

# Data and Informatics Infrastructure Assessment Summary

2024



# Contents

Executive Summary.....	5
Assessment Results.....	5
Recommendations .....	6
Next Steps .....	6
Introduction.....	7
Assessment Development.....	7
Assessment Design and Dissemination.....	8
Response Rate .....	8
Assessment Limitations .....	8
Assessment Results .....	8
Demographics.....	8
Type of Agency.....	8
Location.....	9
Population Size Served .....	11
Agency Staff Size .....	12
Health Data and Informatics Budget.....	14
Job Titles .....	15
Inspection Data .....	16
Review and Use.....	16
Data Use for Quality Improvement .....	17
Data Use for Program or Communication Activities .....	19
Electronic Data .....	19
Gathering and Storage .....	19



Website Access.....	21
Oversight.....	21
Data and Informatics Systems.....	22
System Types.....	22
System Storage.....	22
Common Data Sets, Data Standards, and Data Sharing Practices.....	23
Environmental Health Informatics System.....	24
Challenges.....	26
Summary and Conclusions.....	28
Opportunities for Next Steps.....	29
Reference.....	32
Appendix A.....	33
Data and Informatics Infrastructure Assessment Questions.....	33



## About this Project

*This project was 100% funded through support from the Strengthening Public Health Systems and Services through National Partnerships to Improve and Protect the Nation's Health and the Strengthening Environmental Public Health Systems, CDC-RFA-OT18-1802. The contents are those of the author and do not necessarily represent the official views of, nor an endorsement from the Centers for Disease Control and Prevention.*



## Executive Summary

Environmental public health relies heavily on data and informatics to drive evidence-based decision-making and address the complex interplay between the environment and human health. Data encompasses a broad spectrum of information, including air and water quality, chemical exposures, climate change, and socioeconomic factors. Informatics involves the application of IT, computer science, and data management techniques to collect, store, analyze, and interpret health-related data.

Despite the importance of these data, there is no standardized system for sharing environmental public health data across U.S. jurisdictions. Over 3,300 local agencies have developed their own isolated data systems, leading to a fragmented landscape that hinders collaboration, research, early identification of emerging issues, and coordinated emergency responses. This lack of integration also contributes to increased costs, limited data sharing, reduced research opportunities, and diminished effectiveness in addressing health and environmental risks.

To address this fragmented landscape and highlight the implications for public health practice and actionable and practical ways to promote change, the National Environmental Health Association (NEHA), with funding from the Centers for Disease Control and Prevention (CDC) conducted a Data and Informatics Infrastructure Assessment to better understand the current landscape of environmental public health data and informatics systems across state, territorial, local, and tribal jurisdictions nationwide. The assessment aimed to identify gaps and opportunities in data and informatics infrastructure to inform resources and support toward creating a more reliable, effective, sustainable, and standardized national data system.

## Assessment Results

The assessment results showed that many agencies are actively collecting and storing electronic records across environmental public health topic areas, but there is limited standardization and integration across jurisdictions and programs, hindering effective data sharing, comparison, and analysis. The assessment also emphasized the challenges agencies face such as inadequate technology, insufficient resources, limited IT support, data entry and data quality issues, and difficulty sharing and transferring data with partners.

Assessment respondents expressed a desire for user-friendly data dashboards to easily identify trends and patterns, underscoring the need for improved tools and capabilities of staff to analyze and report on environmental public health data. Assessment respondents also shared signs of progress, with a significant



proportion of their agencies actively reviewing technologies to provide data management and data sharing, and many having dedicated staff who oversee data and information systems.

## Recommendations

Assessment respondents provided several recommendations and next steps to address the identified challenges and support the development of a more robust, standardized, and effective environmental public health data and informatics system. This feedback included developing and promoting standardized data sets and formats, investing in modern technology and software solutions, identifying opportunities available with increased funding and resources, fostering stronger collaboration between environmental public health agencies and IT departments, implementing standardized data entry processes and quality control measures, establishing clear data-sharing policies and protocols, developing user-friendly data analysis and reporting tools, and providing ongoing training and support to environmental public health staff.

## Next Steps

We recommend additional and alternate data collection efforts to inform the design and implementation of more effective, user-centered data and informatics solutions. These data collection efforts could include conducting qualitative follow-up interviews, researching, and compiling case studies of successful initiatives, distributing assessments to targeted groups, and conducting a follow-up needs assessment with more targeted audiences. Prioritizing these efforts will strengthen the capacity of environmental public health agency staff to collect, share, and use data for evidence-based decision-making and program improvement, which can ultimately lead to better health outcomes for the communities they serve.



