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A Fresh Perspective on Place and Health in a Community Context

Assessing social determinants of health in a social services setting

CASL Center for Social impact

Chicago, Illinois

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Executive Summary

In 2020, the Chinese American Service League, otherwise known as CASL, implemented the CASL Social Determinants of Health (SDoH) Assessment as a holistic effort to better understand the needs of clients as they relate to their everyday lives. Social determinants of health are conditions in the environments in which we are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks[1]. These conditions take into account both material and nonmaterial attributes of the places clients live and are useful in shaping the landscape of how CASL delivers social services and measures its impact.

This report contains selection criteria, distribution methods, analysis and considerations for use. Taking into account the constituencies CASL serves, indicators were selected from the Chicago Health Atlas, an evolving tool assembled by the City Tech Collaborative and the Chicago Department of Public Health. Using data sourced from 12 Chicago entities, the Chicago Health Atlas served as a promising base for CASL's ongoing evaluation efforts. The first draft of the CASL SDoH Assessment was finalized in March.

The CASL assessment pilot contains 42 questions with single- and multiple-choice responses. Participants were recruited by CASL staff and provided an overview of the exercise and a guarantee of confidentiality. Participation was entirely voluntary. From May 6 to June 30, responses were collected from over 460 individuals by 38 staff. This data was then cleaned to mitigate nonresponse bias—the degree to which responses differ between participants and non-participants. Our final tally was 393 responses in just under 2 months.

Based on analysis conducted by the Center for Social Impact, this report offers a multi-dimensional portrait of health that looks beyond the absence of disease, but towards holistic living. By identifying differences between our sample and Chicago, we can start defining targeted solutions to health inequity. Our objective was simple: know the health needs of our clients, and ultimately, community.

Acknowledgements

The Center for Social Impact (CSI) at CASL was launched at the beginning of 2020, thanks to CASL's Leadership and Board. Paul Luu, CEO, and Jered Pruitt, COO, were instrumental in the founding of the Center. As part of CASL's strategic plan, this project was one of many endeavors to understand the impact we have on our community. Mr. Luu and Mr. Pruitt offered many invaluable insights in the development of this assessment and this project would not be possible without their support.

For CASL's dedicated Board of Directors, who made this project happen, their decades of industry expertise proved essential towards the oversight of this process. The Center also thanks Dr. Lee Washington, a CASL Program Committee Member and wealth of evaluative knowledge, for providing his feedback and suggestions to this report. Our data collaboration with Provisio Partners was vital in visualizing the data to tell the whole story—to this end, we could not have done it without them.

We would also like to take this opportunity to thank the Julian Grace Foundation for their generous support in sponsoring this endeavor. To learn more about the Julian Grace Foundation, please refer to this link here. Finally, but not least, this project would not be possible without the support of dedicated CASL staff who, overcoming all odds, found opportunities to connect with our clients and administer this assessment during the COVID-19 pandemic. This report is dedicated to you.

Background

CASL connects local communities with holistic wraparound services such as—high-quality childcare, afterschool programs, elder care, housing support, financial counseling, public benefits acquisition, career/vocational services, and legal assistance. The impact of these services requires a closer look at the health of our community over time. Capturing health outcomes extends past physical indicators. Health is also impacted by access to quality care, living conditions, behavioral assets, and socioeconomic factors. These factors are better known as social determinants of health. What makes us healthy is not just healthcare, but food, safety, housing, jobs—engaging our communities on these factors helps shape how we reduce stress, combat trauma, and thrive.

Health[2] is defined as "a state of complete physical, mental, and social well-being and not merely the absence of disease." The CASL Social Determinants of Health (SDoH) Assessment was created by CASL's Center for Social Impact. This measure is intended to broaden CASL's definition of health, thereby providing additional insight to how our programming impacts our clients. The question we wanted to answer in this endeavor is two-fold:

1. *What state of health are our clients currently in (as determined by socioeconomic and environmental conditions)?*
2. *Based on the response we hope to gather from this new assessment, how can we improve our client's state of health and measure that?*

The reason for creating a separate health assessment apart from generally applied instruments lies in the fact that community health data offers limited insight towards CASL's primary constituency, Asian American Pacific Islander (AAPI) communities, specifically Chinese immigrants and native-born Chinese Americans.

Figure 1: A "place-based" organizing framework, reflecting five (5) key areas of social determinants of health (SDOH), developed by Healthy People 2020.

Part I: Developing an SDOH Assessment

Methodology

This section outlines the steps in the development of the CASL SDoH Assessment. Survey selection took place between March 2020 and May 2020. Developers of the SDoH Assessment made a total of 5 revisions prior to its release. Revisions consisted of re-wording questions, measuring response time to completion, and testing the external validity of the instrument. The instrument was administered to staff, followed by a feedback survey. The feedback generated indicated that the length of the assessment and ease of response was moderate—initial reception of the assessment was positive overall and the next step was to introduce a pilot sequence.

Survey Selection Process

The CASL SDoH Survey was adapted from the Chicago Health Atlas. Created by the City Tech Collaborative and the Chicago Department of Public Health, this evolving tool provides a place where residents, communities, and professionals can monitor efforts to improve health equity. Indicator sources include the Sinai Community Health Survey, the Healthy Chicago Survey, and the American Community Survey. CASL sought to gather insight on the needs of the individuals and communities served by measuring social determinants of health through this new assessment.

Key Criteria[3]

- **Feasible**
- **Measurable**
- **Has face validity**
- **Is cross-categorical**
- **Is based on the best available evidence**
- **Fosters an understanding of the problem and solutions**

Sample[4] SDoH Instruments[5]

- Institute of Medicine Measures of Social and Behavioral Determinants of Health: A Feasibility Study Giuse *et al.*
- Healthypeople.gov Social Determinants of Health
- Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences (PRAPARE)[6]

Assembly of CASL SDoH Assessment

- Mapping SDoH domains to questions
- Chicago Health Atlas indicators most reflective of CASL services

The Chicago Health Atlas

We chose to use the Chicago Health Atlas due to its comprehensive nature as a local authority on community health data as well as the fact that it could serve as a starting point for identifying indicators to include in our own community health assessment. The Chicago Health Atlas is an evolving tool designed by the Chicago Department of Public Health and the City Tech Collaborative, a nonprofit organization tackling urban problems through technology-enabled solutions. The City Tech Collaborative states that "with data from over 30 sources, the Chicago Health Atlas is a community health data resource for…users [to] explore 77 community areas and over 160 health indicators through data sets and street-level resource maps." However, when we attempted to isolate data on AAPIs, we were confronted with the stark reality that information aimed at this demographic group was severely lacking.

Of the 160+ health indicators, 84 are sourced from the Healthy Chicago Survey 2.0, a community health assessment distributed yearly to a representative sample of Chicago. To illustrate the lack of community health data relevant to the demographic CASL serves, unweighted samples from the Healthy Chicago 2.0 Survey report only 55 Non-Hispanic Asian participants in 2014. Similarly, the Sinai Community Health Survey contains limited information on Non-Hispanic Asians.

According to the U.S. Census Bureau, Asians represents 6.4 percent of Chicago. Our pilot SDoH assessment reported that as much as 99 percent of our sample[7] identified as Asian. CASL's pilot assessment represents a pathway for exploring new possibilities in addressing community health disparities among not only our clients, but the areas they call home too.

Reception of the Assessment

Prior to administering the assessment to clients, it was offered to a dozen program managers and staff for feedback purposes. Overall feedback was positive with themes such as accessibility, structure, and comprehension. Some of the feedback indicated that the question items and responses remained too ambiguous or lengthy. Therefore, modifications were made to the questions and responses where appropriate.

When administering the assessment to clients, the overall reception of the assessment was neutral. Given the altered administration procedures, questions asking for sensitive information produced a heightened level of discomfort for some. Over 85% of respondents answered all or almost all questions with little difficulty. Staff administering the assessments recalled that respondents were generally ambivalent to the instrument and held no particularly strong opinions during the procedure.

Survey Administration

According to the Chicago Health Atlas, data collection takes place annually consistent with schedules set by local, state, and national entities[8]. We chose to administer our assessment annually as well. Caution is warranted for citing analysis, interpretations, or conclusions drawn from CASL data[9] and Chicago Health Atlas data.

CASL served approximately 5,000 clients in 2019, which suggests that a sample size of 350 is necessary for adequate representation. Pilot data was collected from 460 respondents during a two month period,

limited to adults aged 18 and older. Upon completion of the CASL SDoH Assessment, the following guidelines were recommended. Administration frequency refers to how often the assessment would be administered and analysis frequency refers to the timeframe following data collection.

Administration Frequency

- The CASL SDoH Assessment would be administered on an annual basis.
- Analysis would be conducted in the same quarter the year following data collection
- Analysis would consist of: measuring responses rates, measuring correlations among responses, and comparing CASL data and Chicago Health Atlas data.

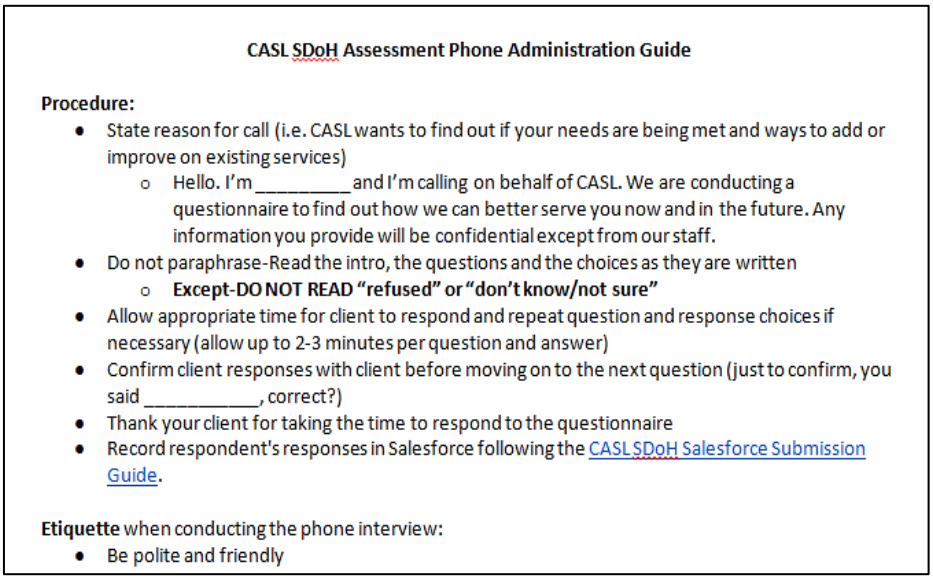
Pilot Data Collection

The CASL SDoH Assessment was launched during summer 2020. From April 30, 2020 to May 7, 2020, 38 staff were trained to administer the questionnaire by phone. The questionnaire was originally intended to be self-administered on paper forms. However, due to the COVID-19 pandemic, in-person distribution of assessment materials was not possible. Following the training period, the questionnaire, staff were instructed to remotely administer and record responses from May 11, 2020 to June 30, 2020. All assigned staff was asked to do 6 tasks when administering the assessment by telephone:

1. **Call & explain** to respondents scope of exercise[10]—participation is voluntary
2. **Confirm** verbal consent
3. **Read** questions and answers as written[11]
4. **Encourage completion** and honesty
5. **Record** client responses in Salesforce
6. **Thank** client for participating in this survey and let them know who to contact if they have any further questions

The pilot assessment was administered to clients selected by 38 staff. By using a convenience sampling approach, we were limited to a less accurate representation of the CASL client population. However, all clients who participated in this pilot demonstration were active, meaning they had utilized CASL services in the past year.

Prior to piloting the instrument with clients, program managers and staff attended a mandatory training on administering the assessment by phone. To decrease response bias and improve the variability and accuracy of the data, staff was asked not to "suggest" or "rephrase" question items and responses.



CASL SDoH Assessment Phone Administration Guide

Procedure:

- State reason for call (i.e. CASL wants to find out if your needs are being met and ways to add or improve on existing services)
  - Hello. I'm _____ and I'm calling on behalf of CASL. We are conducting a questionnaire to find out how we can better serve you now and in the future. Any information you provide will be confidential except from our staff.
- Do not paraphrase-Read the intro, the questions and the choices as they are written
  - **Except-DO NOT READ "refused" or "don't know/not sure"**
- Allow appropriate time for client to respond and repeat question and response choices if necessary (allow up to 2-3 minutes per question and answer)
- Confirm client responses with client before moving on to the next question (just to confirm, you said _____, correct?)
- Thank your client for taking the time to respond to the questionnaire
- Record respondent's responses in Salesforce following the CASL SDoH Salesforce Submission Guide.

Etiquette when conducting the phone interview:

- Be polite and friendly

Figure 2: Excerpt from administration training guide

Analysis

The primary goal for analysis was to establish a baseline for longitudinal data collection in the future. The first objective was to identify relationships between how clients experience "place" and its impact on overall health. The second objective was to identify how our findings compared to external datasets.

All responses were standardized to a "Yes," "No," "Don't know/Not Sure," and "Refused" format consistent with the National Health Interview Survey (NHIS)[12]. Text responses included place, duration, and numerical amounts. Analytical procedures included cleaning the data for duplicates and missing data, calculating response rates, and grouping responses into dashboards based on significance[13]. Each dashboard was grouped by domain and offered significant themes and intersections, and geographical comparisons.

The median response rate for all responses regardless of completion was 98% percent. Only entries with an overall completion rate of 90 or higher were incorporated into our analysis, thereby effectively limiting the number of incomplete and/or missing data. Our analysis was guided by objectives and targets identified by Healthy Chicago, a local chapter of Healthy People. We selected data pivots based on our review of SDoH literature, allowing us to construct a more complete picture of our clients' health.

Response Selection

All responses included in the dashboards were selected based on Healthy Chicago objectives and themes. Regression analysis[14] was then conducted to confirm the degree to which any two responses were statistically significant. Statistical significance was determined by calculating *p*-values[15] within a 90% confidence interval, meaning that we say two variables had a non-random relationship 90% of the time. This lower threshold of confidence was chosen due to the fact that our sample was not randomly determined. The lower confidence interval accounts for possible bias introduced throughout the data collection (administration) phase such as age or sex (i.e. 73% of our sample was female and the median age was 57 years).

CASL has a "total population" of approximately 5,000 clients, so the minimum sample needed for a 95% confidence interval is 357. Confidence intervals applied to a convenience sample are more or less statistically insignificant and arbitrary, meaning we cannot say with absolute certainty that any client at random would respond the same way as our pilot participants. How clients respond to one question *might* be correlated with responses to other questions, but yet again, this is an assumption we cannot willfully ignore. It is imperative to note that further research is warranted to generate more insight as to *why* clients may have responded to any two questions the way they did, since it would be erroneous to assume correlation equates to a causal inference.

There were a total of 460 assessments conducted during the data collection period. Incomplete assessments with less than 90 percent completion were omitted to mitigate bias in the dashboards. Out of our original sample, 393 assessments had greater than 90% completion. Demographic profiles can be found in Appendix E.

SDoH Completion % ↑	Subtotal	<90% Overall	Subtotal	>90% Overall	Total	All
CASL SDoH Question 1		100.0%		100.0%		100.0%
CASL SDoH Question 2		96.4%		100.0%		99.6%
CASL SDoH Question 3		83.9%		97.7%		96.0%
CASL SDoH Question 4		98.3%		100.0%		99.8%
CASL SDoH Question 5		86.2%		99.3%		97.6%
CASL SDoH Question 6		96.6%		100.0%		99.6%
CASL SDoH Question 7		100.0%		99.8%		99.8%
CASL SDoH Question 8		84.5%		98.3%		96.5%
CASL SDoH Question 9		89.7%		99.8%		98.5%
CASL SDoH Question 10		96.6%		100.0%		99.6%

Figure 3: Sample of response rates per question

Part II: Pilot Findings

Results

Responses from the CASL SDoH Assessment were analyzed into two data groups, one comparing responses within CASL (internal data) and another comparing responses with data from the Chicago Health Atlas (external data). Both dashboards were assembled in Salesforce and reference the same domains used in the assessment. Chicago Health Atlas data was uploaded in Einstein analytics, an application in Salesforce with unique user features, such as geo-mapping and data visualization functions. Caution is warranted when comparing data between the Chicago Health Atlas and CASL SDoH Assessment due to differences in scope and target population.

Our interpretation of the data offers a comparison[16] between CASL clients and Chicago Health Atlas samples, providing us with a glimpse into the variables affecting how participants responded. Throughout this process, we note the degree to which data[17] from the 2 groups vary or remain consistent. These inferences should not be generalized to represent[18] the greater Chinatown community, let alone Chicago. Key takeaways from each of the 4 domains are highlighted in order of importance[19]. To determine how the 2 data groups compare, we used the map below to visualize where our clients live and referenced the 4 most populated community areas corresponding with the Chicago Health Atlas. The top 4 community areas we drew comparisons to were Armour Square, Bridgeport, Brighton Park, and McKinley Park. We also used Chicago-Citywide data filtered by race as the basis for broader comparisons. A full list of indicator summaries can be found in Appendix G on page 26.

