

SPACECAT

SUICIDE, OVERDOSE, AND ADVERSE CHILDHOOD
EXPERIENCES PREVENTION CAPACITY ASSESSMENT TOOL

STATE, TERRITORIAL,
AND FREELY ASSOCIATED
STATE HEALTH AGENCIES
NATIONAL REPORT 2022

The Association of State and Territorial Health Officials (ASTHO) created the Suicide, Overdose, Adverse Childhood Experiences Prevention Capacity Assessment Tool (SPACECAT) in collaboration with the [Centers for Disease Control and Prevention \(CDC\)](#) and the [National Association of County and City Health Officials \(NACCHO\)](#). The [SPACECAT](#) is a collaborative self-assessment tool that assists state, local, and territorial/freely associated state health agencies in taking inventory of their capacity to address the intersection between adverse childhood experiences (ACEs), suicide, and overdose. There is an [intergenerational impact associated with these issues](#) because addressing or preventing one area (e.g., suicide or overdose) among adults decreases the risk of the others (e.g., ACEs) among youth.

THE TOOL IS STRUCTURED AROUND THREE MAIN COMPONENTS:

- 1** Background on health agencies' ACEs, suicide, and overdose programs.
- 2** Characteristics of health agencies' infrastructure that support ACEs, suicide, and overdose prevention.
- 3** Evidence-based ACEs, suicide, and overdose prevention strategies.

THE GOALS OF THE SPACECAT ARE TO:

- Catalyze health agencies' conversations on infrastructure, topical capacity assets, and needs to address the intersection between ACEs, suicide, and overdose.
- Aid health agencies in identifying priorities, strengths, and opportunities to improve ACEs, suicide, and overdose prevention.
- Encourage collaborative discussions and partnerships to expand ACEs, suicide, and overdose prevention.

ASTHO sent the SPACECAT to 59 state and territorial/freely associated state health agencies between Oct. 25, 2021, and Jan. 7, 2022. Health agency leadership helped to identify the primary health agency staff and their programmatic teams, if any, for ACEs, suicide, and overdose prevention. Participating health agency staff provided one response on behalf of their health agency. In total, 43 health agencies participated (38 states, three territories, and two freely associated states), yielding a response rate of 73%. For more information on SPACECAT data for local health agencies, visit [NACCHO's website](#).

Data were collected using an electronic survey programmed and distributed through Qualtrics. Question types included five-point capacity scales, yes/no options, multiple choice, and open-text entries. There were [37 questions](#) aligned with 21 specific topic areas across eight general categories in two domains: "Topical Capacity" and "Infrastructure Capacity." ASTHO developed the SPACECAT using the [Adverse Childhood Experiences Capacity Assessment Tool](#) (ACECAT). ASTHO modeled the ACECAT after a tobacco capacity assessment tool developed by CDC and RTI International and adapted the tool to focus on state and territorial/freely associated state capacity to work on social and behavioral health issues. The structure of the SPACECAT is informed by theoretical frameworks on public health infrastructure.¹ ASTHO, CDC, and NACCHO developed the questions to comprehensively understand health agencies' capacity to address ACEs, suicide, and overdose.

During analysis, ASTHO calculated capacity scores to provide an easy way to quantitatively summarize an agency's capacity as indicated by its survey responses. This approach allowed ASTHO to aggregate and report capacity levels across topics, program areas, and groups of agencies (including nationally). To calculate the capacity scores, ASTHO first assigned each survey response a pre-defined score, ranging from 0% (i.e., no capacity) to 100% (i.e., full capacity). The SPACECAT survey included questions with several different response types (e.g., yes/no, four-point scales). Consequently, each question type scored required a different response-scoring approach based on the number and nature of possible responses.² For instance, for the yes/no question, ASTHO scored "no" as 0% and "yes" as 100%. See the box on page 4 for a more complex example. For full details on the scoring approach for each question type, see Appendix A, which thoroughly explains the capacity scoring methodology.

To calculate national capacity scores for each topic and program area reported here, ASTHO first calculated each agency's average score across all responses within a topic for each program area. The national score is the average of those agency scores. To help convey the qualitative meaning of these scores, ASTHO created thresholds to differentiate beginner, intermediate, and advanced capacity. Based on the results of the SPACECAT pilot project, ASTHO understood that these three capacity categories would be more meaningful and actionable than precise quantitative scores. ASTHO staff used professional judgment to determine that the thresholds should be equally spaced across the range of scores, with each capacity level representing one-third of the possible range of scores from 0% to 100% (see Figure 1). The lowest third of scores were categorized as beginner capacity level, the middle third as intermediate, and the upper third as advanced.

FIGURE 1:
Capacity score thresholds for determining capacity levels.

Capacity Levels	Capacity Scores
Beginner	< = 33%
Intermediate	34 – 66%
Advanced	67 – 100%

¹ [The Component Model of Infrastructure: A Practical Approach to Understanding Public Health Program Infrastructure: Consideration of an Applied Model of Public Health Program Infrastructure: Measuring infrastructure: A key step in program evaluation and planning.](#)

² To simplify the analysis, some items were not included in the capacity scoring. These included the questions on capacity challenges and all open-ended questions. Nevertheless, these data were included in reporting to individual agencies.

**Capacity-Scoring Example:
Incorporating Perspectives of
People with Lived Experience**

Respondents were asked to report the extent to which they "intentionally incorporate the perspectives of **people with lived experience** (e.g., families and/or involved youth, persons in recovery, survivors of suicide) to inform programmatic decisions and your overall work." For each of the three program areas, respondents could provide one of three responses: "Never," "Sometimes," or "Always." ASTHO assigned capacity scores of 0%, 50%, and 100%, respectively, to those responses. Those individual response scores could be averaged across all program areas and/or across multiple agencies.

For instance, imagine two agencies with the following responses. ASTHO would assign each agency a capacity score and capacity level for its responses, as shown below. Further, those scores could be summarized across agencies to see overall average capacity levels. Scores can also be averaged across different program areas. For instance, Agency 1 above would have a cross-program average capacity score of 50%, and a cross-program capacity level of Intermediate.

AGENCY 1			
Program Area	Response	Score	Capacity Level
ACEs	Never	0%	Beginner
Suicide	Sometimes	50%	Intermediate
Overdose	Always	100%	Advanced

AGENCY 2			
Program Area	Response	Score	Capacity Level
ACEs	Always	100%	Advanced
Suicide	Always	100%	Advanced
Overdose	Sometimes	50%	Intermediate

BOTH AGENCIES		
Program Area	Average Score	Capacity Level
ACEs	50%	Intermediate
Suicide	75%	Advanced
Overdose	75%	Advanced

Jurisdictions provided information on their infrastructure capacity across all three program areas. The infrastructure section covered multiple subdomains that affect program capacity, implementation, and sustainability. The tool assessed networked partnerships, leadership, managed resources, data, and strategic planning and shared planning. The national report only highlights a portion of the state, territorial, and freely associated state results from each section. You can find all the results of the data in the SPACECAT dashboard at <https://my.astho.org/spacecat/home>.