## Introduction

Data and informatics are essential components of environmental public health practice. Data refer to the raw facts and figures collected through various means such as inspections, environmental monitoring, and health surveillance. Informatics, in turn, is the science of using these data to improve human health and the delivery of health services. It is the application of IT, computer science, and data management techniques to collect, store, analyze, and interpret health-related data. By leveraging data and informatics, environmental public health professionals can identify patterns and trends, support evidence-based decision-making, facilitate data sharing and collaboration, and develop more effective interventions to address the complex interplay between the environment and human health.

Environmental public health data encompass a broad spectrum of scientific and regulatory information, including air and water quality, chemical exposures, climate change, radiation, noise pollution, vectorborne diseases, the built environment, and socioeconomic factors. Despite the wide-ranging nature of these data, there is no standardized system or process for sharing environmental public health data across U.S. jurisdictions. The public health system in the United States encompasses over 3,300 entities that qualify as Local Health Departments (LHDs) according to the National Association of County and City Health Officials' (NACCHO) definition. In certain states, the structure of the public health system incorporates both local and regional offices operating under the state health agency (Cunningham et al., 2024). As a result, potentially thousands of local agencies may have isolated data systems, leading to a fragmented landscape that hinders collaboration, research, early identification of emerging issues, and coordinated emergency responses. This lack of integration also contributes to increased costs, limited data sharing, reduced research opportunities, and diminished effectiveness in addressing health and environmental risks.

To address this fragmented landscape, efforts must make environmental health data and informatics more accessible and important. Through funding from the Centers for Disease Control and Prevention (CDC), the National Environmental Health Association (NEHA) is highlighting the public health impacts, improving data literacy, and sharing the practical benefits of informatics in environmental public health initiatives.

## Assessment Development

Our first activity was to develop and disseminate a Data and Informatics Infrastructure Assessment to understand the current landscape of environmental public health data and informatics infrastructure across environmental public health programs in state, territorial, local, and tribal jurisdictions nationwide (See



Appendix A for the assessment questions). The assessment aimed to identify gaps and opportunities in data and informatics infrastructure to better provide resources and support toward creating a more reliable, effective, sustainable, and standardized national environmental public health data system.

## Assessment Design and Dissemination

We developed the Data and Informatics Infrastructure Assessment in collaboration with CDC and subject matter experts. The assessment was promoted from October 2023 to January 2024 via our owned media channels, including social media (i.e., Facebook, Instagram, Twitter, LinkedIn), website, newsletter, and direct email to our more than 7,000 members (note: approximately 40% of our members are from local, state, territory, or tribal agencies). The click rate on the assessment in our newsletter was slightly more than 1% while the click rate in our direct email was more than 6%. The average click-through rate for our industry is approximately 2.7%.

## Response Rate

With a target audience of approximately 2,800 individuals, representing 40% of the 7,000 members, we set a goal of achieving a 10% response rate, which would equate to receiving between 280 and 300 completed assessments. Upon the conclusion of the survey, we obtained 158 valid responses from our intended participants.

## Assessment Limitations

Despite the lower response rate than expected (158 valid responses), the assessment provides valuable insights that will inform future evaluations. While the data may not be representative of all environmental public health programs nationwide, it still offers meaningful learnings for exploratory purposes. The assessment's findings will guide the direction of upcoming evaluation efforts, enabling more targeted and effective assessments in the future.

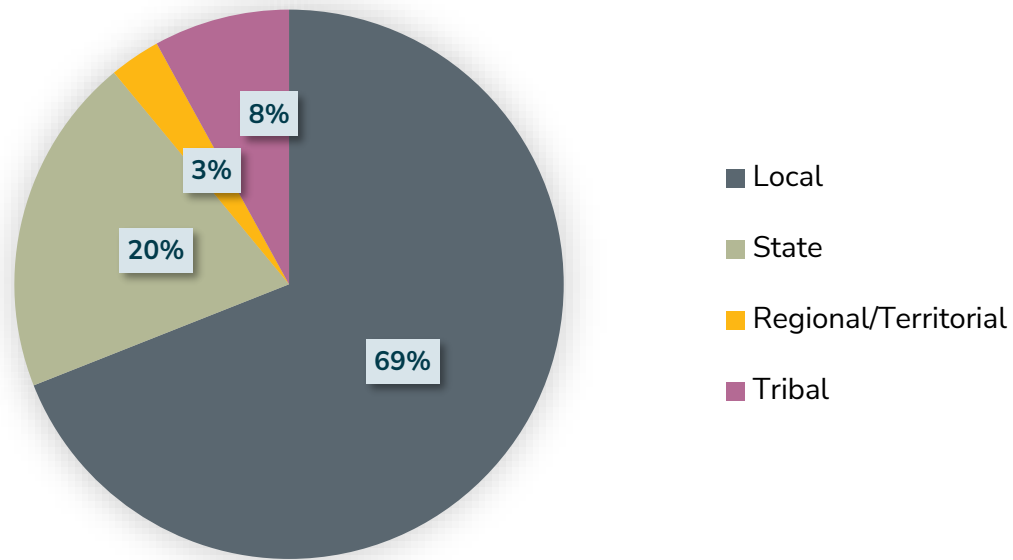
## Assessment Results

### Demographics

#### Type of Agency

Of the 158 respondents to the assessment, 69% indicated that they worked at local agencies, followed by 20% at state agencies, 8% at tribal agencies, and 3% at regional or territorial agencies (Figure 1).



