <u>Colorado Health Institute</u> 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.

Please respond by April 17

www.colohealthsurvey.com

Your secure access code is: **<XXXX>**

If you do not have access to the internet or would prefer to complete the survey over the phone, please call **(888) 326-9412.**

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.

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.

Su hogar ha sido seleccionado al azar para la <u>Encuesta de Acceso a la Salud de</u> <u>Colorado</u> de este año.

Esta importante encuesta es realizada por el <u>Instituto de Salud de Colorado</u> 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.

¿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.

Por favor responda para el 17 de abril

www.colohealthsurvey.com

Su código de acceso seguro es: **<XXXXXX>**

Si Ud. no tiene acceso a Internet o prefiere completar la encuesta por teléfono, llame al 1-xxx-xxxx.

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 <u>www.coloradohealthinstitute.org</u>.

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.

Appendix B – Detailed Response Rates by HSR

Response Rate by HSR, Overall

HSR	Region Name	Total Eligible Interview	Total Eligible, No Interview	Total Not Eligible	Total Unknown Eligibility, No Interview	Response Rate
1	Northeast	414	74	30	4,706	9.9%
2	Larimer County	432	92	32	3,283	14.5%
3	Douglas County	407	98	14	3,004	14.7%
4	El Paso County	759	154	38	8,492	10.1%
5	Central Eastern Plains	403	77	16	4,075	10.9%
6	Southeast	425	80	25	5,895	8.2%
7	Pueblo County	404	93	19	5,073	9.2%
8	San Luis Valley	400	69	23	4,107	10.7%
9	Southwest	397	71	31	2,940	14.5%
10	Gunnison and Dolores Valleys	404	70	24	3,994	11.1%
11	Northwest	391	76	27	3,677	11.8%
12	I-70 Mountain Corridor	408	104	60	3,961	12.6%
13	Upper Arkansas Valley	419	62	30	3,541	12.6%
14	Adams County	571	137	37	7,713	8.8%
15	Arapahoe County	705	160	44	7,408	10.9%

HSR	Region Name	Total Eligible Interview	Total Eligible, No Interview	Total Not Eligible	Total Unknown Eligibility, No Interview	Response Rate
16	Boulder-Broomfield	479	110	22	2,938	17.2%
17	Gilpin, Clear Creek, Park, Teller Counties	408	75	29	3,853	11.7%
18	Weld County	404	115	18	5,059	9.6%
19	Mesa County	425	81	24	4,389	10.8%
20	Denver County	1,001	206	77	8,163	13.6%
21	Jefferson County	749	154	31	5,128	15.4%
Total		10,405	2,158	651	101,399	11.5%

Response Rate by HSR, Wave 1

HSR	Region Name	Total Eligible Interview	Total Eligible, No Interview	Total Not Eligible	Total Unknown Eligibility, No Interview	Response Rate
1	Northeast	147	28	7	1,412	11.4%
2	Larimer County	192	34	17	1,075	18.4%
3	Douglas County	247	64	5	1,667	15.9%
4	El Paso County	411	73	20	3,592	12.3%
5	Central Eastern Plains	157	22	6	1,195	13.4%
6	Southeast	123	19	7	906	14.1%
7	Pueblo County	148	29	6	1,251	12.8%
8	San Luis Valley	118	17	10	1,072	11.9%
9	Southwest	173	34	16	910	19.7%
10	Gunnison and Dolores Valleys	136	21	9	1,008	14.1%
11	Northwest	155	35	14	1,042	16.4%
12	I-70 Mountain Corridor	194	44	26	1,569	14.4%
13	Upper Arkansas Valley	143	21	15	1,102	14%
14	Adams County	318	66	14	3,017	11.7%
15	Arapahoe County	463	97	23	4,072	12.5%
16	Boulder-Broomfield	247	55	11	1,090	22.3%
17	Gilpin, Clear Creek, Park, Teller Counties	121	17	7	760	16%

HSR	Region Name	Total Eligible Interview	Total Eligible, No Interview	Total Not Eligible	Total Unknown Eligibility, No Interview	Response Rate
18	Weld County	168	50	4	1,327	14.3%
19	Mesa County	127	22	10	1,141	12.2%
20	Denver County	683	137	41	4,764	15.3%
21	Jefferson County	257	56	12	1,469	18.1%
Total		4,728	941	280	35,441	14.4%

Response Rate by HSR, Wave 2

HSR	Region Name	Total Eligible Interview	Total Eligible, No Interview	Total Not Eligible	Total Unknown Eligibility, No Interview	Response Rate
1	Northeast	267	46	23	3,294	9.3%
2	Larimer County	239	58	15	2,196	12.4%
3	Douglas County	155	34	8	1,223	13.9%
4	El Paso County	348	81	18	4,895	8.4%
5	Central Eastern Plains	215	48	7	2,306	10.5%
6	Southeast	200	45	10	2,594	9%
7	Pueblo County	204	48	13	2,773	8.7%
8	San Luis Valley	279	51	13	2,929	10.5%
9	Southwest	205	34	11	1,660	13.1%
10	Gunnison and Dolores Valleys	242	38	15	2,478	10.6%
11	Northwest	219	35	13	2,128	11.1%
12	I-70 Mountain Corridor	214	60	34	2,392	11.4%
13	Upper Arkansas Valley	276	41	15	2,439	12%
14	Adams County	252	71	23	4,688	6.9%
15	Arapahoe County	242	63	21	3,336	8.9%
16	Boulder-Broomfield	230	55	11	1,812	14%
17	Gilpin, Clear Creek, Park, Teller Counties	231	41	19	2,021	12.6%

HSR	Region Name	Total Eligible Interview	Total Eligible, No Interview	Total Not Eligible	Total Unknown Eligibility, No Interview	Response Rate
18	Weld County	169	51	11	2,294	9.1%
19	Mesa County	298	59	14	3,248	10.3%
20	Denver County	318	69	36	3,399	11.1%
21	Jefferson County	492	98	19	3,659	14.3%
Total		5,295	1,126	349	57,764	10.5%

Response Rate by HSR, Wave 3

HSR	Region Name	Total Eligible Interview	Total Eligible, No Interview	Total Not Eligible	Total Unknown Eligibility, No Interview	Response Rate
1	Northeast					
2	Larimer County	1	0	0	12	7.7%
3	Douglas County	5	0	1	114	5%
4	El Paso County	0	0	0	5	0%
5	Central Eastern Plains	31	7	3	574	6.7%
6	Southeast	102	16	8	2,395	5%
7	Pueblo County	52	16	0	1,049	6.1%
8	San Luis Valley	3	1	0	106	3.6%
9	Southwest	19	3	4	370	6.6%
10	Gunnison and Dolores Valleys	26	11	0	508	6.8%
11	Northwest	17	6	0	507	4.3%
12	I-70 Mountain Corridor					
13	Upper Arkansas Valley					
14	Adams County	1	0	0	8	11.1%
15	Arapahoe County					
16	Boulder-Broomfield	2	0	0	36	5.3%
17	Gilpin, Clear Creek, Park, Teller Counties	56	17	3	1,072	6.6%

HSR	Region Name	Total Eligible Interview	Total Eligible, No Interview	Total Not Eligible	Total Unknown Eligibility, No Interview	Response Rate
18	Weld County	67	14	3	1,438	5.5%
19	Mesa County					
20	Denver County					
21	Jefferson County					
Total		382	91	22	8,194	5.7%