Partnerships and Leadership

Health agencies selected the overall level at which their agency coordinates activities with critical partners to prevent ACEs, suicide, and overdose. All three program areas had an advanced capacity score, with suicide the highest (83%), followed by overdose (79%) and ACEs (67%). Health agencies also selected the types of public/private partners they coordinate with for ACEs, suicide, and overdose prevention activities. Figure 2 displays the average capacity scores by program area for public/private partnerships, averaged across all respondents and partner types.

Suicide prevention was the highest-scoring program area, with the greatest number of partnership types having an advanced capacity level (12-of-20 indicators). Suicide prevention had only two partnership types with a beginner capacity level: employment service organizations and housing service organizations. Overdose prevention had nine partnership types with an advanced capacity level and only two partnership types with a beginner capacity level: employment service organizations and veteran serving organizations.

As Figure 2 shows, the participating agencies reported the lowest partnership capacity within the ACEs prevention program area. Contrasted with suicide and overdose prevention programs, respondents indicated beginner capacity for five types of organizations for ACEs prevention. Nonetheless, ACEs prevention programs show an advanced capacity level for seven of the twenty partnership types. Figure 3 (page 6) provides more detail, displaying the ACEs capacity score for each type of partnership organization. The size of the boxes correlates with the percentages displayed below to visually represent the capacity level to partner with these organizations. The results show that health agencies that have more partners from various sectors have increased capacity to address the complexities of the intersection of ACEs, suicide, and overdose.

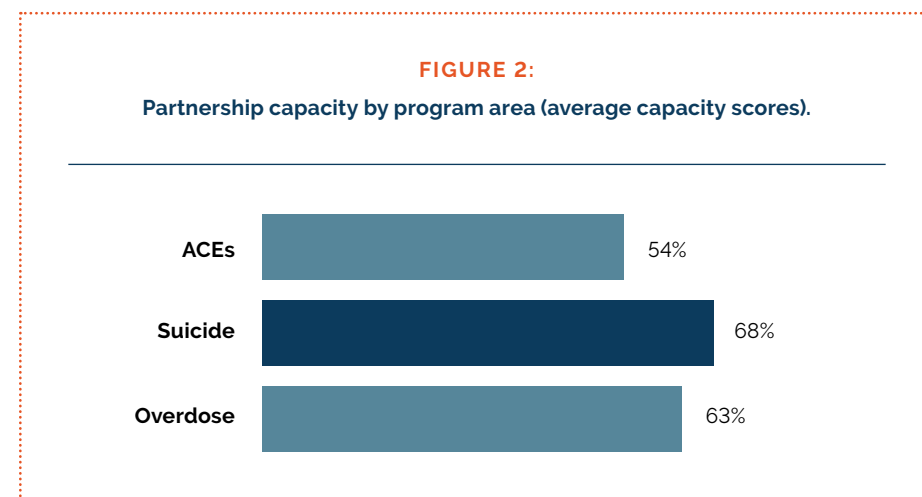
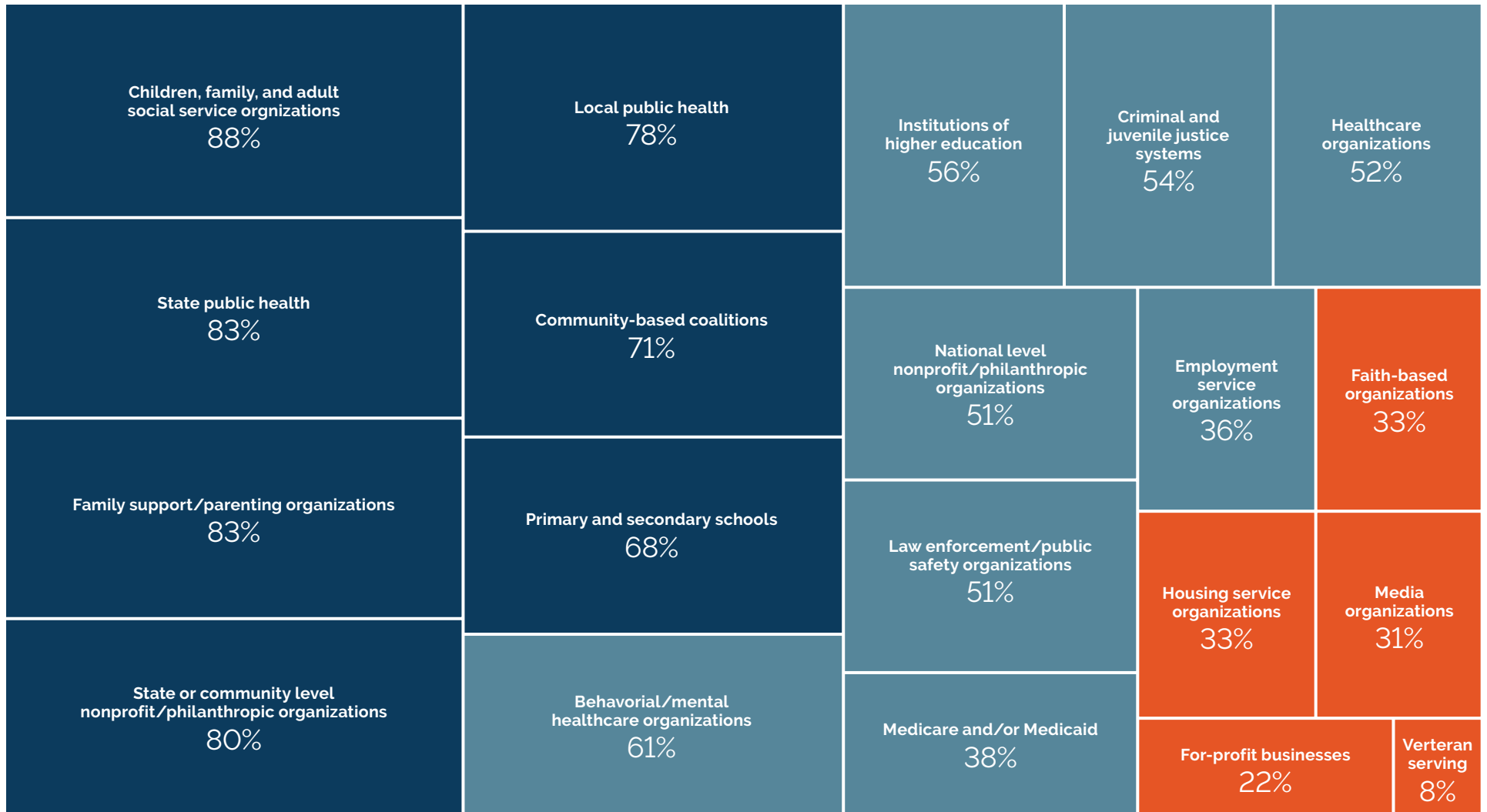


FIGURE 3: ACEs prevention partnership capacity (average capacity scores by organization type).



Employment service organizations, housing service organizations, and veteran serving organizations are partnership types that each have a **beginner capacity level** for at least two program areas.