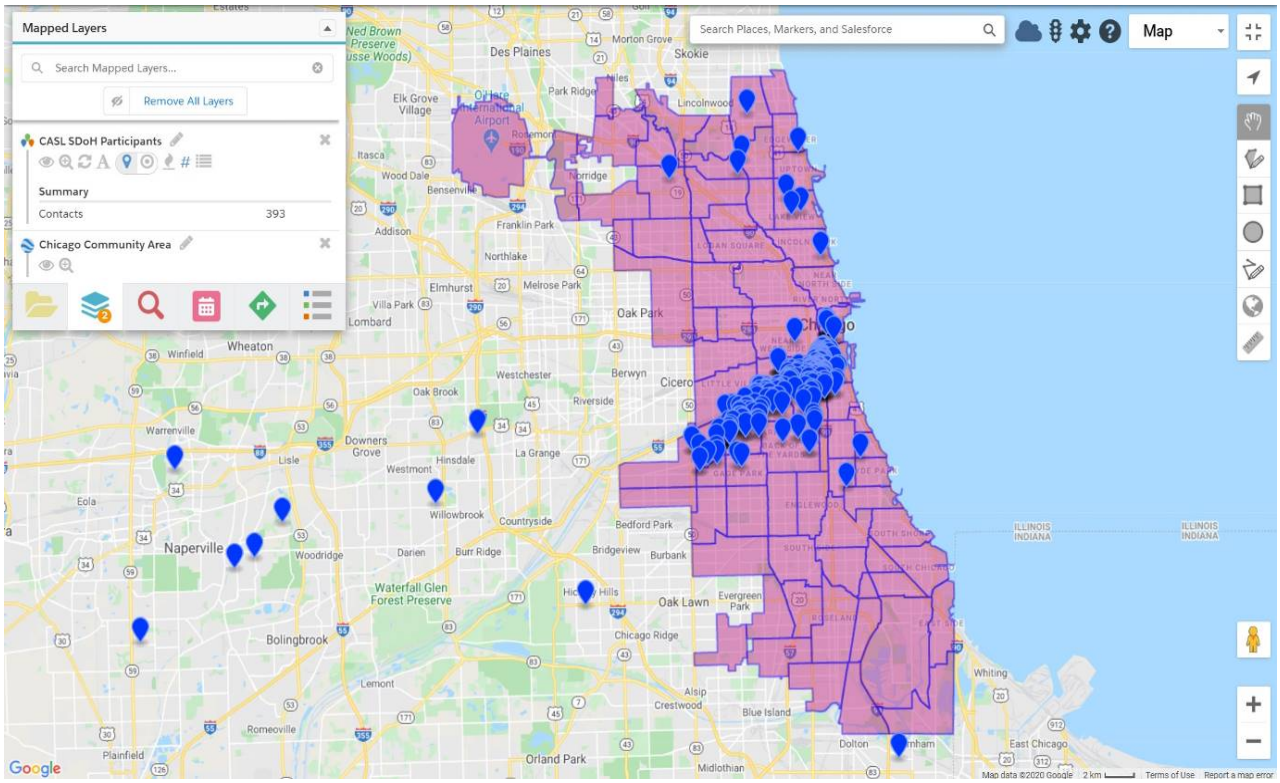


Figure 4: Distribution map of CASL participants

Key Takeaways per Domain *(rounded to the nearest whole number)*						
Domain: Place and Safety (click to see full list of indicators) **Place and Safety refers to the built environment and household composition. Questions asked in this section pertain to the level of social cohesion and safety participants experience in their neighborhood.**						
Indicator	**Response measured *(highlighted)***	***CASL participants***	***Chicago Health Atlas-Non-Hispanic Asian or Pacific Islander***	***Chicago Health Atlas-City Wide***	**CASL v. Chicago Health Atlas difference** (over 95% confidence for significance *t* scores[20]) Direction: **Red=negative/deficit** **Green= positive/surplus** Degree of difference: *small (<95% confidence/<95% confidence* **Large >95% confidence/>95% confidence**	**Notes**
Limited English proficiency	Speaks English (very well, **well, not well, not at all**)	****97%***	*N/A*	*15%*	**Large (-)**	*foreign-born participants only
Community belonging	Feels like a part of their neighborhood (**strongly agree, agree**, neither agree or disagree, disagree, strongly disagree)	****77%***	*53%*	*63%*	**Large (+)**	*foreign-born participants only
Neighborhood safety	Feels safe in their neighborhood (**all of the time, most of the time**, sometimes, mostly not)	****72%***	*87%*	*76%*	*Small (-)*	*foreign-born participants only

Table 1: Key Takeaways for Place & Safety Domain

Domain: Housing and Financial (click to see full list of indicators) **Housing and Financial refers to the economic and housing conditions clients' experience. Questions asked in this section pertain to household income, educational attainment, bank accounts, and monthly rent/mortgage.**						
Indicator	**Response measured** ***(highlighted)***	***CASL participants***	***Chicago Health Atlas-Non-Hispanic Asian or Pacific Islander***	***Chicago Health Atlas-City Wide***	**CASL v. Chicago Health Atlas difference** (over 95% confidence for significance *t* scores[21]) Direction: **Red=negative/deficit** **Green= positive/surplus** Degree of difference: *small* (**<95% confidence**/**<95% confidence** **Large >95% confidence**/**>95% confidence**	**Notes**
College or higher	Schooling completed (12th grade or less, high school, some college, associate's, **bachelor's, master's, professional, doctorate**)	***19%***	*63%*	*39%*	**Large (-)**	- Had more CASL participants been of a younger demographic, the direction could change
Unemployed	Employed (full time, part time, self, **out of work**, homemaker, student, retired, **unable to work**)	***21%***	*4%*	*8%*	**Large (-)***	*CASL data collected during COVID-19, results require caution when comparing to Chicago Health Atlas figures.
Median Household Income	Annual household income (<$20K, $20K-$30K, $30K-$40K, $40K-$50K, $50K-$60K, $60K+)	***$20,000-$30,000***	*$69,000*	*$55,000*	**Large (-)**	- Had more CASL participants been of a younger demographic, the direction could change
Severe housing cost burden (pays more than 35% of their income on rent/mortgage)	Monthly rent/mortgage	**41%**	*N/A*	*35%*	**Large (-)**	*Average rent/mortgage amount Note: average rent/mortgage 2014-2018 was $1,077 per US Census Bureau: ACS

Table 2 Key Takeaways for Housing and Financial Domain

Domain: Health Visits and Costs (click to see full list of indicators) **Health-Visits and Costs refer to the clinical care that clients receive. Questions asked in this section pertain to access to healthcare and quality of healthcare services received.**						
Indicator	**Response measured *(highlighted)***	***CASL participants***	***Chicago Health Atlas-Non-Hispanic Asian or Pacific Islander***	***Chicago Health Atlas-City Wide***	**CASL v. Chicago Health Atlas difference** (over 95% confidence for significance *t* scores[22]) Direction: **Red=negative/deficit** **Green= positive/surplus** Degree of difference: *small* (**<95% confidence**/**<95% confidence** **Large >95% confidence/>95% confidence**	**Notes**
No health insurance	Health coverage (yes/**no**)	***15%***	*8%*	*10%*	**Large (-)**	
Primary care provider	Primary care provider (**yes**/no)	***84%***	*58%*	*73%*	**Large (+)**	
Unmet dental needs due to cost	Did not get dental care because of cost (yes/**no**) in the past year	**74%**	*N/A*	*N/A*		See additional observations in Appendix G3.
Breast cancer screening	(Females only) received mammogram (**yes**/no) in the past year	***21%***	*76%*	*83%*	**Large (-)**	
Colorectal cancer screening	Received colonoscopy/sigmoidoscopy (**yes**/no) in the past year	***33%***	*52%*	*66.70%*	**Large (-)**	
Visited mental health professional	Received counseling/therapy (**yes**/no) in the past year	***1%***	*N/A*	*N/A*		See additional observations in Appendix G3.

Table 3: Key Takeaways for Health Visits and Costs Domain

Domain: Health Fitness and Behaviors (click to see full list of indicators) **The Health Fitness and Behaviors dashboards address non-clinical activities clients engage in on a daily basis, such as nutrition, exercise, whether or not they smoke cigarettes. Negative habits are also known as behavioral risk factors because they "[alter] an [individual's] vulnerability to illness and account for some of the health differences between people of different social classes." [23]**							
Indicator	**Response measured *(highlighted)***	***CASL participants***	***Chicago Health Atlas-Non-Hispanic Asian or Pacific Islander***	***Chicago Health Atlas-City Wide***	**CASL v. Chicago Health Atlas difference** (over 95% confidence for significance *t* scores[24]) Direction: **Red=negative/deficit** **Green= positive/surplus** Degree of difference: *small* (**<95% confidence/<95% confidence** **Large >95% confidence/>95% confidence**		**Notes**
Household food insecurity	Ever hungry in the past year due to cost (**yes**/no)	***3%***	*N/A*	*N/A*			
Adult physical inactivity	Physically active in the past month (yes/**no**)	***45%***	*23%*	*27%*	**Large (+)**		
Adult smoking (Overall)	Smokes cigarettes (**yes**/no)	Male average: 25%[a] **Female average: <1% (*0.35%*)[b]**	5%[c]	17%[d] **(13% Female, 21% Male)**	Male: *Not significant*	**Female:** **Large (-)**	[a] Out of both male & female participants, 7% have smoked at least 100 cigarettes in their lifetime, considerably less than Chicago Health data suggests [b] Our of the 7% that have ever smoked cigarettes, 1.4% were female [c d] Chicago Health Atlas quantifies this data point as 2-fold: having ever smoked 100 cigarettes in a lifetime (past) *and* smokes every day or some days (current)

Table 4: Key Takeaways for Health Fitness and Behaviors Domain

Discussion

The CASL SDoH Assessment is aimed at determining a portrait of health at one point in time. However, this data provides us with a unique opportunity to improve health outcomes not only today, but tomorrow and beyond. We are at a crossroads where data-informed practice drives us to understand how our clients stack up against the local backdrop of community health.

This pilot exercise helped guide and shape how we measure progress, specifically health milestones. Moreover, this assessment represents an evolving tool which we will continue to improvise and evaluate. As part of CASL's strategic plan to offer comprehensive health education and intervention, this assessment is just the first step in identifying targeted health outcomes for our clients.

Limitations

Given the sensitivity of some questions, our response rates were much higher than what we had anticipated. Comparisons made between CASL and Chicago Health Atlas data was limited by demography and relevant locations. Since most active CASL clients reside in 9 Chicago Community Areas (CCAs), the scope of our analysis was limited to those locations.

Caution is warranted in the interpretation of responses to this assessment due to convenience sampling[25] and limited applications to a more inclusive population. The Chicago Health Atlas offers an approximate comparison useful in determining general trends for each indicator. This report features dashboards selected based on relevance and significance.

While statistical significance is limited due to our relatively small sample size and a lack of a control group, our analysis records descriptive statistics paired with qualitative criterion. Responses were considered significant if there was greater variation in responses to a particular question, or if responses demonstrated apparent connections to other responses. By pivoting the data on topics of interest, we could speak with greater confidence on what client needs were not met.

Lessons Learned

Throughout this process, our team has learned several valuable lessons. From reviewing assessment literature and assembling the instrument to data collection and analysis, we learned to prioritize organization and map our projects more effectively.

This pilot assessment provided us the necessary means to establish a baseline of health for all our clients. Although limitations are currently present in the existing assessment, we can start identifying gaps in the data which will lead to more focused metrics down the line. For instance, the sample sizes from the Chicago Health Atlas vary in scope and size, thus making it difficult to compare our samples directly. However, what the Chicago Health Atlas *does* offer a vibrant and diverse set of indicators to explore. Using these indicators, we can begin filling the gaps in community health data on AAPI communities like our own.

Using the Data

Having data is good, but it is only one piece to determining what sort of impact we hope to have on our clients—*where do we go from here?* Based on how clients respond to a particular question, what steps do we take to understand underlying conditions leading to that choice? Many of the indicators in this assessment are directed at the services CASL already provides, but others are intended to gauge the need to add or modify existing programs. Our conclusions comparing CASL data to public health data are preliminary at best, but this is uncharted territory. For instance, now that we know that a considerable amount of our clients speak English less than "Very Well," we can start looking into what it takes for them to get there (e.g. ESL/adult education classes, citizenship applications).

In another example, Chicago Health Atlas states fewer people with bank accounts than what we found to be true with our clients. That could help understand conventional banking methods among Chinese Americans and AAPIs as a whole. Where *are* our clients banking? *How* are they saving money? Having financial security is just the tip of the iceberg when it comes to health. Promoting a portrait of health is like constructing a puzzle—knowing what pieces we already have and what is missing is part of the process.

Finally, CASL currently offers health screenings off-site through partners like Mercy Hospital and Northwestern Memorial Hospital, but the impact of these prevention measures is not well understood. What level of health literacy[26] is needed to navigate local healthcare systems? The data gathered from the CASL SDoH Assessment offers a way to track both access and utilization of partner-provided health services. If the metrics we used suggest that relationships between health services and the indicators are unclear, we could start unpacking the context where our clients[27] are coming from. Some of the assessment indicators in this pilot might seem unrelated to the services we currently provide, but this data helps raise the question of what novel programming endeavors we can explore. What *are* we doing to addresses these unmet health needs?

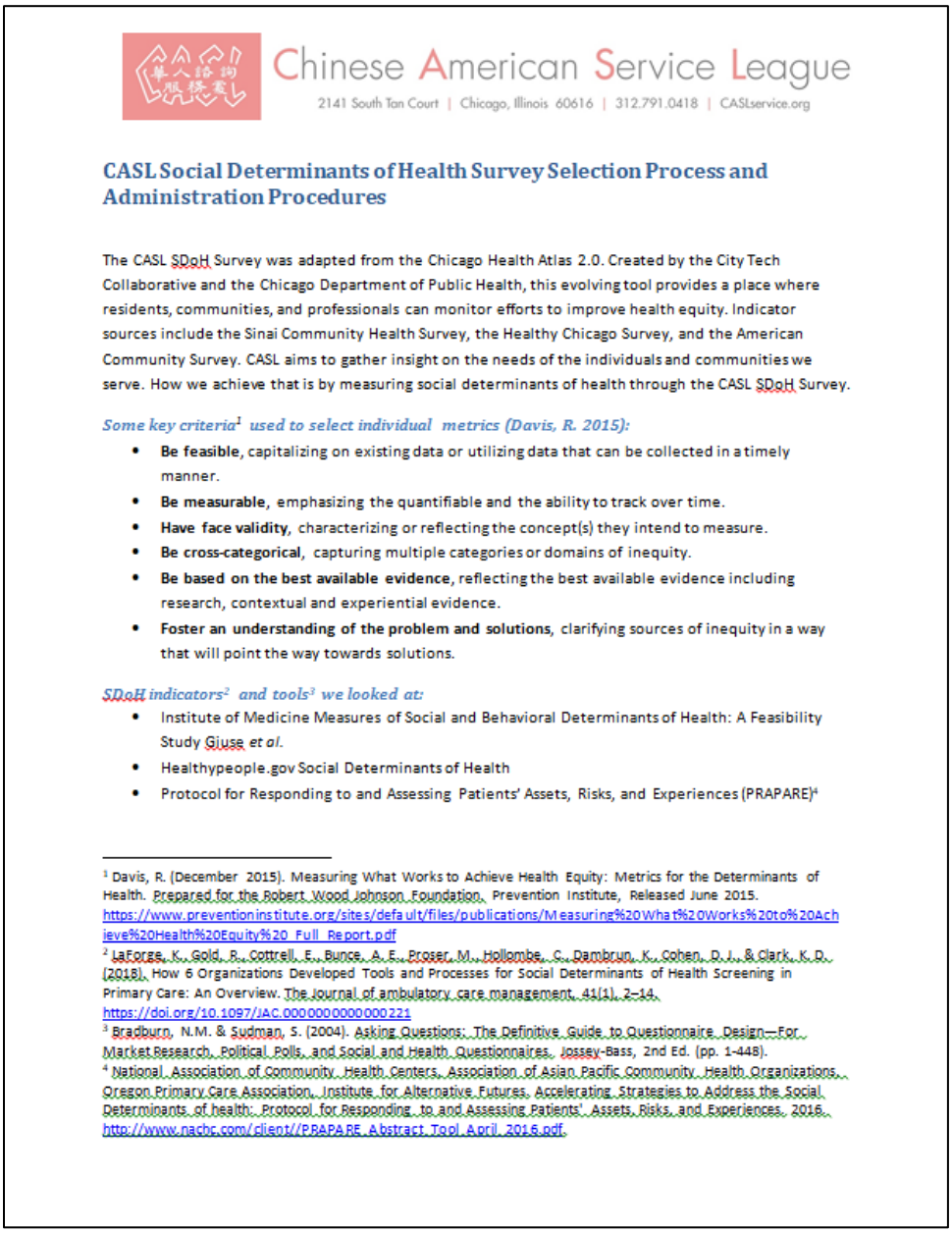
Next Steps for the CASL SDoH Assessment

The next step following the pilot assessment is to optimize the question format where there are low response rates. Low response rates may suggest a number of things, from discomfort, confusion on what is being asked, or ambivalence towards the question. Throughout our analysis, we discovered that not all indicators are let alone culturally relevant or appropriate in the context of CASL's primary demographic. Take for example, 97 participants reported never having gone to the dentist but not because of cost. Anecdotal evidence suggests that CASL clients prioritize dental needs differently than what one might assume for Chicagoans overall. In China, where many of our clients are born, dental care, eye care, and medical care are covered by the same health coverage.

Conclusion

Health[28] is "a state of complete physical, mental, and social well-being and not merely the absence of disease." Understanding what it means to be healthy requires a deeper dive into the place our communities call home and the routines of everyday life. CASL's Center for Social Impact is proud to present a "new" kind of targeted community health assessment that promises the ability to identify knowledge gaps, raise new questions—all in the name of changing the landscape of health equity for the better.

Appendix A: SDoH Background Review



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CASL Social Determinants of Health Survey Selection Process and Administration Procedures

The CASL SDoH Survey was adapted from the Chicago Health Atlas 2.0. Created by the City Tech Collaborative and the Chicago Department of Public Health, this evolving tool provides a place where residents, communities, and professionals can monitor efforts to improve health equity. Indicator sources include the Sinai Community Health Survey, the Healthy Chicago Survey, and the American Community Survey. CASL aims to gather insight on the needs of the individuals and communities we serve. How we achieve that is by measuring social determinants of health through the CASL SDoH Survey.

Some key criteria[1] used to select individual metrics (Davis, R. 2015):

- **Be feasible**, capitalizing on existing data or utilizing data that can be collected in a timely manner.
- **Be measurable**, emphasizing the quantifiable and the ability to track over time.
- **Have face validity**, characterizing or reflecting the concept(s) they intend to measure.
- **Be cross-categorical**, capturing multiple categories or domains of inequity.
- **Be based on the best available evidence**, reflecting the best available evidence including research, contextual and experiential evidence.
- **Foster an understanding of the problem and solutions**, clarifying sources of inequity in a way that will point the way towards solutions.

SDoH indicators[2] and tools[3] we looked at:

- Institute of Medicine Measures of Social and Behavioral Determinants of Health: A Feasibility Study Giuse *et al.*
- Healthypeople.gov Social Determinants of Health
- Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences (PRAPARE)[4]

[1] Davis, R. (December 2015). Measuring What Works to Achieve Health Equity: Metrics for the Determinants of Health. Prepared for the Robert Wood Johnson Foundation, Prevention Institute, Released June 2015. https://www.preventioninstitute.org/sites/default/files/publications/Measuring%20What%20Works%20to%20Achieve%20Health%20Equity%20_Full_Report.pdf

[2] LaForge, K., Gold, R., Cottrell, E., Bunce, A. E., Proser, M., Hollombe, C., Dambrun, K., Cohen, D. J., & Clark, K. D. (2018). How 6 Organizations Developed Tools and Processes for Social Determinants of Health Screening in Primary Care: An Overview. The Journal of ambulatory care management, 41(1), 2–14. https://doi.org/10.1097/JAC.0000000000000221

[3] Bradburn, N.M. & Sudman, S. (2004). Asking Questions: The Definitive Guide to Questionnaire Design—For Market Research, Political Polls, and Social and Health Questionnaires. Jossey-Bass, 2nd Ed. (pp. 1-448).

[4] National Association of Community Health Centers, Association of Asian Pacific Community Health Organizations, Oregon Primary Care Association, Institute for Alternative Futures. Accelerating Strategies to Address the Social Determinants of Health: Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences. 2016. http://www.nachc.com/client//PRAPARE_Abstract_Tool_April_2016.pdf.