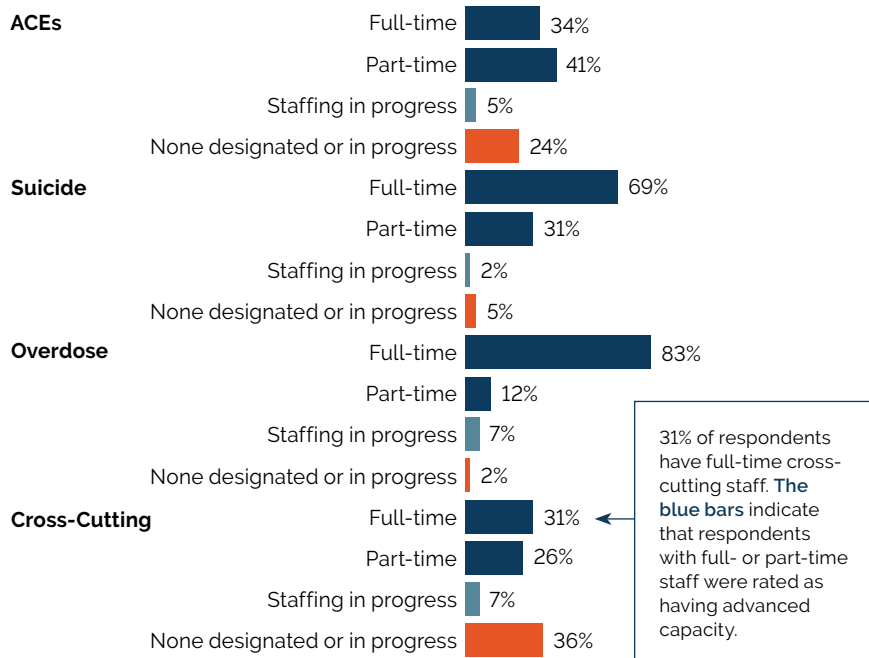
MANAGED RESOURCES

Staffing:

Health agencies indicated whether they had part-time or full-time staff in each programmatic area. Nationally, 83% of health agencies reported having full-time staff in overdose prevention compared to 69% for suicide prevention. Cross-cutting prevention was the area with the least designated staffing. In Figure 4, 36% of state health agencies reported not having designated cross-cutting staff. This score is similar to health agencies that reported having designated full-time cross-cutting staff that works across more than one programmatic area.

FIGURE 4:

Type of staff assigned, by program area (percentage of respondents)*

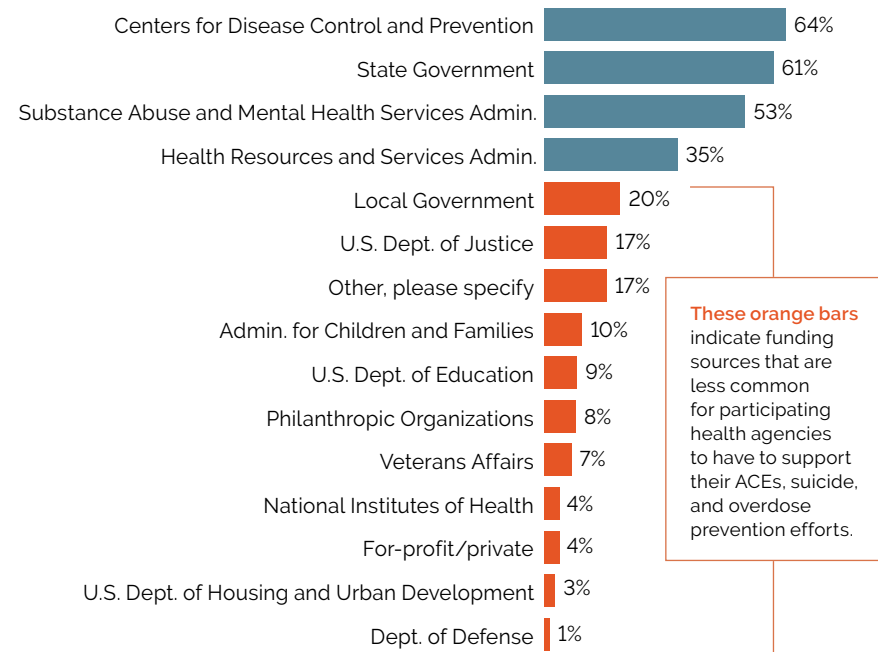


Funding:

Health agencies indicated the funding sources used for ACEs, suicide, and overdose prevention work within their agency. The top funding source across all three programmatic areas was CDC, followed by state government, and the Substance Abuse and Mental Health Services Administration. Among the options listed in the SPACECAT, the Department of Defense, NIH, and the U.S. Department of Housing and Urban Development were the funding sources least commonly used by health agencies.

FIGURE 5:

Average percentage of participating health agencies for funding sources across all program areas.



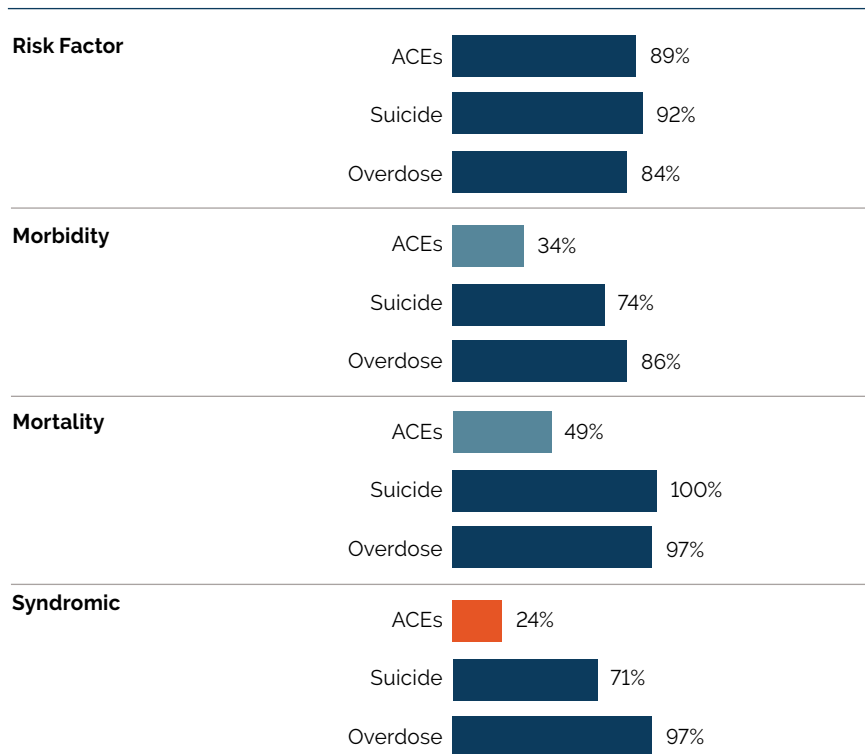
* Agencies could select multiple responses within each program area, such as indicating the presence of both full-time and part-time staff for ACEs. As such, program area percentages can total to greater than 100%. Bar color indicates the capacity level assigned to an agency that only selected one item. Appendix A details capacity-level calculations for other situations.

DATA AND SURVEILLANCE

Health agencies indicated how they were using surveillance data in each program area, which included risk factor, morbidity, mortality, and syndromic data (e.g., Behavioral Risk Factor Surveillance System, National Medical Services Information System, Vital Records Death Data, Drug Overdose Surveillance and Epidemiology System). On average, health agencies had advanced capacity to use surveillance data in suicide and overdose prevention. However, health agencies had a lower capacity for using surveillance data for ACEs. Figure 6 breaks down the capacity averages for each data source to address ACEs, suicide, and overdose prevention.

FIGURE 6:

Types of surveillance data used to inform programmatic work (percent of respondents who answered 'yes').

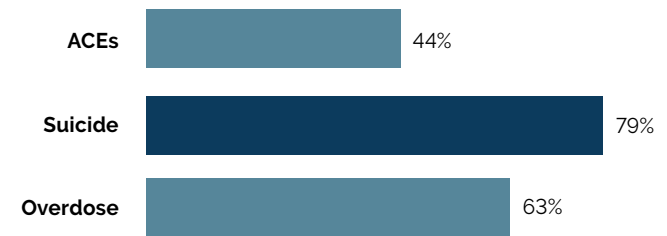


SHARED PLANNING AND STRATEGIC PLANS

Health agencies indicated whether they have a strategic plan that addresses the following topics: ACEs prevention, suicide prevention, and overdose prevention. The highest percentage (79%) of health agencies indicated having a strategic plan for suicide prevention.

FIGURE 7:

Percentage of respondents who said yes to having a strategic plan to address ACEs, suicide, and overdose programs.



Topical capacity refers to multiple strategies that work together to form a comprehensive public health response. For this section, jurisdictions specified their capacity to address risk factors and protective factors by program area (ACEs, suicide, and overdose) based on each level of the [Social-Ecological Model](#). This section also looked at a health agency's capacity to implement evidence-based strategies to intervene across the areas of ACEs, suicide, and overdose prevention. Finally, this section features health agency capacity to address health disparities and workforce capacity. The national report only highlights a portion of the state, territorial, and freely associated state results from each section. You can find all the results of the data in the SPACECAT dashboard at my.astho.org/spacecat/home.

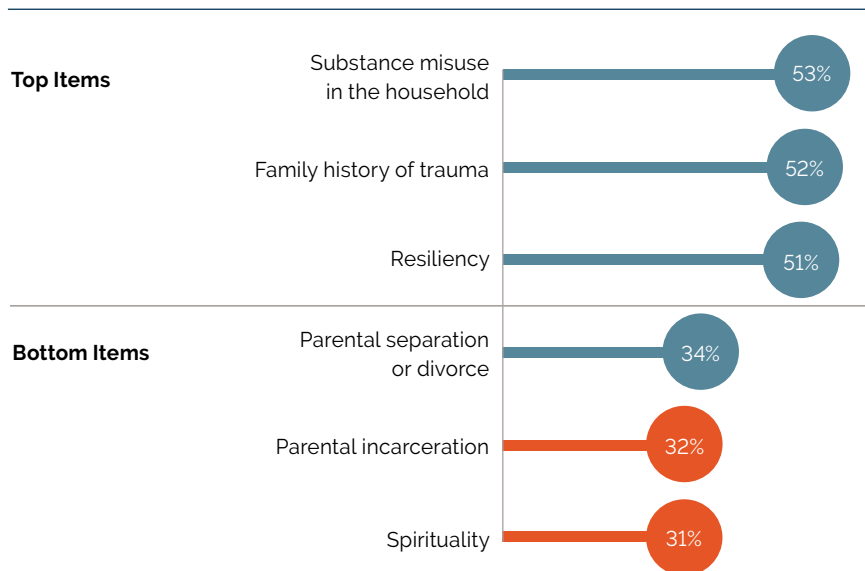
RISK FACTORS AND PROTECTIVE FACTORS

Individual and Relationship:

Health agencies identified their capacity to address individual and relationship risk and protective factors for ACEs, suicide, and overdose. However, many health agencies do not directly address individual and relational risk and protective factors but instead collaborate with community partners. Respondents had the highest capacity to address substance misuse in the household, family history of trauma, and resiliency.

FIGURE 8:

Overarching individual and relationship risk and protective factors across all program areas. Reflects the top and bottom three of average capacity score.

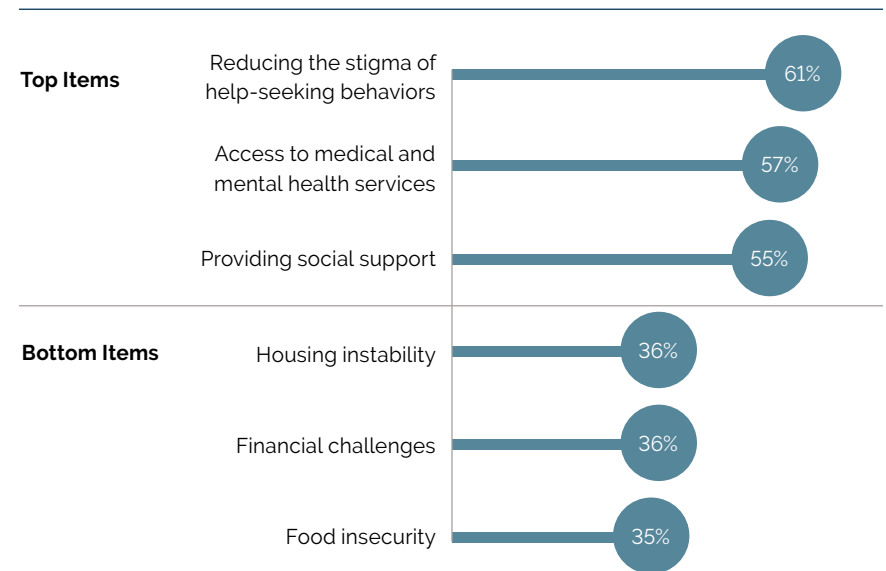


Community and Societal:

Health agencies identified their capacity to address community and societal risk and protective factors for ACEs, suicide, and overdose. Respondents reported the highest capacity to address reducing stigma, improving access to quality medical and mental health services, and providing social support across all ACEs, suicide, and overdose prevention program areas at the intermediate level.

FIGURE 9:

Overarching community and societal risk and protective factors for ACEs, suicide, and overdose. Reflects the top and bottom three of average capacity score.