Figure 5: SDoH literature review (click on the image to learn more)

Appendix B: Chicago Health Atlas Screenshots

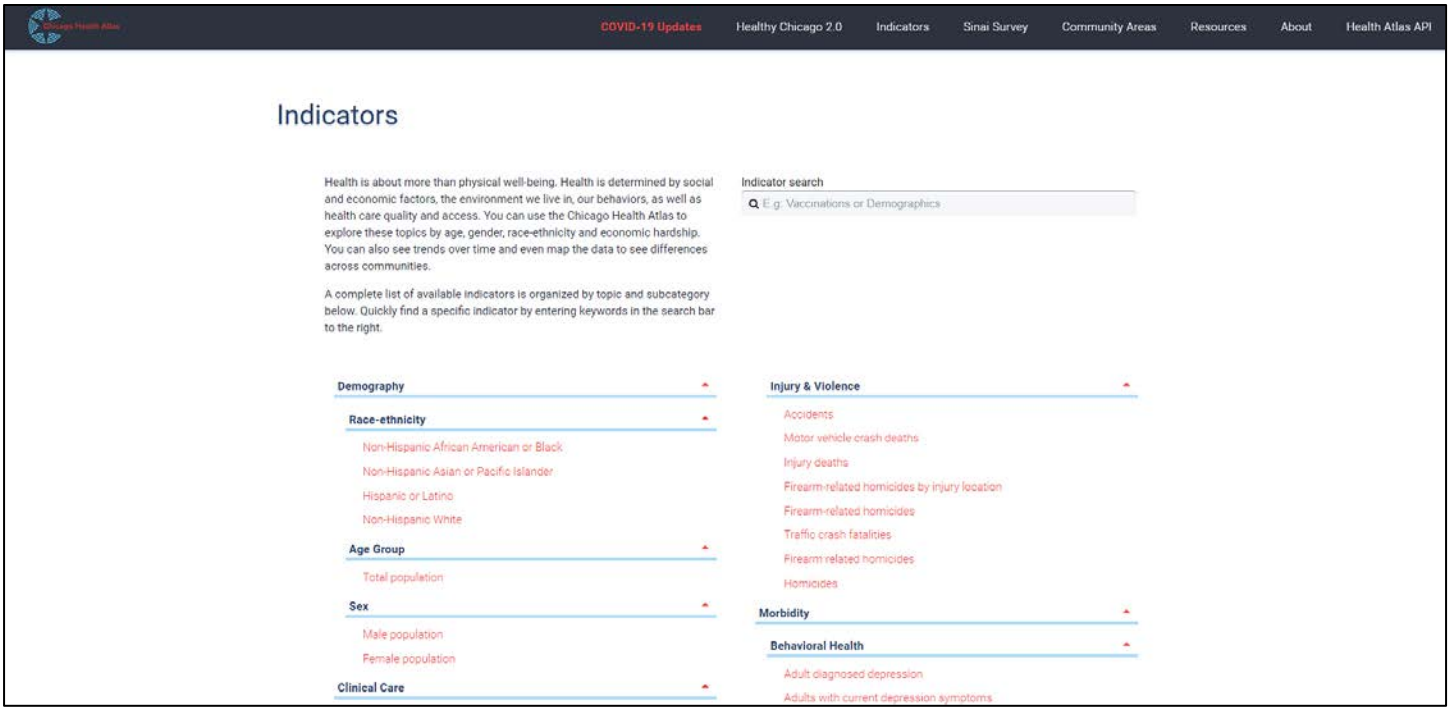


Figure 6: List of 160+ community health indicators (Click on the image to learn more)

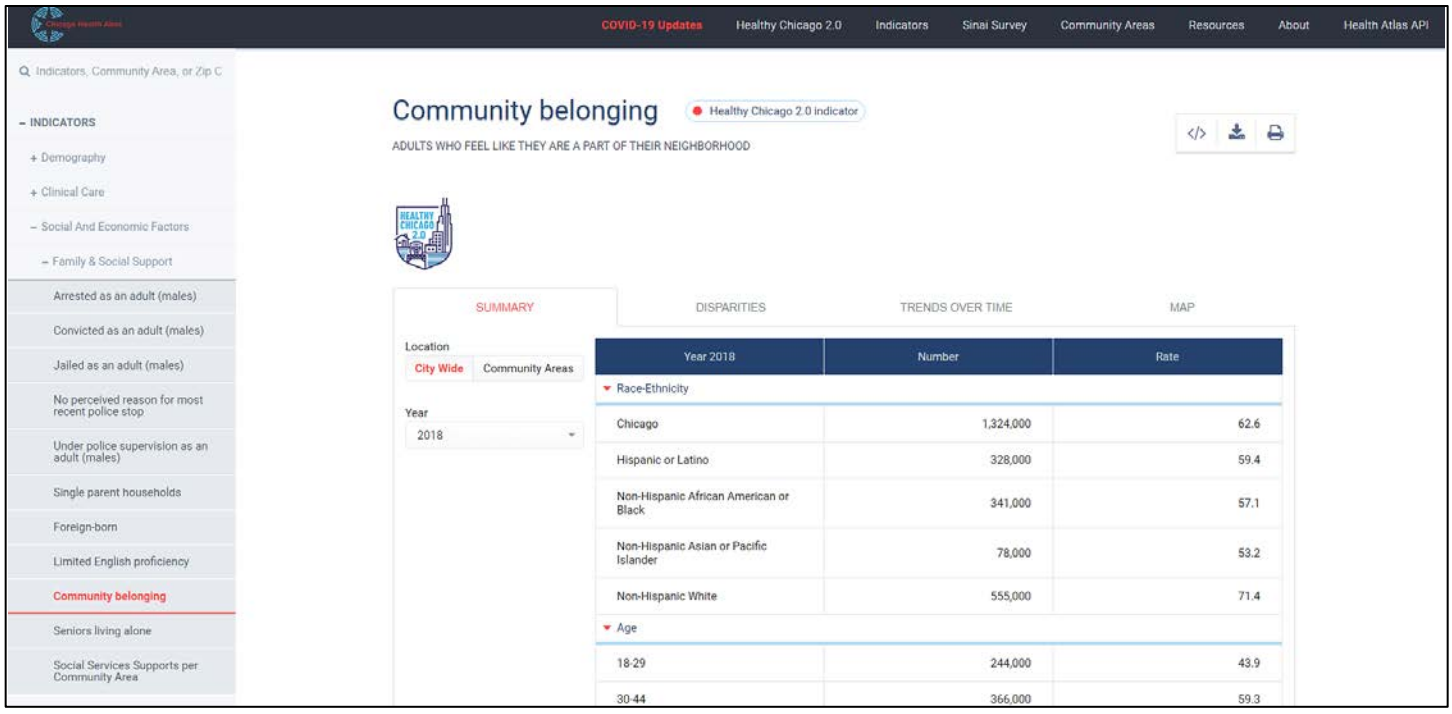


Figure 7: Sample indicator format (click on the image to learn more)

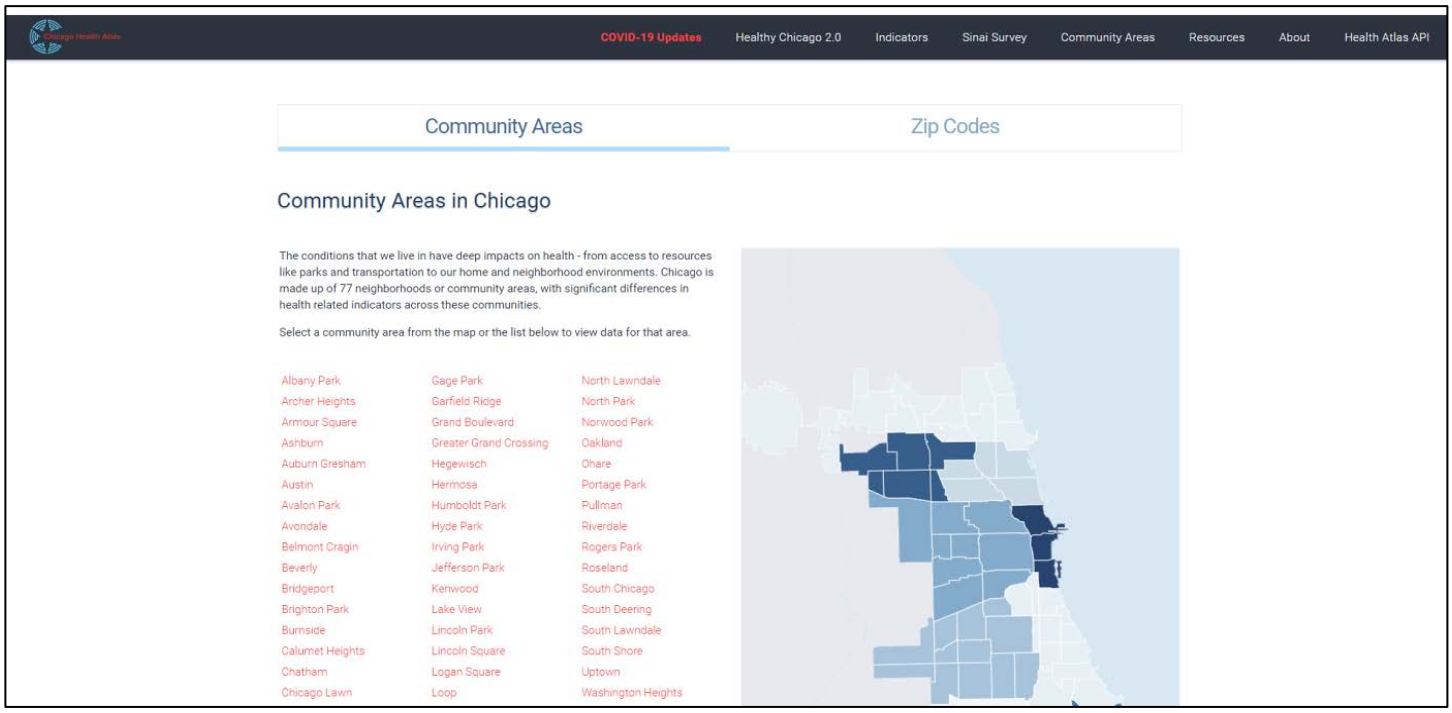


Figure 8: Community health data by community area (click on the image to learn more)

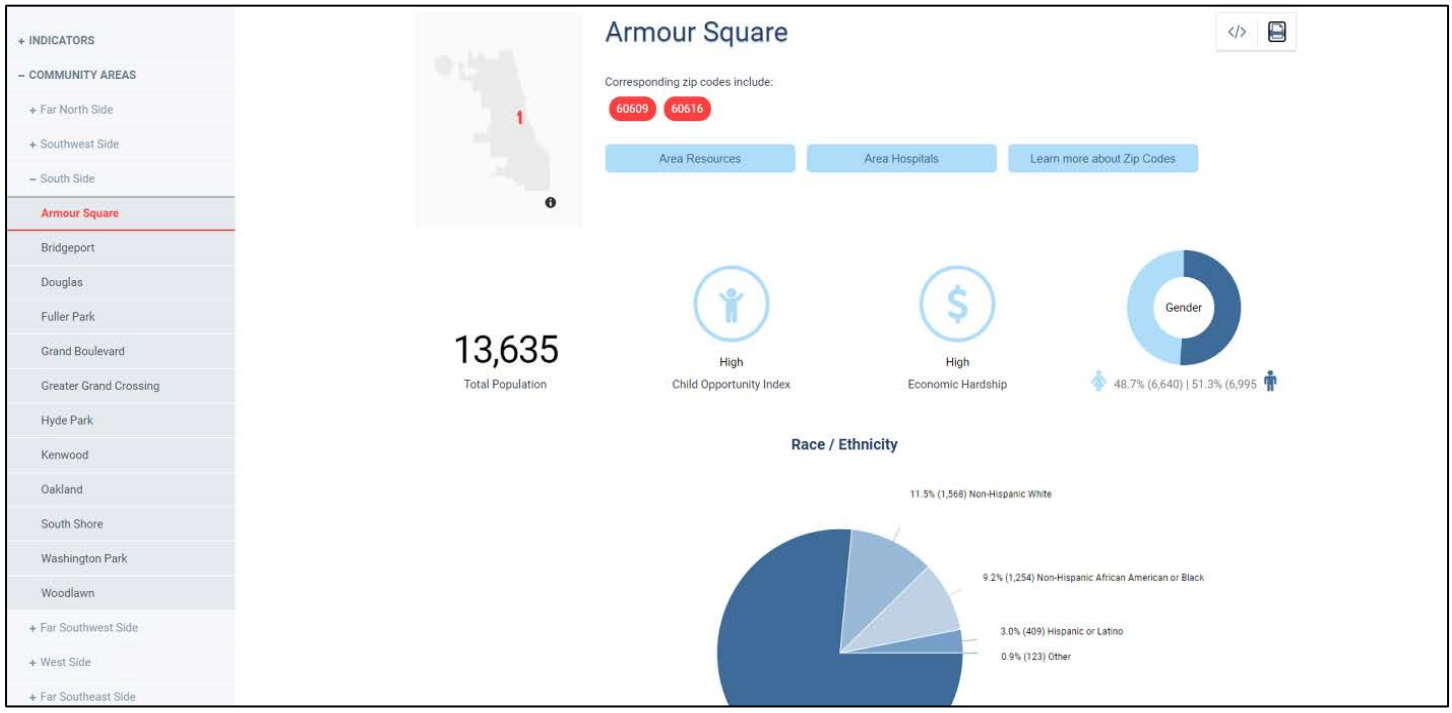
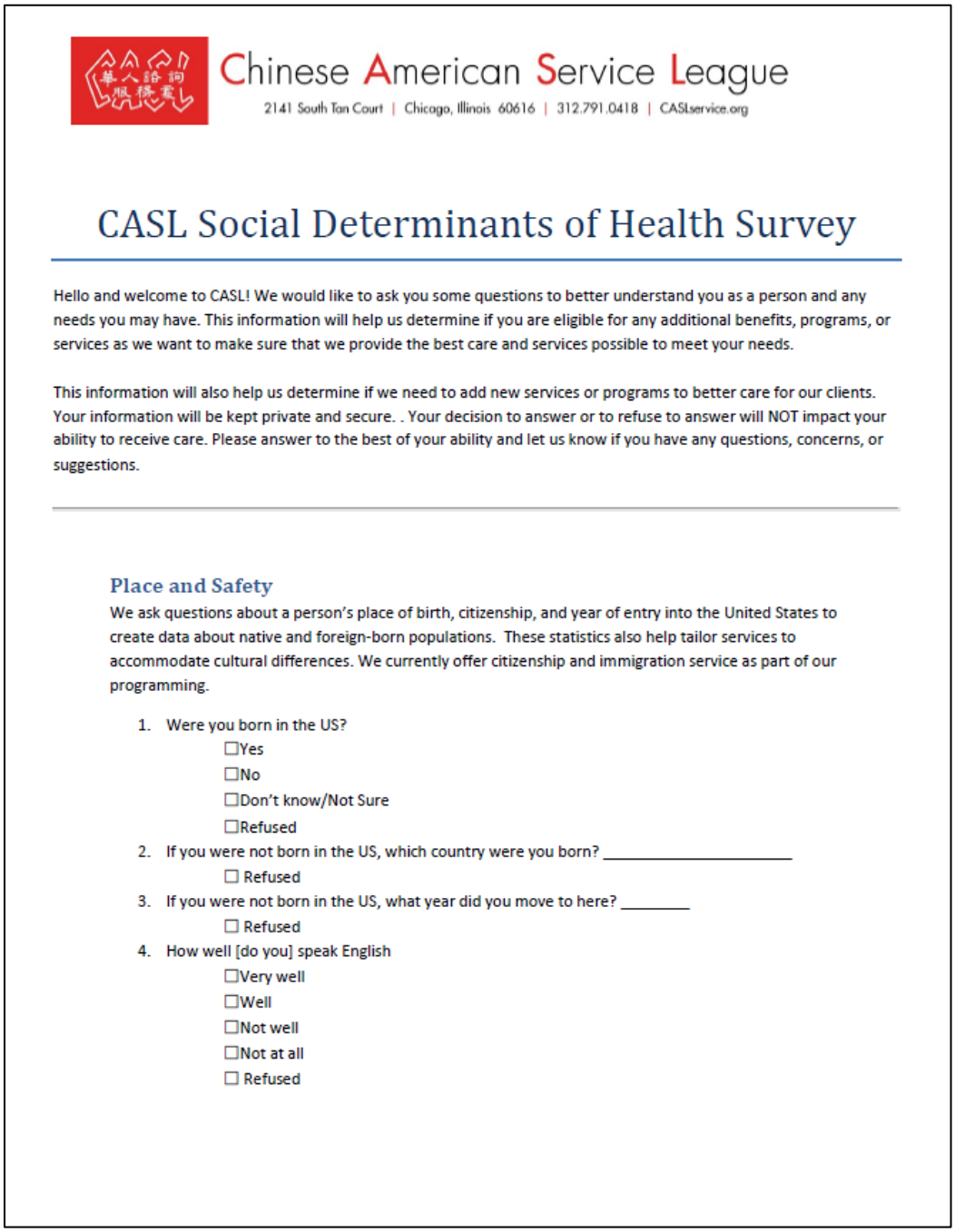


Figure 9: Community area snapshot (click on the image to learn more

Appendix C: CASL SDoH Assessment



Chinese American Service League

2141 South Tan Court | Chicago, Illinois 60616 | 312.791.0418 | CASLservice.org

CASL Social Determinants of Health Survey

Hello and welcome to CASL! We would like to ask you some questions to better understand you as a person and any needs you may have. This information will help us determine if you are eligible for any additional benefits, programs, or services as we want to make sure that we provide the best care and services possible to meet your needs.

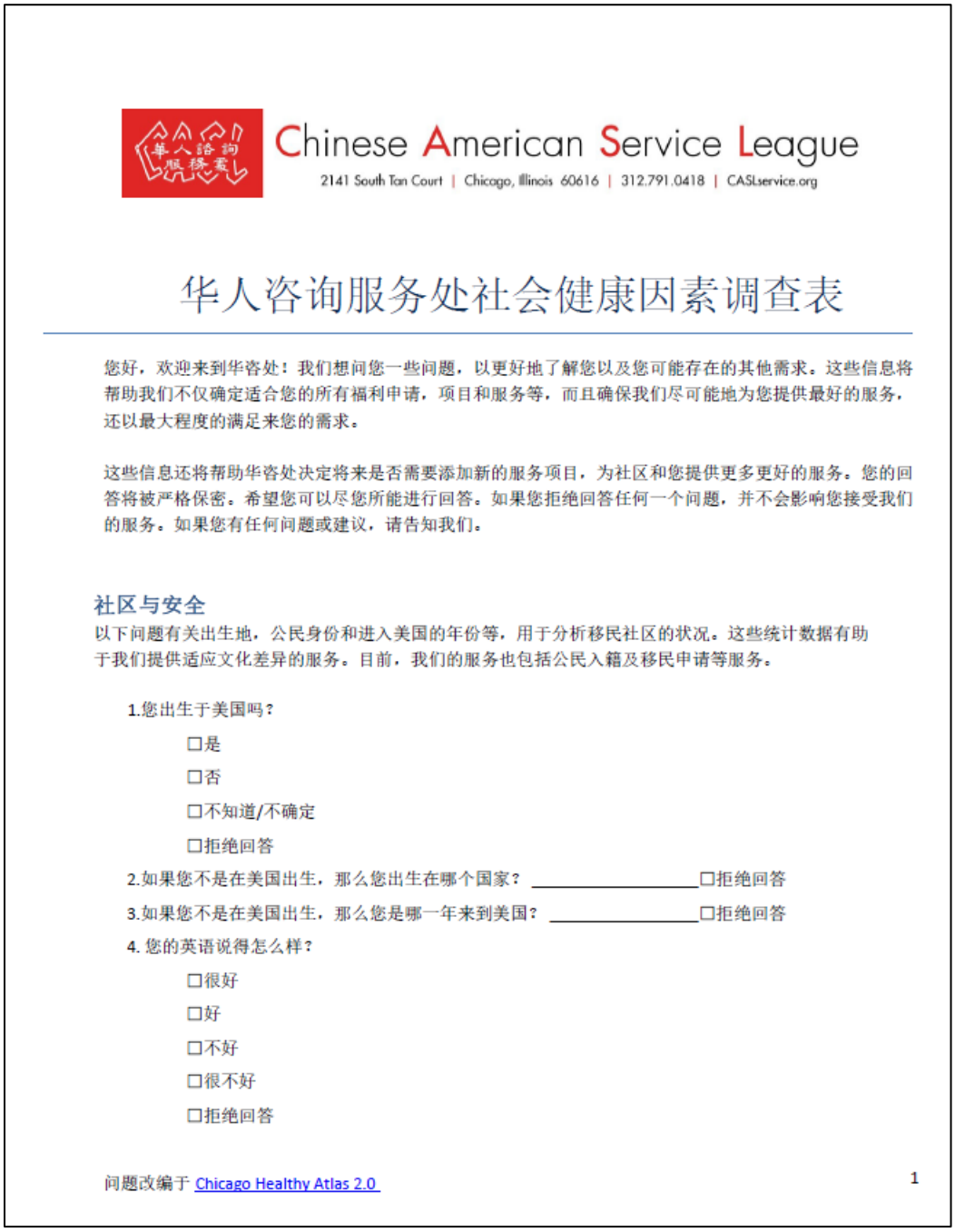
This information will also help us determine if we need to add new services or programs to better care for our clients. Your information will be kept private and secure. . Your decision to answer or to refuse to answer will NOT impact your ability to receive care. Please answer to the best of your ability and let us know if you have any questions, concerns, or suggestions.