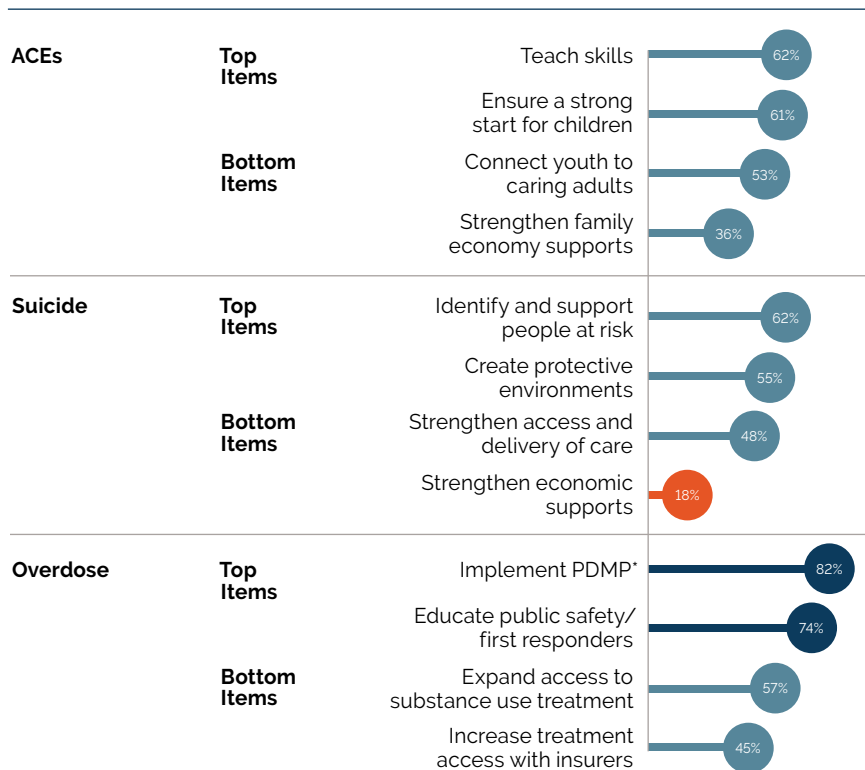
PREVENTION STRATEGIES

Interventions:

Health agencies responded with their capacity to address interventions related to ACEs, suicide, and overdose intervention. Among the three programmatic areas, respondents had the lowest capacity for implementing evidence-based suicide prevention interventions. On the other hand, respondents had the highest capacity for overdose-related interventions.

FIGURE 10:

Average capacity scores for the top 2 and bottom 2-scoring interventions for each program area.



*Prescription Drug Monitoring Programs (PDMP)

Prevention Efforts:

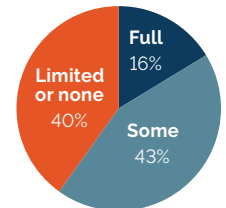
Health agencies specified their capacity to implement prevention efforts at each level of intervention. An estimated 71% of health agencies had intermediate or advanced capacity for secondary prevention, followed by 62% for tertiary prevention and 59% for primary prevention. Figure 11 excludes respondents who indicated "N/A" to the question.

FIGURE 11:

Percent of all programs areas capacity to address prevention efforts.

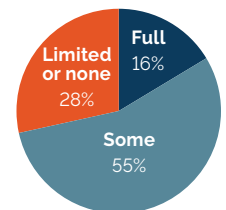
Primary Prevention

Respondents making efforts that aim to stop ACEs, suicide, and overdose from occurring in the first place by reducing negative risk conditions and promoting protective factors.



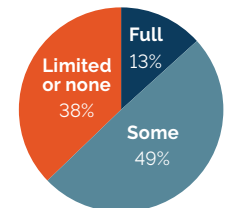
Secondary Prevention

Respondents making efforts that aim to identify individuals at increased or high risk for ACEs, suicide, or overdose.



Tertiary Prevention

Respondents making efforts that aim to reduce the health impact of ACEs, suicide and/or suicide attempts, or overdose.



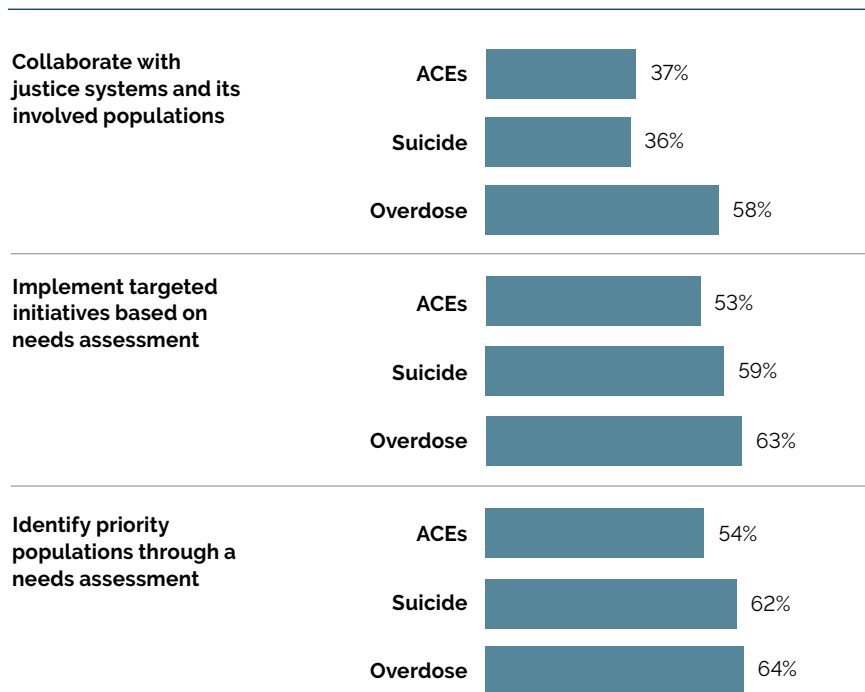
HEALTH DISPARITIES

Health Disparities Strategies:

Health agencies indicated each program area's level of capacity to address health disparities by populations disproportionately affected by ACEs, suicide, and overdose. Across the indicators, respondents had the highest capacity to address health disparities related to overdose. On average, respondents reported a lower capacity to address health disparities related to ACEs compared to suicide or overdose, which could indicate the lack of direct resources and funding for this programmatic area. In addition, as displayed in Figure 12, health agencies reported a lower capacity to collaborate with justice systems and its involved populations.

FIGURE 12:

Average capacity scores for all respondents nationwide, by strategy and program area.

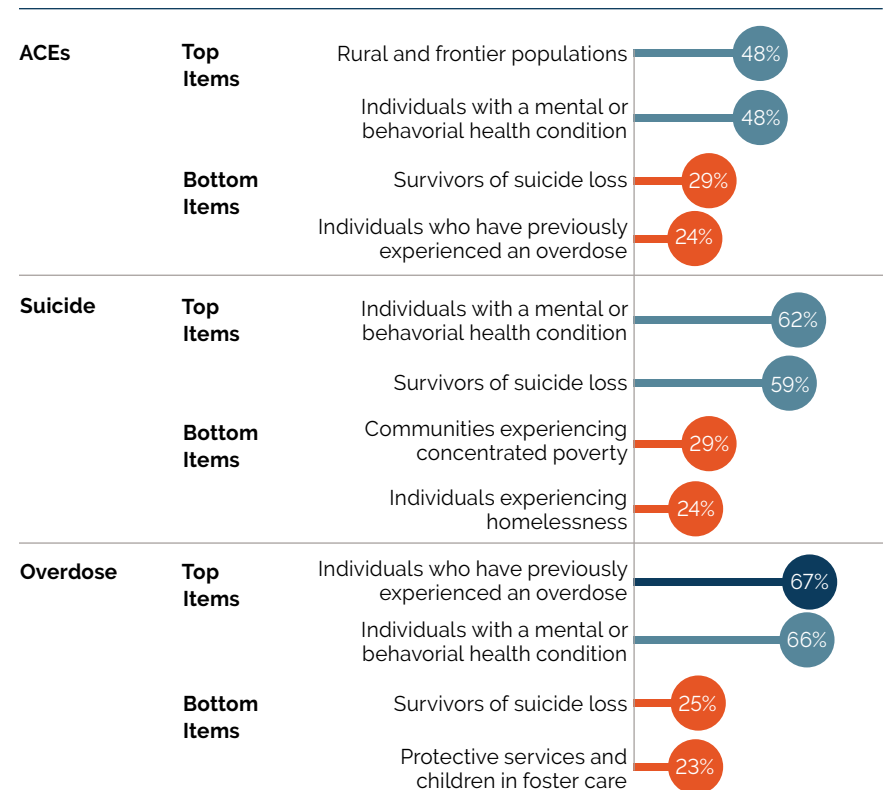


Populations Disproportionally Affected:

Health agencies selected each program area's level of capacity to address health disparities with each population disproportionately affected by ACEs, suicide, and overdose. While all three programmatic areas had varying high and low-capacity indicators, overdose had the highest capacity (i.e., individuals who have previously experienced an overdose) and lowest capacity (i.e., protective services and children in foster care).

FIGURE 13:

Average capacity scores for all respondents for populations disproportionately affected. Displays the top two and bottom two scoring populations for each program area.



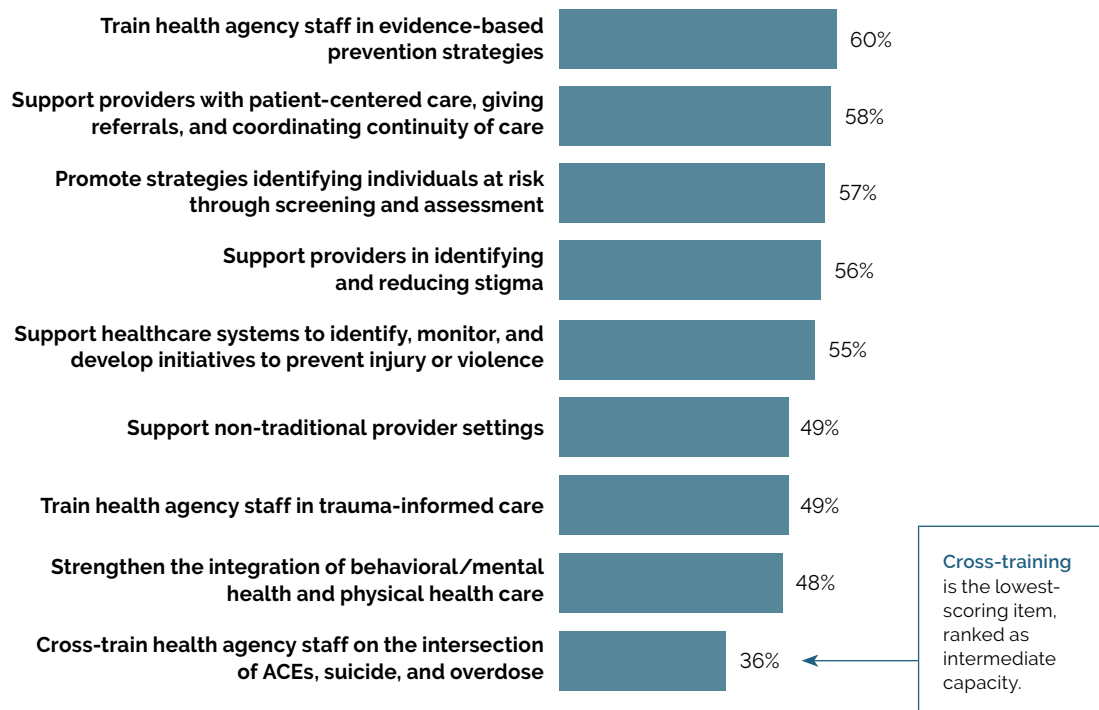
WORKFORCE CAPACITY

Education and Training:

Health agencies indicated intermediate capacity to educate and train the workforce for each program area to address ACEs, suicide, and overdose. Respondents reported the lowest capacity to cross-train health agency staff in the intersection of ACEs, suicide, and overdose prevention, which indicates a need for national funders and technical assistance providers to help health agencies understand how to communicate about and implement strategies that address shared risk and protective factors for these issues. Respondents reported having the highest capacity to train health agency staff in evidence-based prevention strategies.

FIGURE 14:

Average capacity scores across all program areas for workforce training.



Cross-Cutting Capacity Section:

Jurisdictions provided their assessment of cross-collaboration among ACEs, suicide, and overdose. These areas of the SPACECAT specifically highlighted intersectional work among the three program areas. Health agencies had intermediate to advanced capacity for all cross-cutting questions in the SPACECAT. They had the highest capacity for coordinating with partners, which complements the partnership capacity score by program area on page 4.

TABLE 1:

Capacity to perform cross-cutting work related to the intersection of ACEs, suicide, and overdose (average capacity score).

	Average Score
Level at which the health agency coordinates activities with partners to prevent ACEs, suicide, and overdose.	76%
Use surveillance data to address the intersection of ACEs, suicide, and overdose prevention.	64%
Level of shared planning for ACEs, suicide, and overdose among programmatic staff.	62%
Level of coordination within the health agency across formal strategic plans to prevent ACEs, suicide, and overdose.	57%



Limitations associated with the fielding of the SPACECAT include the following:

01

The SPACECAT was a point-in-time self-assessment and can only reflect the knowledge of the handful of staff who completed the tool. Responses relied on the availability of those who could participate in completing the tool. It is possible that some jurisdictions did not have the benefit of having staff from all three program areas collaborate to fill out the SPACECAT. ASTHO administered the SPACECAT during the rise of the COVID-19 Omicron variant when health agencies were often experiencing competing priorities and organizational changes that likely affected their responses. In addition, COVID-19 temporary deployments and high staff turnover rates may have impacted health agency capacity to complete the SPACECAT.

02

The SPACECAT is a self-assessment specifically to measure capacity at health agencies. ASTHO only fielded the SPACECAT to state/territory/freely associated state public health agencies and did not send it to other state departments that may be responsible for leading ACEs, suicide, or overdose prevention efforts. For example, state departments of mental health often lead prevention efforts for suicide prevention and substance abuse treatment efforts. Child welfare agencies often lead ACEs prevention efforts, particularly for individual or family-based interventions. Therefore, the SPACECAT may not accurately depict the full state/territorial/freely associated state capacity for ACEs, suicide, and overdose since it does not necessarily reflect all of the work of partner agencies.

03

It is important to note that the available federal funding opportunities differ across ACEs, suicide, and overdose prevention. The national SPACECAT results indicate that state and territorial/freely associated state health agencies reported lower capacity to address ACEs than the other two areas, which could be due to differences in funding opportunities across these issues. For example, CDC recently created funding to support a small number of states under its "Preventing Adverse Childhood Experiences: Data to Action" cooperative agreement, whereas most states receive substantial funding for several overdose prevention cooperative agreements. Given the impact ACEs has on multiple health outcomes, states and territories/freely associated states may have been using a variety of funding sources to support aspects of ACEs work, even if they did not have distinct ACEs projects.

These data are meant to spark conversation and dive deeper into ways programmatic staff can braid and layer their work among ACEs, suicide, and overdose prevention. State, territorial, and freely associated state health agencies showed strength in staffing and cross-collaboration with relatively advanced capacity for ACEs, suicide, and overdose prevention. Capacities are well developed for suicide and overdose for some categories, including surveillance data, partnerships, and strategic planning, but are lower for ACEs prevention. On average, participating jurisdictions reported a lower capacity to address ACEs prevention. The results may reflect that more funding, staffing, and data resources are available to directly support overdose and suicide prevention efforts. State and territorial/freely associated state health agencies reported a higher capacity to address overdose and suicide prevention than ACEs prevention. This is likely driven by the high percentage of sustained funding for overdose prevention efforts and more dedicated full-time staff that reflects the work done in secondary and tertiary prevention during the opioid epidemic over the last decade.

Across the board, states, territories, and freely associated states reported working with multiple partners across all their ACEs, suicide, and overdose prevention work, which is promising. However, there is an opportunity for states and territories/freely associated states to work with their multidisciplinary partners to creatively leverage resources and intentional work at the intersection of ACEs, suicide, and overdose prevention efforts.

Overall, states and territories reported lower capacity to address community and societal-level risk and protective factors, particularly those related to strengthening economic supports like addressing housing and food security. Health agencies also indicated they had a lower capacity to cross-train staff on how to work at the intersection of ACEs, suicide, and overdose prevention. Given that working to strengthen economic supports would increase protective factors across all three issues, it could be beneficial for federal agencies and national partners to continue to help states build their capacity in these areas, particularly related to building health agency capacity to inform state policy on these issues. Finally, the SPACECAT results indicate a need to continue to imbed health equity throughout strategies to prevent ACEs, suicide, and overdose.

There are many tangible steps that public health (e.g., health agencies, public health funders) can take to increase capacity, including focusing on more upstream prevention and developing more intentional collaboration among the three programmatic areas. These recommendations include addressing the intersection of ACEs, suicide, and overdose prevention in strategic planning to increase cross-collaboration. Public health should also consider leveraging the SPACECAT data to braid and layer funding opportunities to address shared root causes of ACEs, suicide, and overdose. ASTHO can play an important role in helping increase capacity among states, territories, and freely associated states to work on the intersection of these issues by providing technical assistance tailored to meet the needs of individual health agencies. States, territories, and freely associated states are encouraged to engage with ASTHO to identify ways to enhance existing strengths and areas for improvement related to preventing ACEs, suicide, and overdose.

The abovementioned recommendations cover a small sample of opportunities for states, territories, and freely associated states to take in their ACEs, suicide, and overdose prevention efforts. To learn more, visit [ASTHO's website](#) for resources and recommendations relevant to each capacity element (e.g., managed resources and data/surveillance).

This appendix details how the SPACECAT results were processed for analysis, reporting, and display in interactive dashboards, emphasizing capacity scoring and the thresholds for determining capacity level. Readers can access the full SPACECAT [here](#).

Capacity scores are intended to approximate an agency's capacity level, both at the level of individual survey responses and aggregated across responses. The scores can help identify agencies' strengths and potential areas for improvement. Capacity scores are also the basis for determining capacity levels (beginner, intermediate, or advanced). The possible range of capacity scores is from 0% (no capacity) to 100% (full capacity).

Which responses were considered when calculating the capacity score?

Completed surveys consisted of hundreds of response items nested within 37 questions. Not all response items were scored. After substantial and careful consideration, ASTHO determined that the following kinds of response items were not relevant or suitable for capacity scoring:

- **Items related to challenges.** The response items associated with the question on challenges were not scored due to the difficulty of relating those responses directly to capacity levels.
- **Items providing respondent identity,** such as agency location and name.
- **Unstructured or open-ended responses.** The SPACECAT provided several opportunities for respondents to provide free-form text responses, such as to describe initiatives their agency prioritizes in overdose prevention work. ASTHO did not find that such text could be consistently and reliably coded to assign capacity scores.
- **Responses to the future-planning question,** a yes/no question about whether an agency planned to use information learned from SPACECAT in the future.
- **Responses of "N/A" or "I don't know."**
- **Most nonresponses,** including items that were (1) unseen by the respondent or (2) seen but unanswered, were excluded from capacity score calculations. However, there are two exceptions to how nonresponses were treated:
 1. **Multi-part question about agency staffing,** where multiple responses could be selected, and where the agency had selected at least one item. The scoring methodology assumes that items left blank were not skipped but were actually negative responses. In other words, these items are not considered nonresponses.
 2. **Matrix questions,** where a response was requested for each program area. An example is the funding sources question, in which respondents could select the program area(s) for which a statement was true. An excerpt of the funding sources question (showing only a few of the question's matrix rows) is provided for illustration on the following page, with example responses provided:

As a team, please indicate the funding sources used for ACEs, suicide, and overdose prevention work within your agency. Select all that apply. Please leave the response blank if you are unsure about the answer.

	None	ACEs Prevention	Suicide Prevention	Overdose Prevention
Local Government		✓		
State Government		✓	✓	
Philanthropic organizations (e.g., regional, state, and local foundations)				
For-profit/private	✓			

For this type of question, if an agency selected any column within a row, any unmarked columns in that row were treated as implicit negative responses. For the example response for 'Local government,' ACEs is a 'yes' response, while Suicide and Overdose are treated as 'no' responses (even though no response was explicitly provided). However, if an entire row was left blank in a matrix question, as in the case of 'Philanthropic organizations,' all response items in that row are treated as nonresponses and are therefore not scored.

How were responses scored?

Other than the items detailed in the previous section, all remaining survey response items were included in the capacity scores. To determine capacity scores, first, a score was assigned to each response. Many questions ask for separate responses by program area (ACEs, suicide, or overdose) and/or separate responses for multiple items in a matrix. Scores were initially assigned at the most granular level, with a separate score for each individual item response within a question.

Response scores were assigned differently depending on each question's content and response structure. For example, whether it was a yes/no question, or asked respondents to choose the best response from a scale (i.e., Likert scale questions). Scores were assigned as follows:

For **yes/no response items**, an affirmative response was scored 100%, and a negative response was scored 0%. As noted above, yes/no response items that were skipped as part of multi-select questions were treated as negative responses rather than nonresponses.

Responses to 3-point Likert scale questions were assigned scores of 0%, 50%, or 100%.

Responses to 4-point Likert scale questions were assigned scores of 0%, 33%, 67%, or 100%.

For the **multi-part question about agency staffing** by program area, the responses to all parts were considered together when scoring. The assigned score was 100% if the agency had any designated staff (part-time or full-time, either one being considered 'full capacity'). If the agency did not have designated staff but did have staffing in progress, a score of 50% is assigned. Otherwise, the score is 0%.

See Table 1 (page 17) for full details on the item score assignments for each question.