Place and Safety

We ask questions about a person's place of birth, citizenship, and year of entry into the United States to create data about native and foreign-born populations. These statistics also help tailor services to accommodate cultural differences. We currently offer citizenship and immigration service as part of our programming.

1. Were you born in the US?
   - ☐Yes
   - ☐No
   - ☐Don't know/Not Sure
   - ☐Refused
2. If you were not born in the US, which country were you born? _____
   - ☐ Refused
3. If you were not born in the US, what year did you move to here? _____
   - ☐ Refused
4. How well [do you] speak English
   - ☐Very well
   - ☐Well
   - ☐Not well
   - ☐Not at all
   - ☐ Refused

Figure 10: First iteration of the CASL SDoH Assessment in English (click on the image to learn more)



Chinese American Service League

2141 South Tan Court | Chicago, Illinois 60616 | 312.791.0418 | CASLservice.org

华人咨询服务处社会健康因素调查表

您好，欢迎来到华咨处！我们想问您一些问题，以更好地了解您以及您可能存在的其他需求。这些信息将帮助我们不仅确定适合您的所有福利申请，项目和服务等，而且确保我们尽可能地为您提供最好的服务，还以最大程度的满足来您的需求。

这些信息还将帮助华咨处决定将来是否需要添加新的服务项目，为社区和您提供更多更好的服务。您的回答将被严格保密。希望您可以尽您所能进行回答。如果您拒绝回答任何一个问题，并不会影响您接受我们的服务。如果您有任何问题或建议，请告知我们。

社区与安全

以下问题有关出生地，公民身份和进入美国的年份等，用于分析移民社区的状况。这些统计数据有助于我们提供适应文化差异的服务。目前，我们的服务也包括公民入籍及移民申请等服务。

1.您出生于美国吗？

☐是

☐否

☐不知道/不确定

☐拒绝回答

2.如果您不是在美国出生，那么您出生在哪个国家？ _____☐拒绝回答

3.如果您不是在美国出生，那么您是哪一年来到美国？ _____☐拒绝回答

4. 您的英语说得怎么样？

☐很好

☐好

☐不好

☐很不好

☐拒绝回答

问题改编于 Chicago Healthy Atlas 2.0

1

Figure 11: First iteration of the CASL SDoH Assessment in Chinese-Simplified (click on the image to learn more)

Appendix D: CASL SDoH Domains & Definitions

Place and Safety refers to the built environment and household composition. Questions asked in this section pertain to the level of social cohesion and safety participants experience in their neighborhood. This section also includes questions relevant to place of birth and level of English proficiency. Most of the indicators reference foreign-born participants since the majority of our clients are born outside the U.S.

- **Place of birth:** geographic location of birth as determined by historical records (i.e. birth certificate or equivalent).
- **Age:** number of years living.
- **English proficiency:** acculturation is the process of becoming adjusted to a different culture. Since most of CASL's clients are born outside the U.S., English may be a second language. Having knowledge of the English language can have a pronounced impact on daily life for immigrants, such as greater ease of interacting with native English speakers.
- **Community belonging:** feeling like a part of one's neighborhood is indicative of how socially connected people feel. This subjective measure offers insight into how CASL clients can improve their personal relationships, and become more fully integrated as members of their community (e.g. claimed space).
- **Neighborhood safety:** feeling safe where one lives is crucial towards assimilation, the process of being integrated into a culturally different community. Given the fact that many CASL clients are born outside the U.S., feeling safe in their current living situation can signify how well they are adjusting to life overall.

Housing and Financial refers to the economic and housing conditions clients' experience. Questions asked in this section pertain to household income, educational attainment, bank accounts, and monthly rent/mortgage.

- **Education:** educational attainment is closely tied to health literacy[29] and thus, affects many areas of life outside of career advancement. CASL offers a variety of educational and after-school programs for children and youth of all ages, as well as English language classes for adults.
- **Employment:** employment rates vary by community area. Employment indicators represent the changing landscape of vocational opportunities in our city. For instance, having a job with benefits has a pronounced effect on one's access to quality health services. CASL's Employment and Financial Empowerment program provides financial services and resources to clients expressing a need or interest in professional development and vocational assistance.
- **Rent/mortgage costs:** rent and/or mortgage costs vary by community area and are indicative of resource availability, such as having affordable housing. CASL's Employment and Financial Empowerment program provides housing services and resources to clients expressing a need or interest in housing-related matters.
- **Checking and/or savings accounts:** the presence of checking and/or savings accounts serves as a proxy for how economic factors affect health. CASL's Employment and Financial Empowerment program provides financial services and resources to clients expressing a need or interest in improving fiscal management.
- **Crowded housing:** crowded housing is defined as *housing units with more than one person per room* according to the U.S. Census Bureau. The Chicago Health Atlas suggests that crowded housing impacts individual health. However, the definition of one person per room remains too vague to determine to what extent crowded housing would be deemed detrimental to one's health. Furthermore, depending on the household, a one person: one room ratio may not be

considered "crowded" according to some cultures. For this reason, crowded housing data collected during the pilot sequence is not included in this report.

- **Seniors living alone:** nearly 40 percent of participants in this pilot would be considered seniors (age 65 and older).

Health-Visits and Costs refer to the clinical care that clients receive. Questions asked in this section pertain to access to healthcare and quality of healthcare services received.

- **Health coverage:** health coverage is defined by the U.S. Centers for Medicare & Medicaid Services (CMMS) as "Legal entitlement to payment or reimbursement for…health care costs, generally under a contract with a health insurance company, a group health plan offered in connection with employment, or a government program like Medicare, Medicaid, or the Children's Health Insurance Program (CHIP)."[30]
- **Primary care provider:** a particular doctor's office, health center, or other place that a person usually goes if they are sick or needs advice about their health. Having health coverage and a usual primary care provider are the two leading health indicators for the Health People 2020 framework. Having a primary care provider can increase trust in the medical community and the probability that patients will receive appropriate care.[31]
- **Annual physical/routine checkup:** while access to quality health coverage is vital, utilization of health services is equally imperative to promoting well-being, as well as a preventative measure for chronic disease.
- **Emergency department visits:** people who do not have a primary care physician are more likely to seek care in an emergency department (ED). According to the Illinois Department of Public Health, EDs often serve as primary care providers. Research[32] indicates that many ED visits are for non-urgent conditions, such as those that could have been treated or prevented in a primary care setting.[33]
- **Dental visits:** oral health is shown to be linked to gum disease and chronic illness[34]. As a priority for CASL clients and the City of Chicago, annual visits to teeth cleanings are recommended as a standard for preventative health.
- **Cost of dental care:** the ability to access health services can be affected by several factors ranging from transportation to cost. According to the Office of Disease Prevention and Health Promotion, 1 in 5 children and adults under the age of 65 do not have medical insurance and are more susceptible to skip out on routine clinical care due to costs, like going to a dentist or oral hygienist.[35]
- **Cost of eye/vision care:** sight is crucial to daily life. Visits to an eye care professional can help detect common vision problems and eye diseases.[36] Cost has been cited by the National Eye Institute as one of the reasons people fail to seek eye care.[37]
- **Cost of medical care:** the ability to access health services can be affected by several factors ranging from transportation to cost. According to the Office of Disease Prevention and Health Promotion, 1 in 5 children and adults under the age of 65 do not have medical insurance and are more susceptible to skip out on routine clinical care due to costs.[38]
- **Cost of medical prescriptions:** the ability to access health services, such as filling prescriptions, can be affected by several factors ranging from transportation to cost. According to the Office of Disease Prevention and Health Promotion, 1 in 5 children and adults under the age of 65 do not have medical insurance and are more susceptible to poor prescription and/or medication management due to costs.
- **Breast cancer screening:** (For females ages 50-74) breast cancer screening: clinical preventative services, such as breast cancer screening, are effective in reducing the likelihood of developing

disability or even death. Breast cancer screening (mammograms) is often recommended for women between the ages of 50 and 74.

- **Colonoscopy/Sigmoidoscopy:** (For individuals ages 50-75) colorectal screening: regular colorectal cancer screening beginning at age 50 is the most effective way to reduce a person's risk of getting the disease.[39] Preventative services such as colorectal screening could be greatly beneficial given the average age of our pilot sample (57 years).[40]
- **Hepatitis B (HBV):** Hepatitis is defined as an inflammation of the liver. A leading cause for liver cancer, early prevention is essential. Research[41] indicates that screening and vaccination for HBV in Asian Americans is inadequate. Although Chicago Health Atlas does not include indicators for HBV, we believed this data point to be necessary in bridging the knowledge gap on this topic.
- **Mental health counseling/therapy:** mental health is vital to well-being, relationship-building, and living a full and productive life. Healthy People 2020 claims that mental illness accounts for most diseases in the U.S. Mental and physical health are undeniably connected and evidence shows mental disorders, such as depression, are deeply tied to severe negative health outcomes and chronic disease.[42] The mental health needs of CASL clients, let alone AAPI communities, is often misunderstood due to cultural factors, stigma, and mental health as a standalone health concept.
- **Alternative therapy:** this indicator refers to "complementary, alternative, or unconventional therapies in the past 12 months. This includes herbal supplements, medicinal teas, acupuncture, chiropractic therapy, homeopathy, meditation, yoga, or Tai Chi." CASL clients may prefer these practices based on cultural familiarity. For instance, a number of older CASL clients regularly take advantage of outdoor spaces to practice Tai Chi (Pinetree Senior Council).

The **Health Fitness and Behaviors** dashboards address non-clinical activities clients engage in on a daily basis, such as nutrition, exercise, whether or not they smoke cigarettes. Negative habits are also known as behavioral risk factors because they "[alter] an [individual's] vulnerability to illness and account for some of the health differences between people of different social classes."[43]

- **Food security:** as many as 18% (500,000) Chicagoans experienced food insecurity in 2012[44]. Food insecurity is defined as limited availability of, or access to, nutritionally adequate and safe foods. [45]Nutrition differs from food security in that having enough food is often considered to be relevant to socioeconomic conditions.
- **Physical activity:** Healthy People 2020 state that "regular physical activity can improve the health and quality of life of [people] of all ages, regardless of the presence of a chronic disease or disability."[46]
- **Smoking**: Healthy People 2020 state that "preventing tobacco use and helping tobacco users quit can improve the health and quality of life for people of all ages.

Appendix E: Demographic Profile

Out of the sample with 90 percent completion (*n*=393), the median age of all participants was 57 years of age. Nearly a quarter of all participants were male, with 73 percent female. This discrepancy has much to do with the fact that our pilot sample was not selected at random. With a threshold of at least 20 responses, the top 4 community areas our pilot sample lived in included Armour Square (186), Bridgeport (68), Brighton Park (40), and McKinley Park (30). Although our assessment does not include a question about race or ethnicity, that data was sourced from the participant's existing client profile in Salesforce. With that being said, nearly 99% of all participants in the pilot identified as Asian, with less than 1 percent identifying as Black or Hispanic/Latino[47].

Figure 12: Demographic overview of CASL participants

When we compared CASL participants with Chicago Health Atlas participants, it is important to note that the sample size, scope, and duration are vastly different. Careful consideration is required when interpreting differences in unweighted, raw data, sampling methods, and analysis.

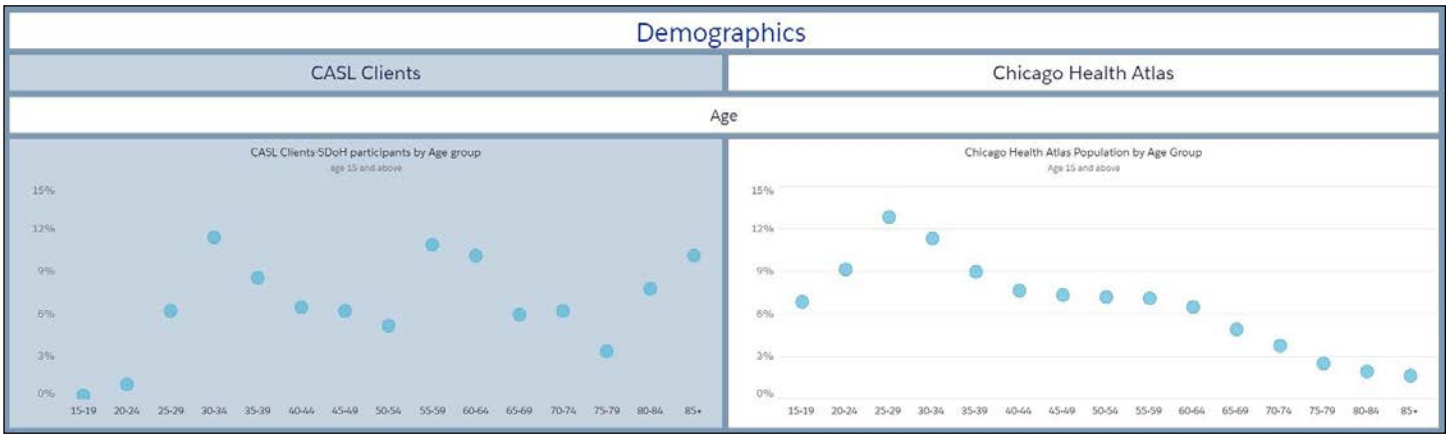


Figure 13: Comparison of CASL participants and Chicago Health Atlas participants by Age Group

Figure 14: Comparison of CASL participants and Chicago Health Atlas participants by Chicago Community Area

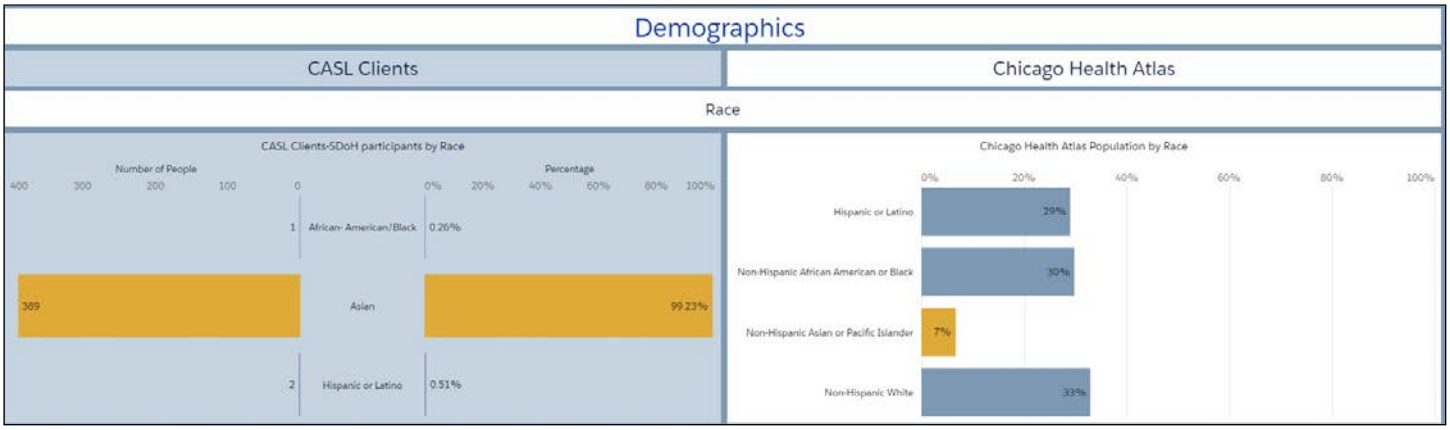


Figure 15: Comparison of CASL participants and Chicago Health Atlas participants by Race

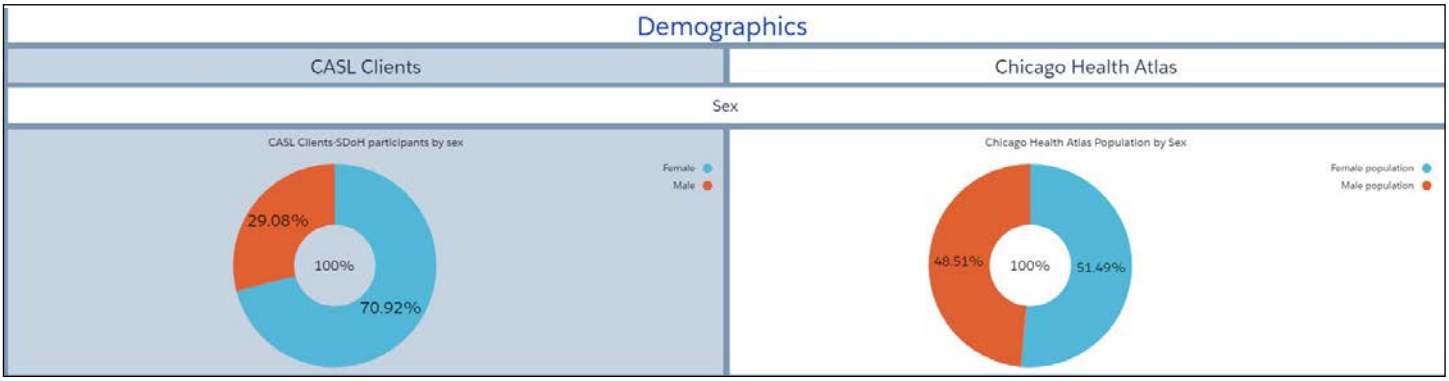


Figure 16: Comparison of CASL participants and Chicago Health Atlas participants by Sex

Appendix: x

Appendix F: CASL SDoH Assessment Pilot Response Rates

SDoH Completion % ↑	Subtotal	<90% Overall	Subtotal	>90% Overall	Total	All
CASL SDoH Question 1		100.0%		100.0%		100.0%
CASL SDoH Question 2		96.4%		100.0%		99.6%
CASL SDoH Question 3		83.9%		97.7%		96.0%
CASL SDoH Question 4		98.3%		100.0%		99.8%
CASL SDoH Question 5		86.2%		99.3%		97.6%
CASL SDoH Question 6		96.6%		100.0%		99.6%
CASL SDoH Question 7		100.0%		99.8%		99.8%
CASL SDoH Question 8		84.5%		98.3%		96.5%
CASL SDoH Question 9		89.7%		99.8%		98.5%
CASL SDoH Question 10		96.6%		100.0%		99.6%
CASL SDoH Question 11		89.5%		99.5%		98.3%
CASL SDoH Question 12		61.4%		97.3%		92.8%
CASL SDoH Question 13		91.4%		100.0%		98.9%
CASL SDoH Question 14		84.5%		100.0%		98.0%
CASL SDoH Question 15		89.7%		99.5%		98.3%
CASL SDoH Question 16		79.3%		98.3%		95.9%
CASL SDoH Question 17		46.6%		93.8%		87.8%
CASL SDoH Question 18		26.4%		84.8%		78.0%
CASL SDoH Question 19		79.3%		97.5%		95.2%
CASL SDoH Question 20		91.4%		99.8%		98.7%
CASL SDoH Question 21		91.4%		99.3%		98.3%
CASL SDoH Question 22		79.3%		99.0%		96.5%
CASL SDoH Question 23		87.9%		100.0%		98.5%
CASL SDoH Question 24		79.3%		98.3%		95.9%
CASL SDoH Question 25		75.9%		98.8%		95.9%
CASL SDoH Question 26		56.9%		97.8%		92.6%
CASL SDoH Question 27		86.2%		98.5%		97.0%
CASL SDoH Question 28		81.0%		98.3%		96.1%
CASL SDoH Question 29		82.8%		99.8%		97.6%
CASL SDoH Question 30		72.7%		99.0%		95.5%
CASL SDoH Question 31		76.2%		99.7%		96.7%
CASL SDoH Question 32		58.6%		98.0%		93.0%
CASL SDoH Question 33		64.3%		98.3%		94.1%
CASL SDoH Question 34		81.0%		97.8%		95.7%
CASL SDoH Question 35		87.9%		99.3%		97.8%
CASL SDoH Question 36		21.6%		92.3%		84.3%
CASL SDoH Question 37		91.4%		98.8%		97.8%
CASL SDoH Question 38		96.6%		99.3%		98.9%
CASL SDoH Question 39		90.4%		99.8%		98.7%
CASL SDoH Question 40		84.3%		98.0%		96.5%
CASL SDoH Question 41		94.2%		99.8%		99.1%
CASL SDoH Question 42		96.2%		100.0%		99.6%
		Rate		rate		rate
			402		460	

Table 5: Response rates of all CASL SDoH Assessment questions 1-42

Appendix G: Master Indicator Data

The internal dashboard referencing CASL assessment data consists solely of CASL client data, responding to the research question *what are the needs of our clients?* The primary function of the internal dashboard is to generate meaningful descriptions pertaining to CASL clients as a whole. A secondary function of the internal dashboard is to facilitate discussion surrounding internal programming procedures. The internal dashboard offers an in-depth look at the relationship among assessment indicators by calculating the degree to which responses correspond with each other. By understanding where our clients' responses intersect, we can begin to explore factors influencing these relationships and tailor programming to address their needs more fully.

The external dashboard referencing CASL client responses and Chicago Health Atlas data contains two separate datasets which vary in sample size. For this reason, Einstein analytics, a Salesforce application, was used to house data from the Chicago Health Atlas since it was not feasible to collect individual responses for that sample. The primary function of the external dashboard was to provide greater insight into *how the needs of our clients compares with those in our communities.* By comparing aggregate data from the Chicago Health Atlas with baseline data from the CASL SDoH Assessment, we can begin to establish targets to improve outcomes for all CASL clients, and thus, the communities we call home. The following sections only contain selected indicators based on correlation analysis and salience. The full list of indicators can be found in Appendix G. Comparisons between CASL clients (unweighted) and Chicago Health Atlas samples are shown for selected indicators[48].

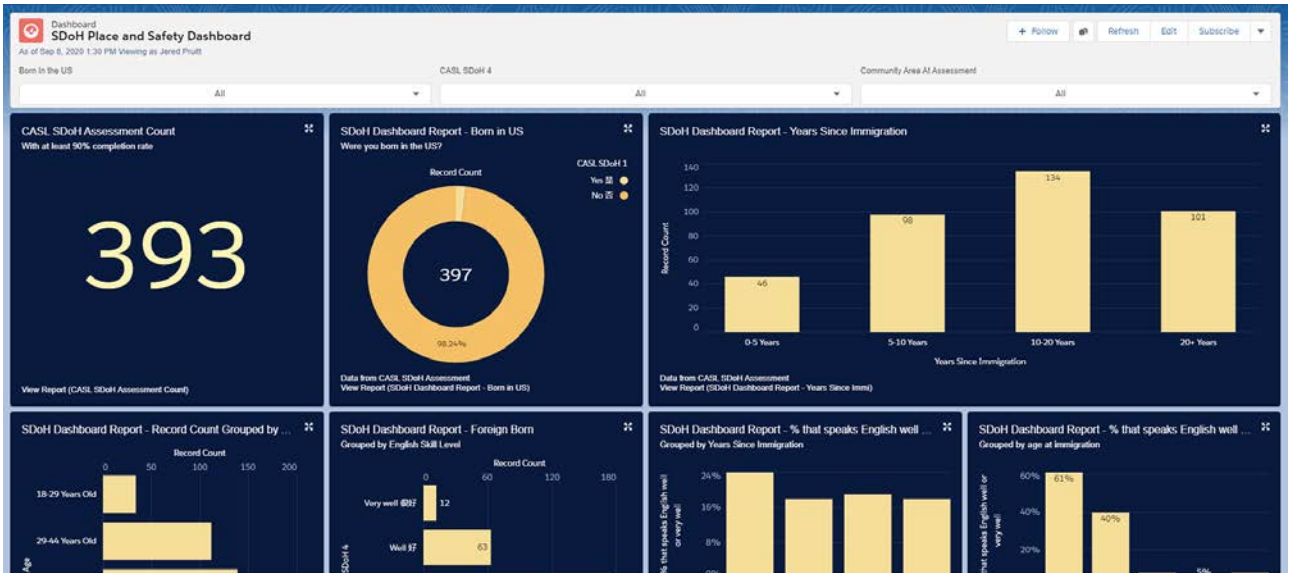


Figure 17: Screenshot of dashboards (by domain) in Salesforce

Appendix G1: Place and Safety

Place of birth:	
CASL finding	98% of participants were born outside the U.S.
CASL finding	35% of participants report immigrating to the U.S. between 10 and 20 years ago.
Age:	
CASL finding	36% of participants who are foreign-born are over the age of 65.
English proficiency:	
CASL finding	Over 70% of participants who are foreign-born reported speaking English less than "well."
CASL finding	Of foreign-born participants who speak English "well" or "very well," 24% immigrated between 0 and 5 years ago. This observation warrants further investigation into how English language skills are impacted by the time of immigration or vice versa.
CASL finding	Of foreign-born participants who speak English "well" or "very well," 61% were under the age of 18 at the time they immigrated. This observation warrants further investigation into how age at immigration impacts one's English language skills or vice versa.

Community belonging:	
CASL finding	Over 77% of foreign-born participants report feeling like a part of their neighborhood. Chicago Health Atlas does not include response data for other levels of community belonging (i.e. neutral and/or disagree response choices), yet a sizeable amount of our participants selected those response choices.
CASL finding	By top 4 community areas: 79% of participants living in Armour Square feel like a part of their neighborhood.
CASL finding	75% of participants living in Bridgeport feel like a part of their neighborhood.
CASL finding	74% of participants living in Brighton Park feel like a part of their neighborhood.
CASL finding	69% of participants living in McKinley Park feel like a part of their neighborhood.
CASL finding	80% of female participants reported feeling like a part of their neighborhood compared to 68% of male participants.
CASL finding	Of foreign-born participants who feel like a part of their neighborhood, 88% immigrated over 20 years ago. This observation warrants further investigation into how community integration is impacted by the time of immigration or vice versa.

Figure 18: CASL vs. Chicago Health Atlas (Community Belonging—Feeling Part of Your Neighborhood)

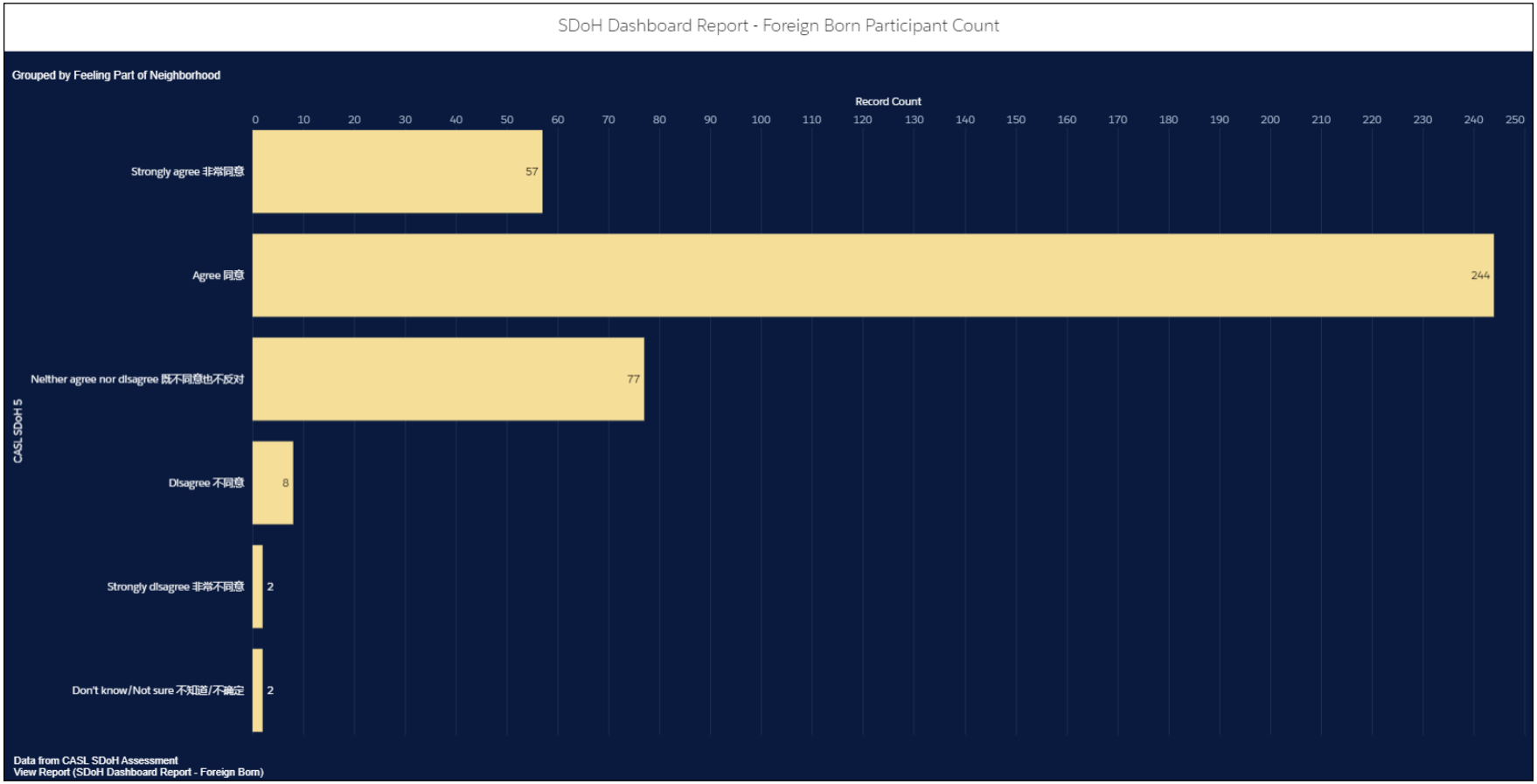


Figure 19: CASL internal data on all responses to "Do you feel like a part of your neighborhood?"

Neighborhood safety:

Figure 20: CASL vs. Chicago Health Atlas (Neighborhood Safety)

CASL finding	Over 70% of foreign-born participants report feeling safe in their neighborhood
CASL finding	78% of participants living in Bridgeport reported feeling safe in their neighborhood.
CASL finding	74% of participants living in Brighton Park reported feeling safe in their neighborhood.
CASL finding	71% of participants living in Armour Square reported feeling safe in their neighborhood.
CASL finding	57% of participants living in McKinley Park reported feeling safe in their neighborhood.
CASL finding	66% of foreign-born participants that immigrated 0-5 years ago reported feeling safe in their neighborhood, compared with 77% of foreign-born participants that immigrated over 20 years ago. This observation suggests that the length of time foreign-born participants have been in the U.S. is possibly correlated with how safe they feel in their neighborhood.
CASL finding	28% (n=92) of foreign-born participants reported feeling safe in their neighborhood “sometimes.” Chicago Health Atlas does not include response data for other levels of neighborhood safety like feeling safe “sometimes,” or “not at all,” yet a sizeable amount of our participants selected those response choices.

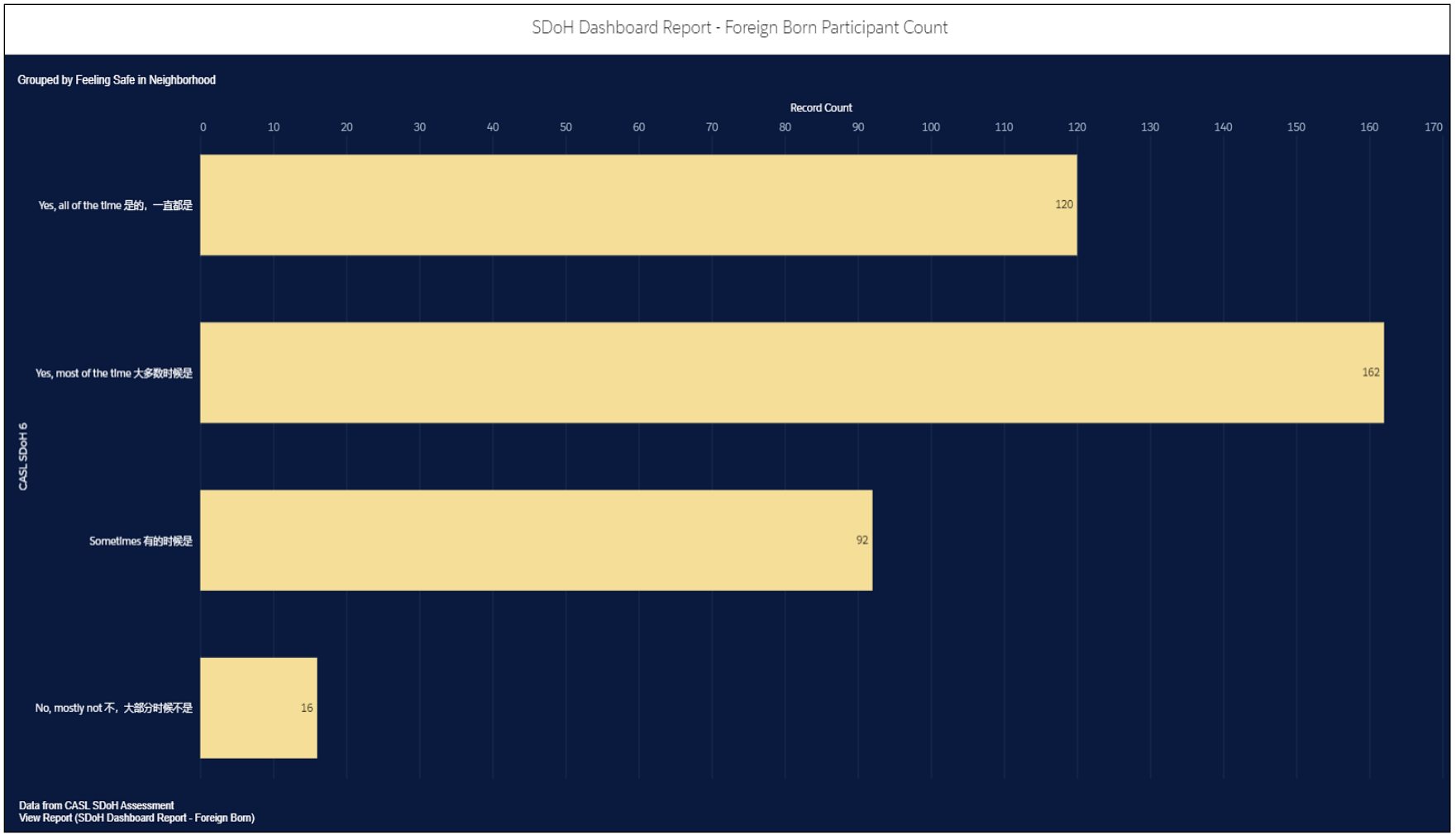


Figure 21: CASL internal data on all responses to "Do you feel safe in your neighborhood?"

Appendix G2: Housing and Financial

Education:

Figure 22: CASL vs. Chicago Health Atlas (Education)

CASL finding	35% of participants ages 25 and over have a high school diploma or equivalent. The age range "25 and over" was determined by the *U.S. Census Bureau: American Community Survey estimates* (1- and 5-year estimates for Chicago, census and community area).
CASL finding	Nearly 39% of participants ages 25 and over had an education of 12th grade or less.
CASL finding	Less than 20% of participants ages 25 and over had a bachelor's degree, an associate degree, or advanced degree.
CASL finding	11% of participants ages 25 and over had some college but no degree.
CASL finding	Of those with some college or more, 53% were between the ages of 18-29, followed by 39% of participants ages 30-44. These were the two largest age groups that reported having had some college or more. These age ranges differ from the cut-off figures used by the U.S. Census Bureau and were determined by the *Chicago Department of Public Health: Healthy Chicago Survey*.

Employment:

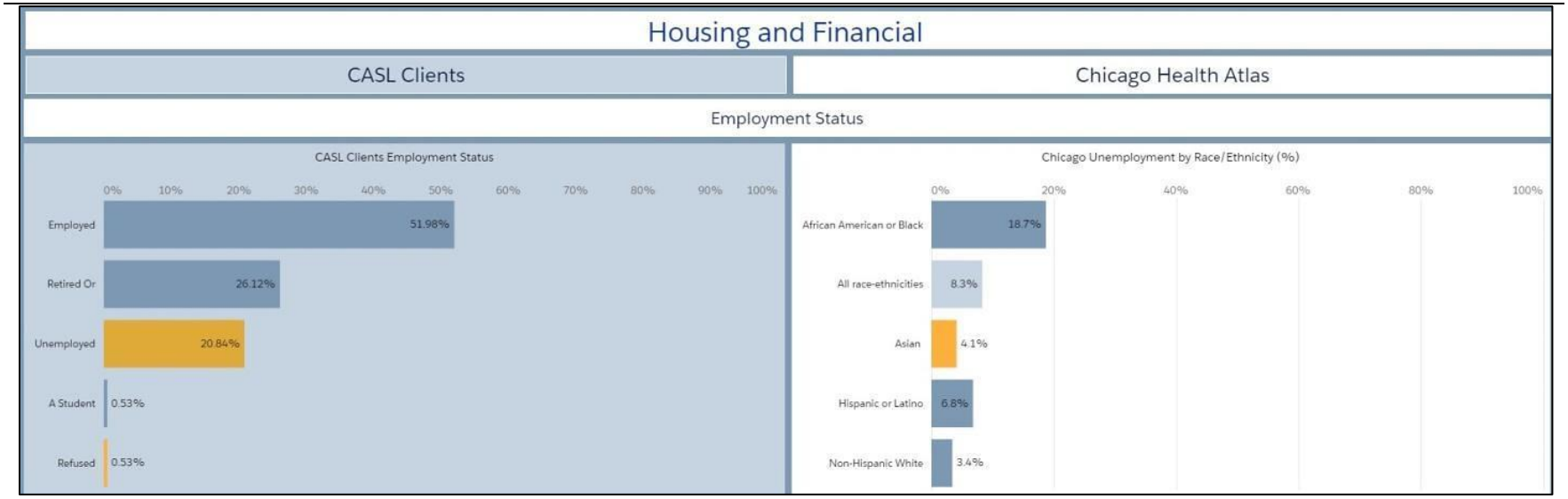


Figure 23: CASL vs. Chicago Health Atlas (Unemployed)

CASL finding	Nearly 70% of participants ages 16 and over are employed part-time or more[49]
CASL finding	65% of participants ages 45-64 years old are employed part-time or more. This was the largest observed age group that reported being employed part-time or more. The age group that reported the lowest rate of employment part-time or more are 65 years or older, consistent with the age that many retire. In terms of "working-age" adults, designated 16 and older by the Bureau of Labor Statistics, we observed a considerable 44% of participants ages 18 to 29 that reported not being employed part-time or more.
CASL finding	Of those who are part-time, full-time, or self-employed, over 70% had a household income between $30,001 and $40,000 annually.
CASL finding	Participants' household income was strongly correlated to educational attainment, monthly rent/mortgage costs, and age. Shown in the table below (*p*-values at the 90th percentile shown in table):

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Bachelor's degree	7109.628	3753.539	1.894113	0.059639
Master's degree	30483.4	6634.087	4.594966	7.61E-06
Monthly Rent/Mortgage	4.426182	1.542523	2.869443	0.004549
Age at completion	-216.206	90.4079	-2.39145	0.017699

Table 6: Table 1: Response correlation between educational attainment and CASL internal data only

Rent/mortgage costs:

CASL finding	26% of participants report not paying rent and/or mortgage. This may be due to the fact that they live with other household members who manage rental and/or ownership costs.