TABLE 1: Points scored by question item response.

Question Response Structure	Response options and points assigned per response per item	Question topic
Yes/No	Selected (yes) = 100%; not selected (no) = 0%	Sustained funding
		Resource sharing
		Leadership interactivity across sectors and levels
		Data use by program area (e.g., risk factor surveillance data, morbidity surveillance data)
		Funding sources (e.g., State government, For-profit/private, CDC)
		Agency strategic plan in place addresses... (e.g., injury and violence)
		Types of public/private partners (e.g., housing service organizations)
3-point Likert	Never = 0%; Sometimes = 50%; Always = 100%	Intentional incorporation of lived experience perspectives
	No = 0%; In progress = 50%; Yes = 100%	Use of surveillance data to address the intersection of program areas
4-point Likert	None = 0%; Limited = 33%; Some = 67%; Full = 100%	Program area capacity by intervention level (primary, secondary, tertiary)
		ACEs capacity-specific interventions (e.g., strengthen economic supports to families)
		Suicide capacity-specific interventions (e.g., promote connectedness)
		Overdose capacity-specific interventions (e.g., increase the capacity of medical examiners)
		Capacity to address health disparities (e.g., identify priority populations)
		Capacity to address health disparities for specific populations (e.g., immigrant populations)
		Capacity to support providers (e.g., in identifying and reducing stigma)
		Capacity to address shared risk and protective factors (e.g., physical abuse)
		Capacity operating different partnerships
Multi-part	None = 0%; Loose = 33%; Close without a common plan = 67%; Close with a common plan = 100%	Coordination level with critical partners
	None = 0%; Minimal = 33%; Some = 67%; Significant = 100%	Coordination level internally across program areas (e.g., some, significant) Shared planning across program areas (e.g., some, significant)
Multi-part	None = 0%; PT and/or FT selected = 100%; FT and PT no but In progress selected = 50%	Staffing by program area (FT, PT, In progress, None)

How were response scores aggregated?

After scores were assigned to each item response, capacity scores could be calculated across various aggregations.

Within a single agency:

- *Question scores by program area:*

A multi-item (matrix) question's score for a single program area (or the cross-cutting area) was determined by taking the mean of the item (row) scores for each item the agency responded to. An example of this type of question is the funding sources question, which has rows for different funding sources. Rows left blank were excluded from the calculation, while blanks within a row that included any positive responses were treated as negative responses. Note: A cross-cutting question does not ask for information about specific program areas (i.e., ACEs, suicide, or overdose).

- *Averaging scores across program areas:*

When question scores were averaged across all program areas, the average was calculated as the mean of item scores, not the mean of program area scores. (The latter, the average of program area scores, could sometimes produce a different result, such as with questions that have a different number of items for each program area.) For example, the question about agency strategic plans has six total items, one for ACEs, suicide, and overdose, and three for cross-cutting. The average score for the strategic plan question across all program areas is the average score across all six items rather than an average of individual scores for the four areas.

Averaging scores across agencies:

- Capacity scores could be averaged across groups of agencies, such as for a region or all respondents nationwide. To do this, the capacity scores for each item were averaged across agencies, giving each item equal weight. For instance, an average of all agencies' capacity scores for staffing across all program areas would first add up the scores for all response items across all agencies and program areas. That sum would then be divided by the count of program area responses provided by all agencies. In a multi-item matrix question, agencies who left an entire item (row) blank were excluded from the response count for that item. Agencies that did not respond to an entire question were excluded from the score calculation for that question.

How were the capacity levels assigned?

During analysis, ASTHO calculated capacity scores to provide an easy way to quantitatively summarize an agency's capacity as indicated by its survey responses. This approach allowed ASTHO to aggregate and report capacity levels across topics, program areas, and groups of agencies (including nationally). To calculate the capacity scores, ASTHO first assigned each survey response a pre-defined score, ranging from 0% (i.e., no capacity) to 100% (i.e., full capacity). The SPACECAT survey included questions with several different response types (e.g., yes/no, four-point scales). Consequently, each question type scored required a different response-scoring approach based on the number and nature of possible responses. For instance, for the yes/no question, ASTHO scored "no" as 0% and "yes" as 100%. To simplify the analysis, some items were not included in the capacity scoring. These included the questions on capacity challenges and all open-ended questions. Nevertheless, these data were included in reporting to individual agencies.

To calculate national capacity scores for each topic and program area reported here, ASTHO first calculated each agency's average score across all responses within a topic for each program area. The national score is the average of those agency scores. To help convey the qualitative meaning of these scores, ASTHO created thresholds to differentiate beginner, intermediate, and advanced capacities. Based on the results of the SPACECAT pilot project, ASTHO understood that these three capacity categories would be more meaningful and actionable than precise quantitative scores. ASTHO staff used professional judgment to determine that the thresholds should be equally spaced across the range of scores, with each capacity level representing one-third of the possible range of scores from 0% to 100% (see Figure 1). The lowest third of scores were categorized as beginner capacity level, the middle third as intermediate, and the upper third as advanced.

More precisely, capacity thresholds were set at 33.33% or higher for intermediate, and 66.5% or higher for advanced. ASTHO originally intended the advanced threshold to be at 66.67% to provide exact equal intervals between the thresholds. However, this equal spacing led to some situations in which assigned capacity levels could appear inconsistent with the reported scores, which were rounded to the nearest percentage using standard rules. For instance, if an agency had an average score of 66.60%, it would have been assigned an intermediate capacity level, but the displayed score would be 67%, which looks like it should be in the advanced level. With the threshold set at 66.5%, any number that rounded to 67% or higher was considered advanced capacity. ASTHO determined that adjusting the threshold improved the interpretability and clarity of the results without creating a meaningful change.

How were the data processed?

Responses to the tool were (1) exported from Qualtrics into Excel; (2) cleaned, partly scored, and pivoted within Tableau Prep; and (3), analyzed and displayed with Tableau. Item-level scoring was accomplished within Tableau Prep, while aggregations were undertaken with Tableau.

FIGURE 1:
Capacity score thresholds for determining capacity levels.

Capacity Levels	Capacity Scores
Beginner	< = 33%
Intermediate	34 – 66%
Advanced	67 – 100%

Out of 59 state, territorial, and freely associated state health agencies to which ASTHO sent the SPACECAT, 43 agencies participated, yielding a response rate of 73%. See Table 2 below for the list of participating agencies.

TABLE 2: Agencies that participated in SPACECAT.

Alaska	Mississippi	Republic of the Marshall Islands
California	Missouri	Rhode Island
Colorado	Montana	South Carolina
Commonwealth of the Northern Mariana Islands	Nebraska	South Dakota
Federated States of Micronesia	Nevada	Tennessee
Florida	New Hampshire	Texas
Georgia	New Mexico	US Virgin Islands
Indiana	New York	Utah
Kansas	North Dakota	Vermont
Kentucky	Ohio	West Virginia
Louisiana	Oklahoma	Wisconsin
Maine	Idaho	
Maryland	Illinois	
Massachusetts	Oregon	
Michigan	Pennsylvania	
Minnesota	Puerto Rico	