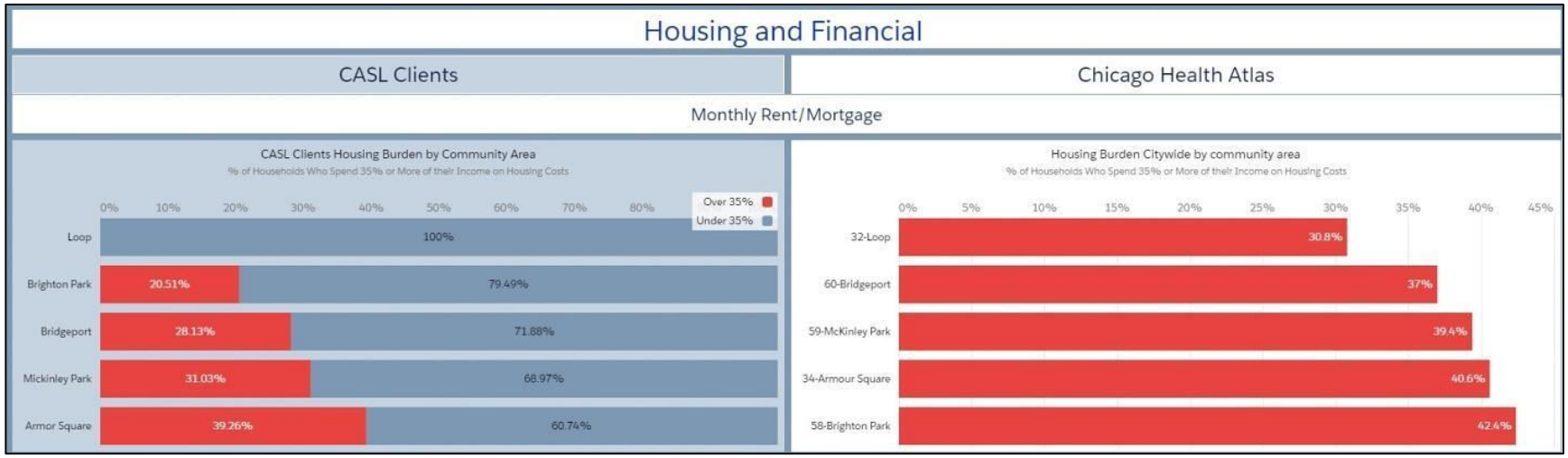


Figure 24: CASL vs. Chicago Health Atlas (Severe Housing Cost Burden)

CASL finding	32% of participants report paying less than $500 a month for rent and/or mortgage. Since the pilot assessment does not take into account whether or not participants live in subsidized housing units, we can only speculate that rental costs at face value are consistent with Chicago fair market rates.
CASL finding	When grouped by income levels, over a fifth of participants earning $60,001 or more yearly reported spending $1,100 on rent and/or mortgage per month. According to the U.S. Census Bureau, median gross rent was $1,077 from 2014-2018.
Checking and/or savings accounts:	
CASL participants	More than 98% of participants reported having a bank account (checkings/savings)
Chicago Health Atlas	In 2018, the Chicago Health Atlas reported that 17% of the City did not have a checking or savings account. Non-Hispanic Asian or Pacific Islander accounts for approximately 5%* (n=7,000).[50]
Crowded housing:	
CASL finding	49% of participants meet the criteria for crowded housing set by the U.S. Census Bureau. [51]
Seniors living alone:	
CASL finding	Of all participants age 65 and above, 38% reported living alone (did not record any additional individuals living in their household)

Appendix G3: Health-Visits and Costs

Health coverage:

Figure 25: CASL vs. Chicago Health Atlas (Uninsured)

CASL finding	84% of participants reported having health coverage.
CASL finding	74% of participants' ages 18-29 and 30-44 years reported having health coverage, compared with 83% of participants' ages 45-64 years and nearly all participants ages 65 and older.[52]

CASL finding	When comparing health coverage by income level, there was no clear indication that annual income was directly correlated to health coverage. For participants considered part of the active workforce (ages 16-64 per Bureau of Labor Statistics), 82% of participants reporting annual household incomes between $30,001 and $40,000 had health coverage. 81% of participants with an annual household income of $20,001 to $30,000 had health coverage, along with participants reporting annual incomes less than $20,000.71% of participants with income levels between $40,001 and $50,000 had health coverage and 64% of participants with income levels between $50,001 and $60,000 had health coverage.
CASL finding	87% of participants earning more than $60,001 annually reported having health coverage. Caution is warranted when comparing income level to health coverage since it would be an erroneous assumption to suggest that higher income levels are positively correlated with health coverage—as seen in our pilot sample.
CASL finding	Of the top four community areas where our participants reside, 70% of participants in Brighton Park reported having health coverage, compared with 87% of participants in Armour Square, 87% of participants in Bridgeport and 89% in McKinley Park that reported having health coverage.
Primary care provider:	
CASL finding	Of participants who have health coverage, 93% reported having a primary care provider compared with 31% who did not have health coverage, yet still had a primary care provider.
	While this finding suggests that having coverage is likely tied to having a primary care provider, other variables are less visible. This observation begs the question where participants obtain clinical care outside of a primary care provide and how they obtain that care (covered, out-of-network, word of mouth, etc.).
Annual physical/routine checkup:	
CASL finding	When comparing participants who had health coverage with those who did not, 74% of participants with health coverage reported visiting a doctor within the past year, compared with almost a third of participants who did not have health coverage making a visit within the same timeframe.

Emergency department visits:	
CASL finding	87% of participants reported not having visited the emergency department of a hospital in the past year. 13% reported having gone to the emergency department at least once during the past year.

Dental visits:	

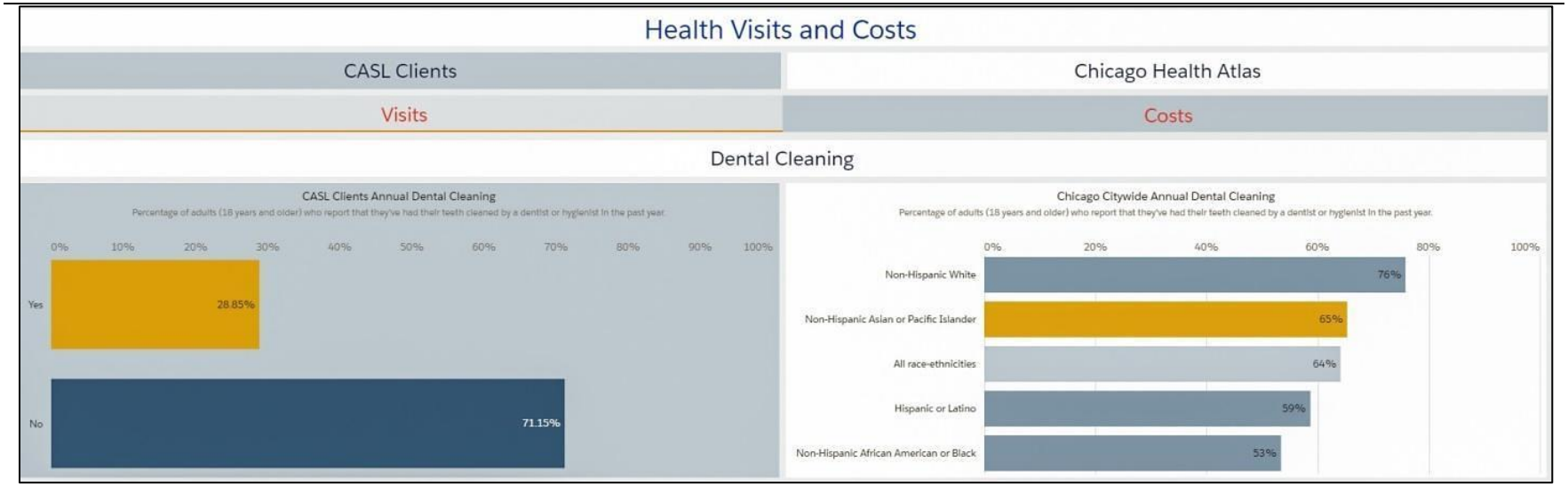


Figure 26: CASL vs. Chicago Health Atlas (Received Teeth Cleaning in the Past Year)

CASL vs. Chicago Health Atlas	25% of participants reported having gone to the dentist in the past year compared with 64% of Chicago Health Atlas participants living in Chicago in 2018[53]. 65% of Chicago Health Atlas participants identifying as Non-Hispanic Asian or Pacific Islander reported getting their teeth cleaned in the past year.

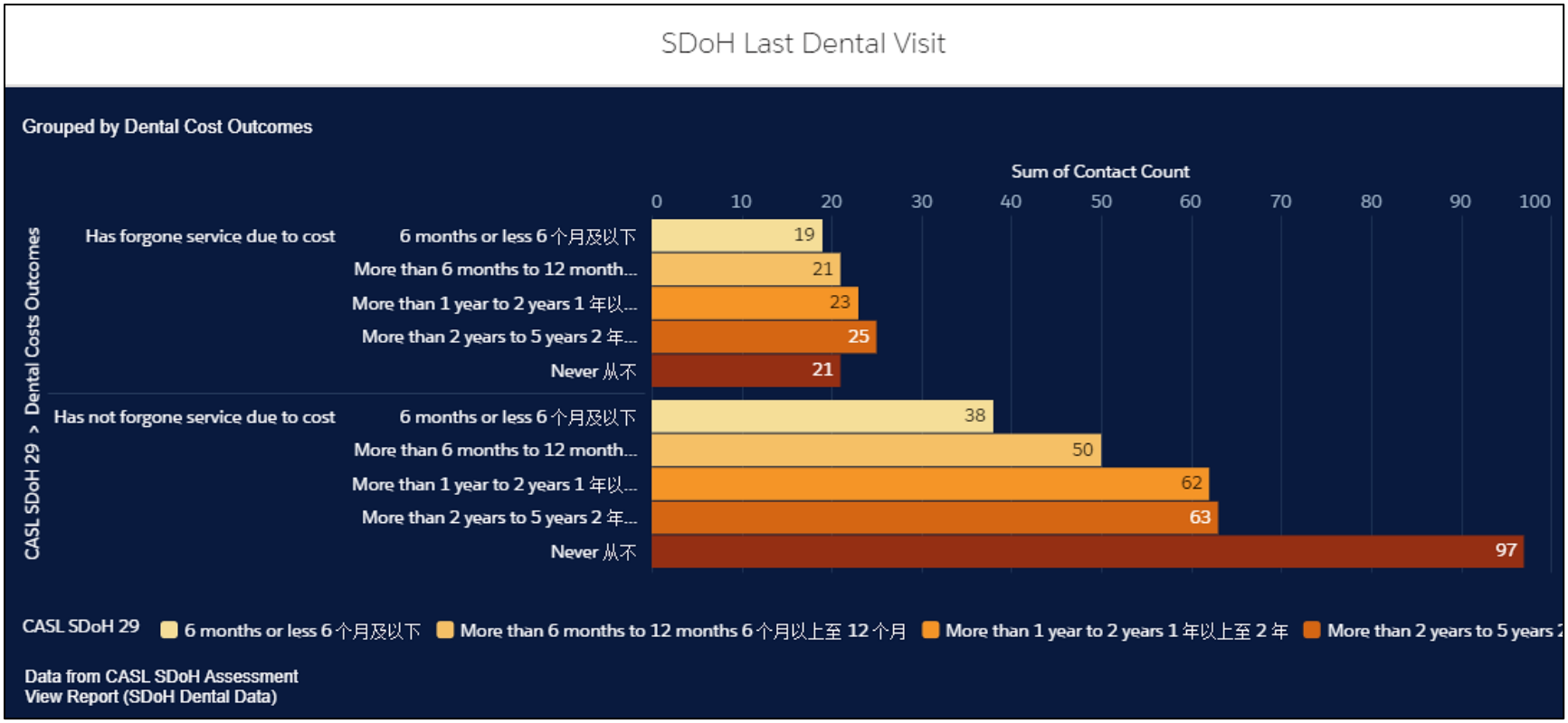


Figure 27: CASL internal comparison—Last teeth cleaning/dental visit vs. forgone dental service due to cost

Observation	When we explored the reason participants did not getting their teeth cleaned, it was not clear whether increased cost of dental care corresponded with the likelihood of getting their teeth at all. The number of participants who did not go to the dentist citing cost as a factor for not going is less than those who still went to the dentist not citing cost as a reason for not going. *Despite the lack of clarity around how income was related to dental visits, when asked if cost was the reason participants did not receive dental care, the responses seemed to vary.* For instance, 22% of participants living in households with annual incomes below $20,000 expressed not going to the dentist in the past year due to cost, compared to 33% of participants earning between $20,001 and $60,000 annually. When grouped by recent visits, participants reporting never having gone to the dentist also reported that it was not due to cost, suggesting that money was not the primary factor for why CASL clients forgo dental care. When grouped by health coverage, over half of participants with and without health coverage report that cost was not a factor for them not receiving dental care.

Cost of dental care:

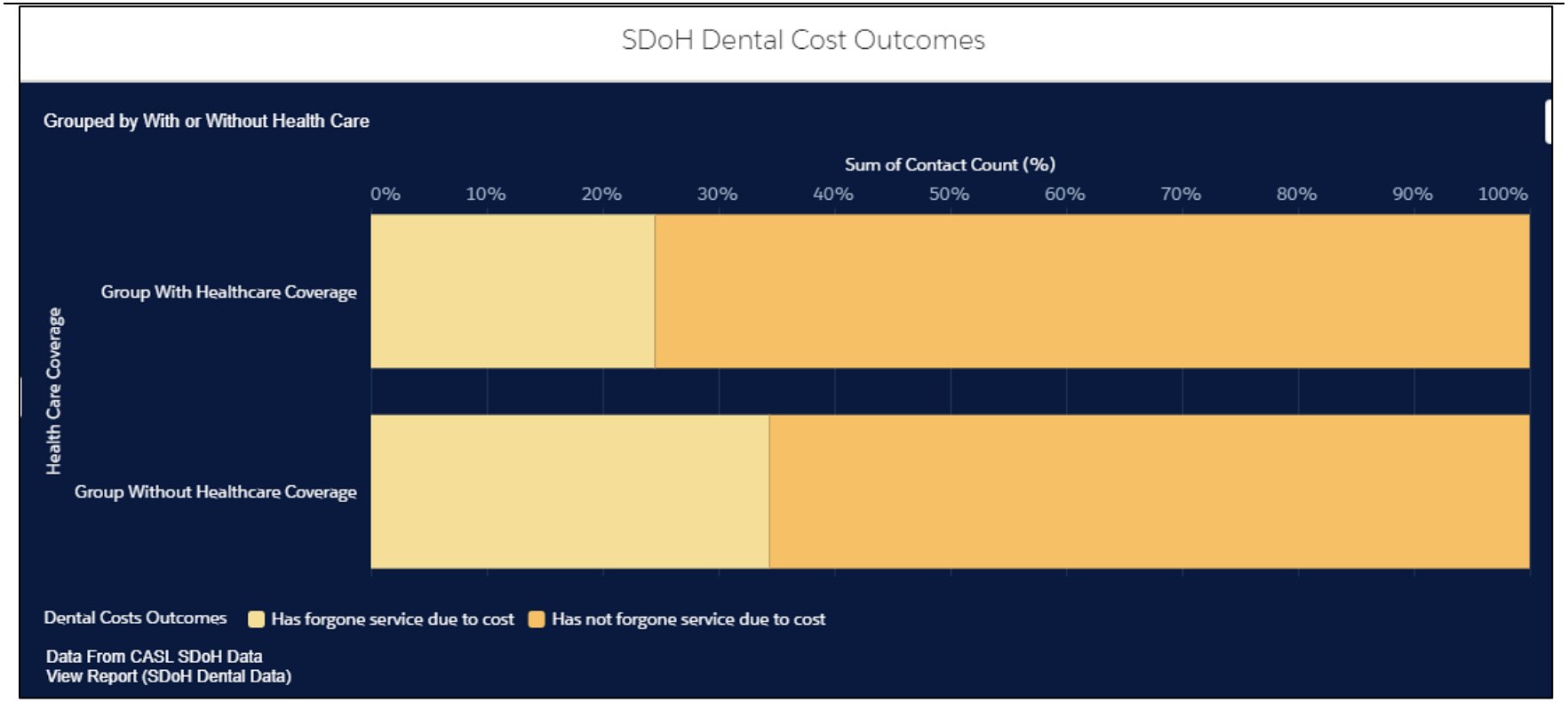


Figure 28: CASL internal comparison—health coverage vs. citing cost as a reason for not getting their teeth cleaned

CASL finding	When grouped by the availability of a primary care provider, participants reported that cost was not a factor impacting their most recent visit to the dentist.

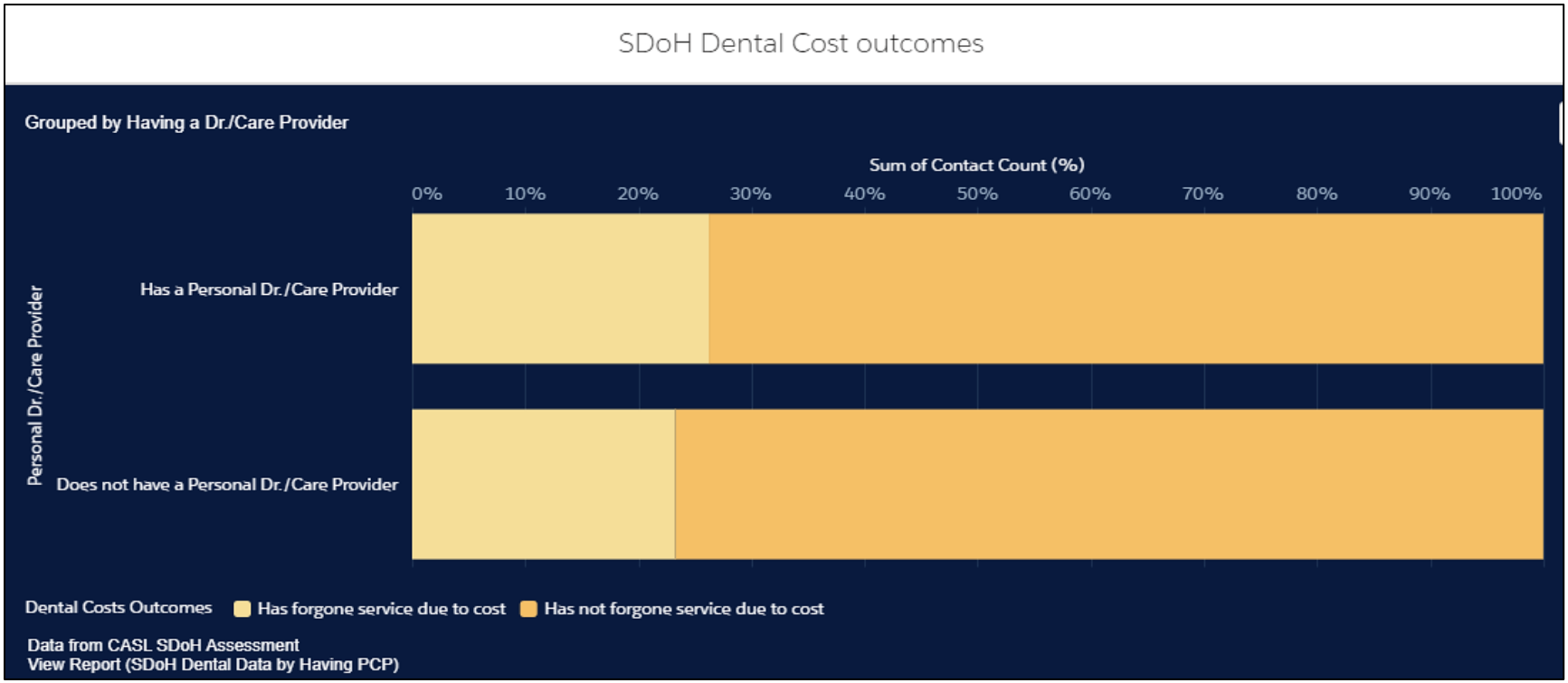


Figure 29: CASL internal comparison—primary care provider vs. citing cost as a reason for not getting their teeth cleaned

Observation	Of all clinical services asked in the CASL SDoH Assessment, dental care factors remain a mystery as to why these discrepancies exist. A plausible theory, based on anecdotal evidence, suggests that AAPI communities, more specifically Chinese Americans and Chinese immigrants, forgo dental services due to how health coverage is understood in the U.S. versus the country of their birth. Health coverage in the U.S. is often separate from dental or vision coverage, whereas health coverage is bundled with dental and vision care in other countries. Since we do not ask participants to explain why they chose not to pursue dental services, this theory remains a conjecture and further cultural analysis is warranted.
Cost of eye/vision care:	
CASL finding	When grouped by income level, nearly a fifth of participants earning between $40,001 and $60,000/year reported not being able to get eye care due to cost compared to 7% of participants earning less than $20,000/year and 7% of participants earning between $50,001 and $60,000/year.

Cost of medical prescriptions:	
CASL finding	When grouped by health coverage, over 20% of participants without [health] coverage reported not filling a prescription due to cost in the past year. By comparison, just over 12% participants with [health] coverage report not filling a prescription due to cost.
Observation	Prescription costs can be difficult to track without knowing what the actual medication is used for. Some medications prescribed by a doctor may be covered under a health insurance network, others are not. Furthermore, not all medicines taken regularly may need a prescription (i.e. over the counter or OTC medications).
Cost of medical care:	
CASL finding	13% of all participants reported not receiving medical care due to cost in the past year. 34% of those participants did not have health coverage
Breast cancer screening:	
CASL finding	When grouped by health coverage, nearly half of female participants age 50-74 who had health coverage reported having had a mammogram in the past *2 years* (opposed to Chicago Health Atlas' 1-year) compared with 31% of female participants without health coverage.

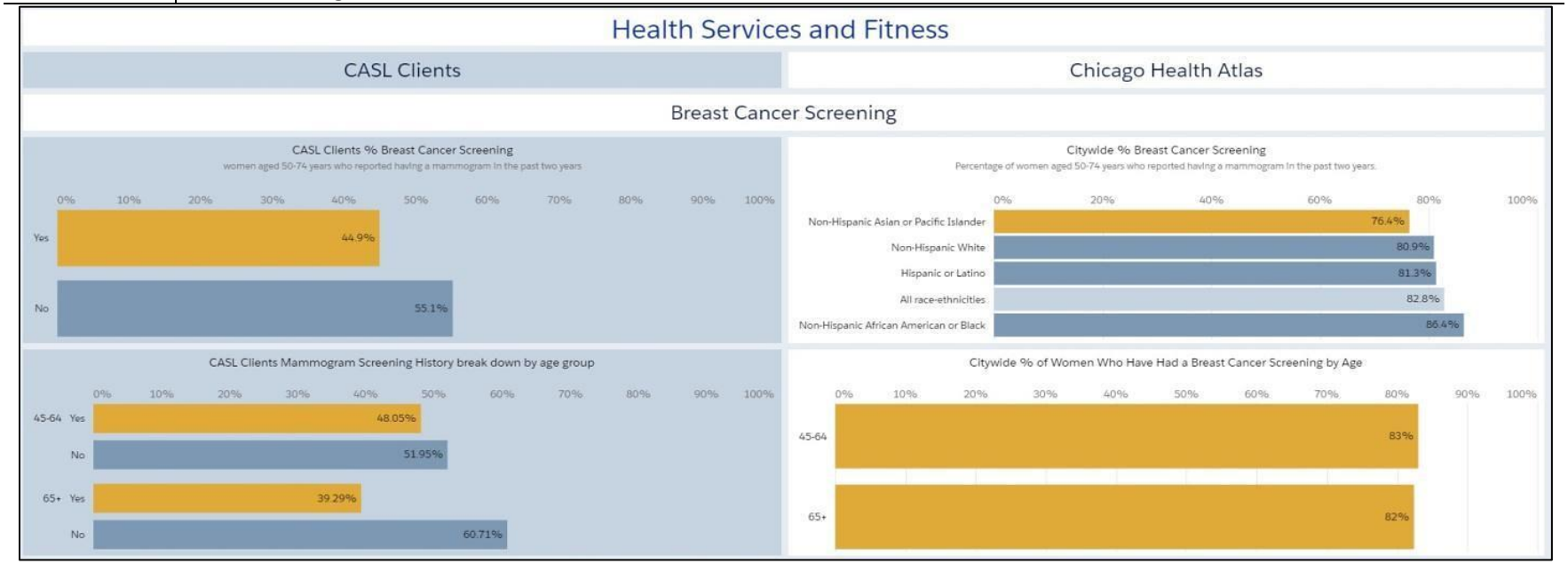


Figure 30: CASL vs. Chicago Health Atlas (Breast Cancer Screening)

Colonoscopy/Sigmoidoscopy:

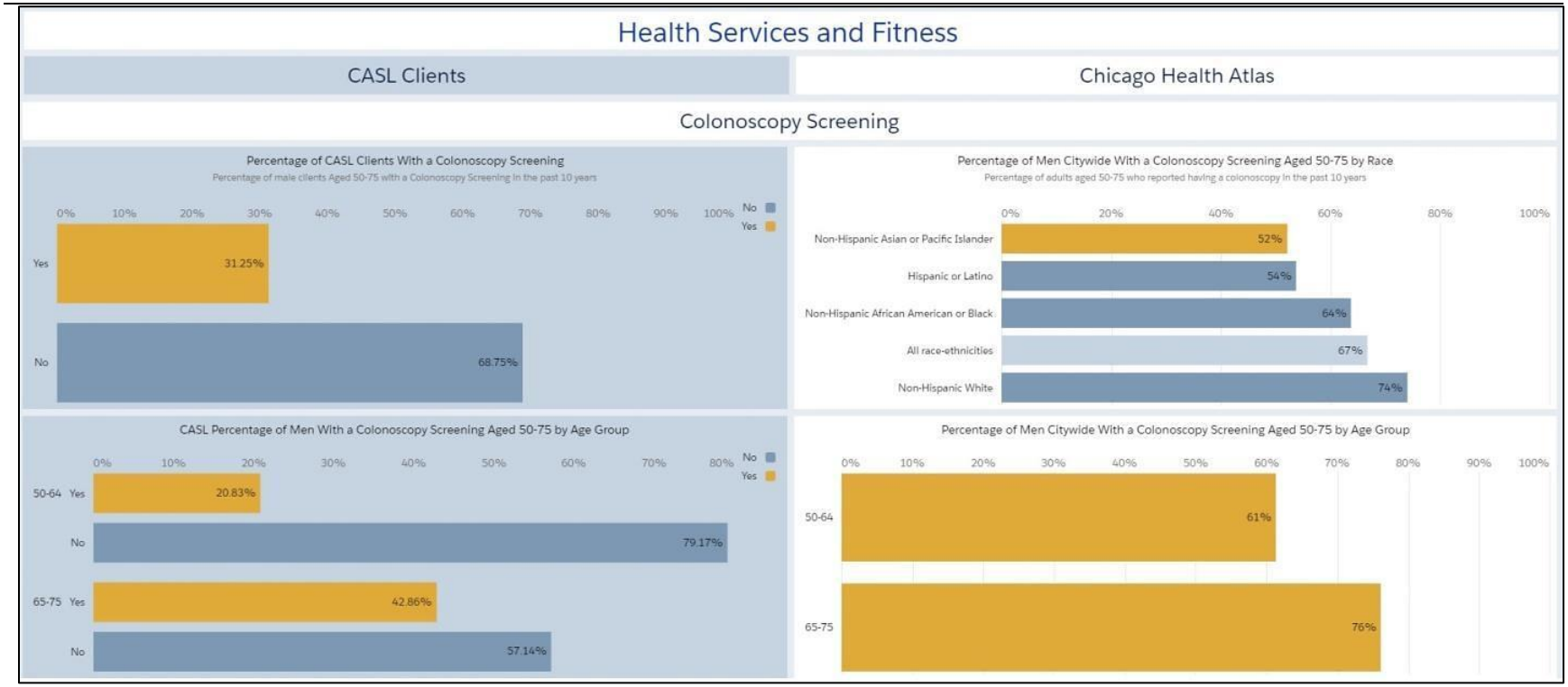


Figure 31: CASL vs. Chicago Health Atlas (Colorectal Cancer Screening)

CASL finding	Nearly two thirds of participants without health coverage reported having had a sigmoidoscopy/colonoscopy in the past *2 years* (opposed to Chicago Health Atlas' 1-year) compared with 45% of participants who had health coverage.

Mental health counseling/therapy:	
CASL finding	99% of participants report not having gone to a mental health professional in the past year.
CASL finding	5 participants reported having gone to a mental health professional at least once in the past year.
Observation	Depending on who you ask, the assumption that an individual would need to seek clinical and professional care for mental health issues suggests something is "seriously wrong" with them. Clinical interventions have made numerous advancements in mental health over the past century, but some cultural views have remained slow by comparison. Mental health as a concept is often foreign to many of our clients due to a number of reasons, ranging from being seen as weak to exhibiting somatic symptoms consistent with for instance, depression or anxiety.
Alternative therapy:	
CASL finding	18% of participants report having engaged in alternative therapies at least once in the past month. There may be indication that using alternative therapies are somehow connected to doctor visits in the past year, but we did not explore this relationship. This possibility warrants further investigation.
Observation	The concept of alternative therapy is more often understood from the lens of Western medicine, whereas the same concept may very well be grafted into mainstream medical practice in other parts of the world.

Appendix G4: Health Fitness and Behaviors

Food security:	
CASL finding	3% of participants (*n*=11) reported not being able to purchase food in the past year due to cost.

Physical activity:

Figure 32: CASL vs. Chicago Health Atlas (Adult Physical Inactivity)

CASL finding	When looking at different age groups, participants ages 45-64 were most physically active (67%) in the past month.
CASL finding	On the whole, more than half of participants ages 45-64 and 18-29 were physically active whereas less than half of participants in other age groups were physically active.

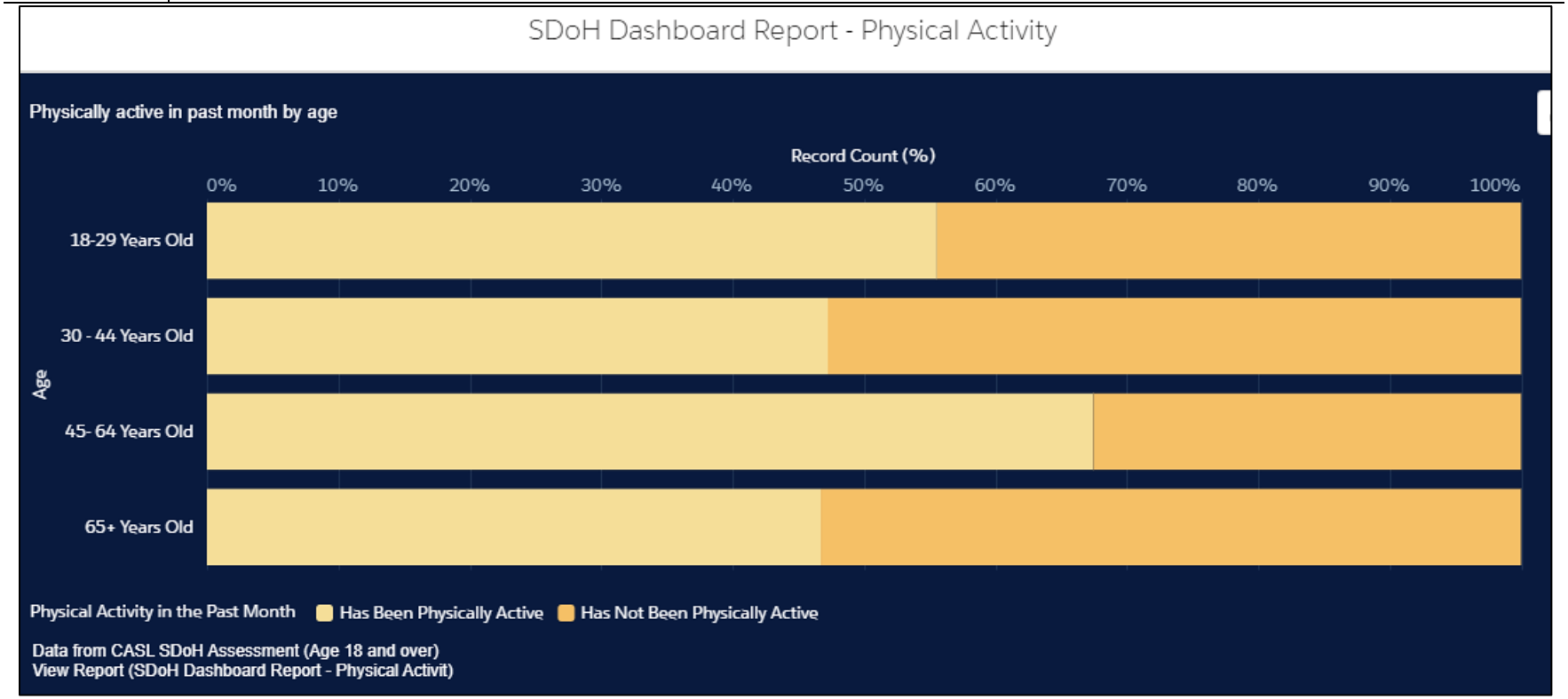


Figure 33: CASL internal data comparison between physical active and age

Observation	Based on the varied distribution of responses, our hypothesis is that the question contains wording that is confusing. The question reads: *During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?* From a cultural context, golf, gardening, and calisthenics may be interpreted differently by CASL clients.

Smoking:	
CASL finding	14% of participants (*n*=54) reported ever having smoked cigarettes.
Observation	When grouped using binary gender matrices, more male participants reported having ever smoked cigarettes versus female participants. Of participants who reported ever having smoked, 46% were male and 14% were female.
CASL finding	Of participants who have ever smoked cigarettes, half no longer smoke, 13% smoke “some days,” and 37% smoke “everyday.”

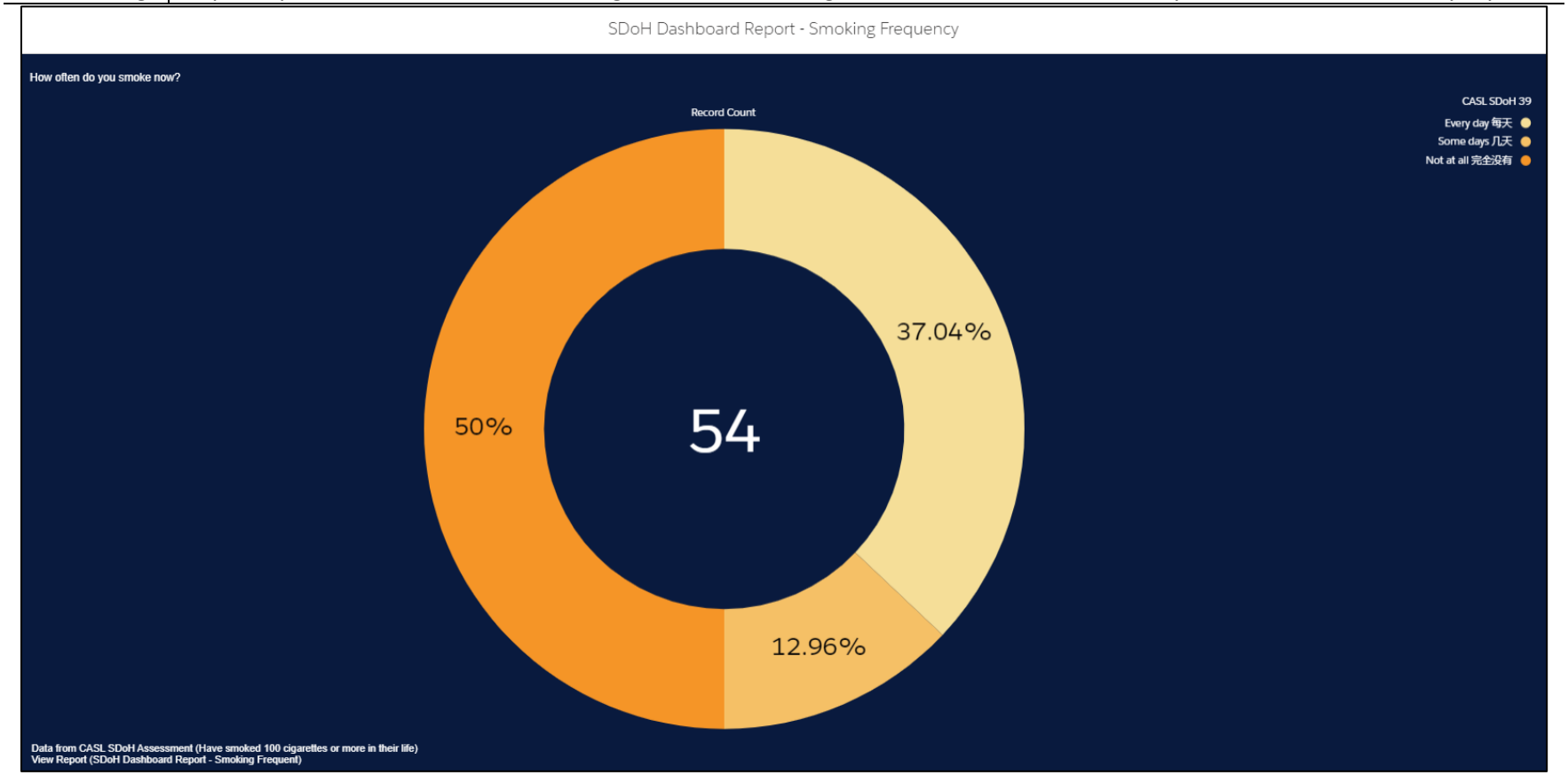


Figure 34: CASL internal data on participants’ smoking habits (frequency)

Appendix H: Regression Analysis Matrix

Dashboard	Item 1 to cross-reference	Item 2 to cross-reference
1. Place and Safety	Feels like part of neighborhood (Agree/Strongly Agree)	Years Since Immigration
2. Place and Safety	Feels safe neighborhood (Agree/Strongly Agree)	Years Since Immigration
3. Housing and Financial	Household Income	Education
4. Housing and Financial	Part time, full-time, self-employed	Age
5. Housing and Financial	Household Income	Age
6. Housing and Financial	Household Income	Average rent/mortgage per month
7. Housing and Financial	Average rent/mortgage per month	Age
8. Health-Visits and Costs	Has health coverage	Medical cost
9. Health-Visits and Costs	Has health coverage	Prescription cost
10. Health-Visits and Costs	Annual dental cleaning	Dental cost
11. Health-Services and Fitness	Physically active in past month	Age

Table 7: Regression analysis used to calculate degrees of correlation among responses

Appendix I: Internal Dashboard Assembly

Place & Safety Dashboard

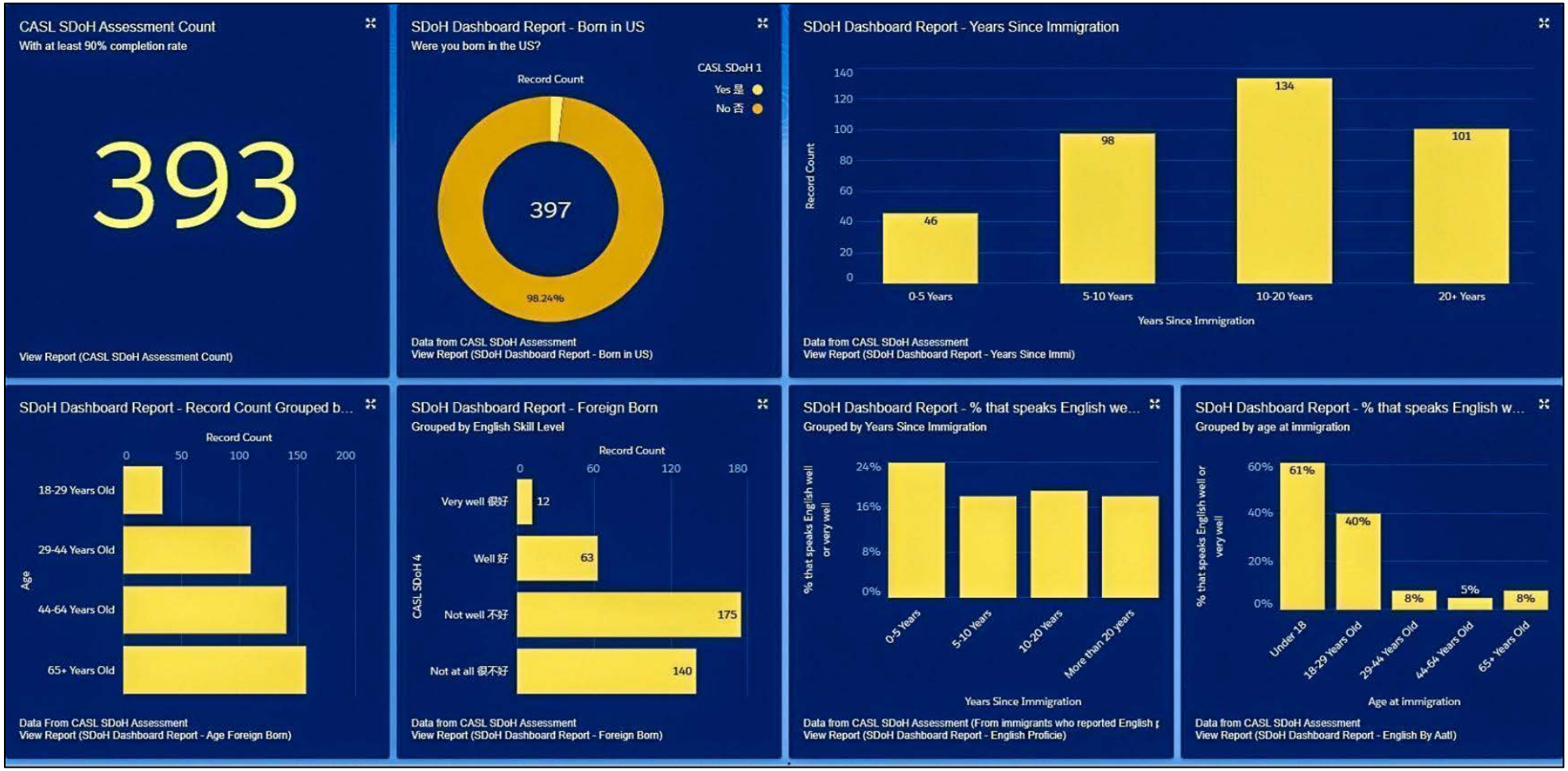


Figure 35: Place and Safety Dashboard

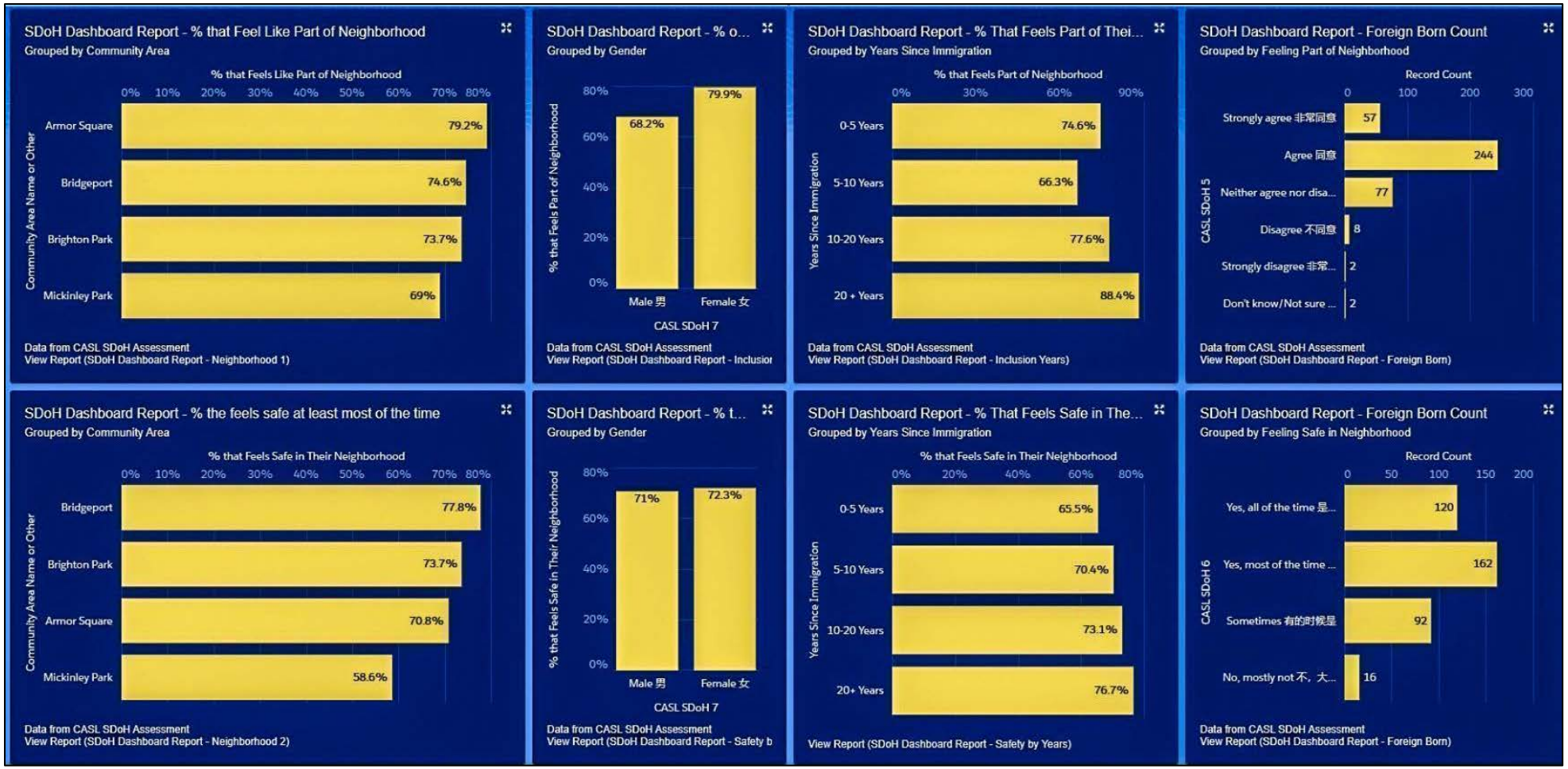


Figure 36: Place & Safety Dashboard (continued)

Housing & Financial Dashboard

Figure 37: Housing and Financial Dashboard

Figure 38: Housing and Financial Dashboard (continued)

Health Visits and Costs & Health Fitness & Behaviors Dashboard(s)

Figure 39: Health Visits and Costs & Health Fitness & Behaviors Dashboard

Figure 40: Health Visits and Costs & Health Fitness & Behaviors Dashboard (continued)

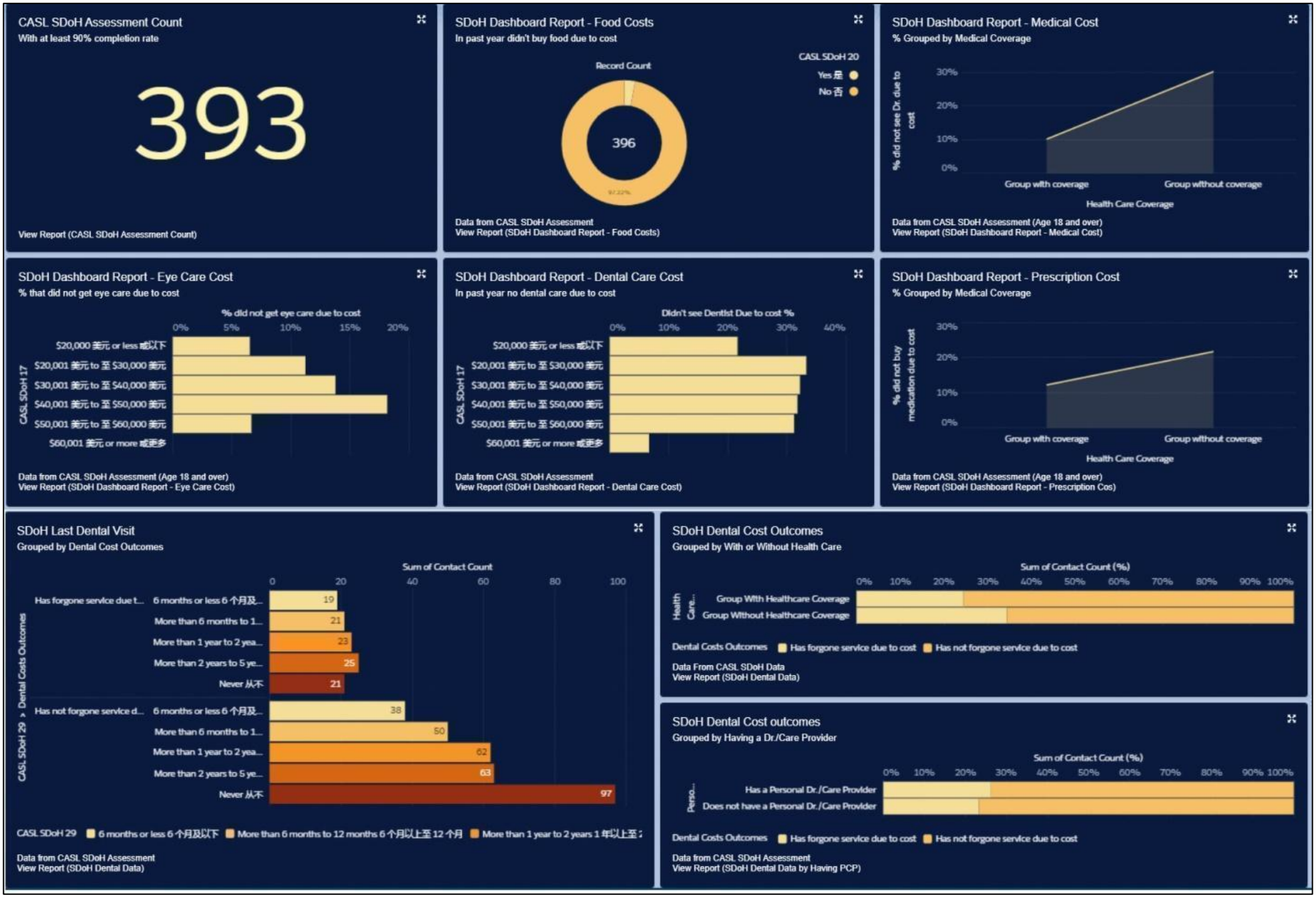


Figure 41: Health Visits and Costs & Health Fitness & Behaviors Dashboard (continued)

References and Notes

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[6] National Association of Community Health Centers, Association of Asian Pacific Community Health Organizations, Oregon Primary Care Association, Institute for Alternative Futures. Accelerating Strategies to Address the Social Determinants of health: Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences. 2016. http://www.nachc.com/client//PRAPARE_Abstract_Tool_April_2016.pdf.

[7] This report refers to clients participating in the assessment pilot as “participants” or “respondents” and may be used interchangeably throughout the following sections.

[8] Chicago Health Atlas 2.0 incorporates data from Chicago Department of Public Health, Chicago Department of Family & Support Services, Chicago Fire Department, Chicago Police Department, Chicago Public Schools, Kirwan Institute for the Study of Race and Ethnicity, Illinois Department of Human Services, Illinois Department of Public Health, Illinois Department of Transportation, US Census Bureau, US Centers for Disease Control and Prevention, US Department of Labor

[9] The CASL SDoH Assessment is not considered a research instrument and is intended solely for CASL clients.

[10] Asking questions about their health in response to where they work and play in response to SDoH domains.

[11] With the exception of “Don’t Know/Not Sure” or “Refused” answer choices

[12] Cited by Chicago Health Atlas indicators.

[13] Regression analysis was used to calculate the degree to which responses correlated with each other.

[14] Due to sampling method (convenience), a true regression analysis was not feasible. Only descriptive statistical methods were used for the most part in accounting for bias.

[15] Nahm F. S. (2017). What the P values really tell us. The Korean journal of pain, 30(4), 241–242. https://doi.org/10.3344/kjp.2017.30.4.241

[16] Imperfect.

[17] CASL pilot data exists only as a baseline measure.

[18] Considering this exercise was intended to explore gaps in public datasets, caution is strongly recommended when drawing conclusions.

[19] Alleged.

[20] A *t*-test, as defined by the University of Connecticut, is “one type of inferential statistics. It is used to determine whether there is a significant difference between the mean [or average] of two groups.” The probability of a particular outcome, in this case, how CASL participants stack up to Chicago Health Atlas data, is compared with a critical value known as a *t*-score using a *one-tailed t*-test. Our *t*-scores were calculated using a 95% confidence interval, meaning that based on a *t*-table, we can isolate (within our limitations) the degree to which CASL participants differ from Chicago Health Atlas participants.

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[23] "Habits such as smoking, inactivity, poor diet, and drug or alcohol abuse change a person's vulnerability to illness and account for some of the health differences between people of different social classes. But people in poorer communities also are likely to face more environmental hazards and more stressful living conditions while having fewer resources to deal with their effects." Association of Health Care Journalists, 2020. Available here.

[24] A *t*-test, as defined by the University of Connecticut, is "one type of inferential statistics. It is used to determine whether there is a significant difference between the mean [or average] of two groups." The probability of a particular outcome, in this case, how CASL participants stack up to Chicago Health Atlas data, is compared with a critical value known as a *t*-score using a *one-tailed t*-test. Our *t*-scores were calculated using a 95% confidence interval, meaning that based on a *t*-table, we can isolate (within our limitations) the degree to which CASL participants differ from Chicago Health Atlas participants.

[25] The criteria for sampling error could not be attained due to non-random sampling procedures. Therefore, sampling bias was limited to responses with at least 90% completion. The recommended sample size for CASL's entire client population (~5,000) is approximately 350 with a margin of error of 5 percent and a confidence level of 95 percent.

[26] "The U.S. Department of Health and Human Services (HHS) defines health literacy as "the degree to which individuals have the capacity to obtain, process, and understand basic health information needed to make appropriate health decisions."
U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. National action plan to improve health literacy. Washington (DC): Author; 2010.
Ratzan SC, Parker RM. Introduction. In: Selden CR, Zorn M, Ratzan SC, Parker RM, editors. National Library of Medicine current bibliographies in medicine: health literacy. Bethesda (MD): National Institutes of Health, U.S. Department of Health and Human Services; 2000. NLM Pub. No: CBM 2000-1.

[27] The CASL Center for Social Impact did not verify whether CASL participants in the pilot were using services from our local health partners (i.e. clients and/or patients at both CASL and for instance, Northwester Memorial).

[28] National Academies of Sciences, Engineering, and Medicine. 2017. Communities in action: Pathways to health equity. Washington, DC: The National Academies Press. doi: 10.17226/24624.

[29] "On one level, it (health literacy) relates to one's ability to access and understand information needed to make appropriate health decisions. At the same time, it also includes the ability of health providers and their institutions to provide accessible and meaningful information." Association of Health Care Journalists, 2020. Available here.

[30] Healthcare.gov, 2020. A federal government website managed and paid for by the U.S. Centers for Medicare & Medicaid Services. Health Insurance Marketplace is a registered trademark of the Department of Health and Human Services. Available here.

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[43] "Habits such as smoking, inactivity, poor diet, and drug or alcohol abuse change a person's vulnerability to illness and account for some of the health differences between people of different social classes. But people in poorer communities also are likely to face more environmental hazards and more stressful living conditions while having fewer resources to deal with their effects." Association of Health Care Journalists, 2020. Available here.

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[46] U.S. Department of Health and Human Services (HHS), Office of Disease Prevention and Health Promotion. 2008 Physical activity guidelines for Americans. Washington, DC: HHS; 2008.

[47] It should be noted that race and ethnicity categories are grouped together during a client's intake and do not account for categories of race and ethnicity as determined by the U.S. Census Bureau.

[48] Please note that since the two samples differ in size and scope, several observations caution when analyzing and/or interpreting the data.

[49] Other employment categories participants could choose include being out of work, a homemaker, student, or retiree.

[50] *Caution is warranted when interpreting the 5% figure due to a suppressed sample size (not enough respondents to be accurately represent a particular area or region).

[51] The Chicago Health Atlas suggests that crowded housing impacts individual health. However, the definition of one person per room remains too vague to determine to what extent crowded housing would be deemed detrimental to one's health. Furthermore, depending on the household, a one person: one room ratio may not be considered "crowded" according to some cultures. For this reason, crowded housing data collected during the pilot sequence is not included in this report.

[52] It is important to note that in this pilot, we did not ask what form of health coverage participants had, which would offer more details forf how age might play a factor in public or private coverage offerings.

[53] Chicago Health Atlas. Chicago Department of Public Health, Healthy Chicago Survey, 2018. Available here.