Figure 1. Agency Type for Assessment Respondents ( $N = 158$ )

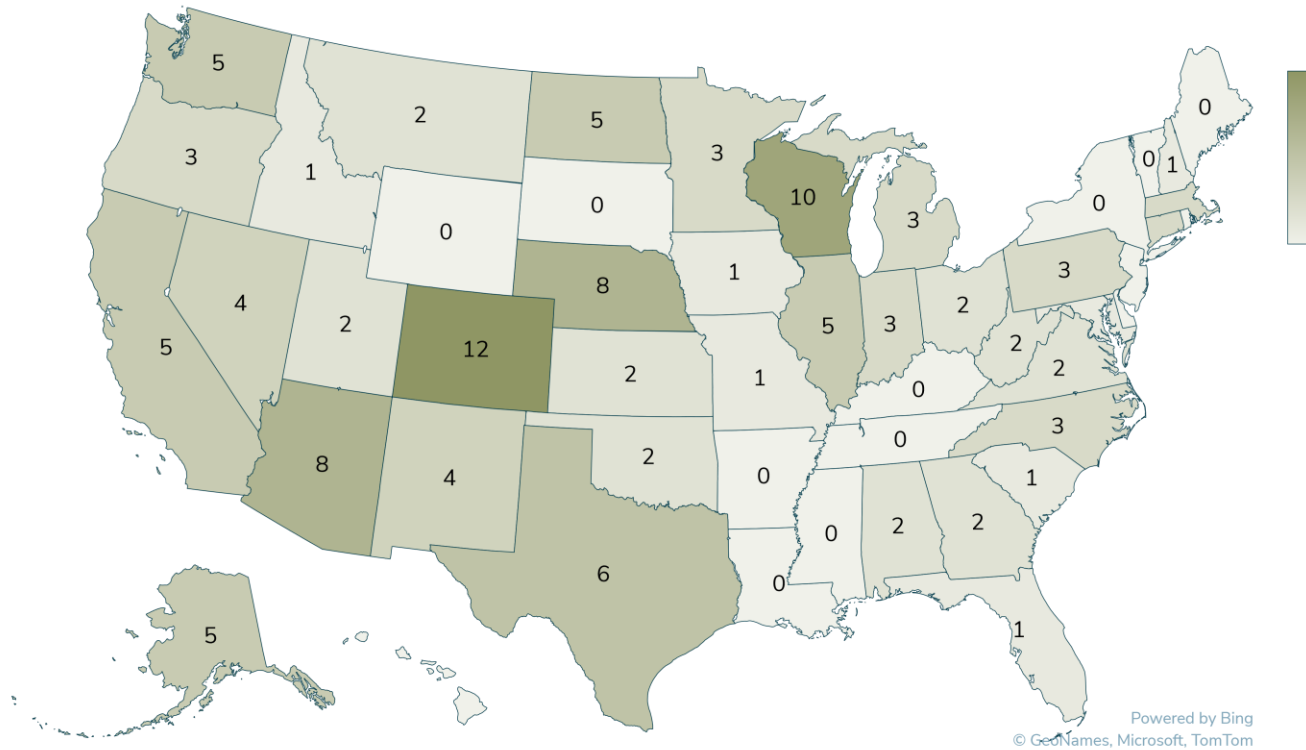
### Location

Colorado had the largest number of assessment respondents (12, 9%). Other states with larger assessment respondents included Wisconsin (10, 8%), Arizona (8, 6%), Nebraska (8, 6%), Alaska (5, 4%), and Illinois (5, 4%).

Several states and territories—including Arkansas, Delaware, Guam, Hawaii, Kentucky, Louisiana, Maine, Mississippi, New Jersey, New York, the Northern Marianas Islands, Puerto Rico, Rhode Island, South Dakota, Tennessee, Vermont, the Virgin Islands, and Wyoming—had no assessment respondents. Other regions had representation ranging from 1 to 5 respondents (Figure 2).



Figure 2. Geographic Representation of Assessment Respondents ( $n = 130$ )



When breaking down the assessment responses by the Federal Emergency Management Agency (FEMA) region, 9 out of 10 FEMA regions are represented (Table 1). FEMA Region 2 did not have any assessment respondents. While most of the FEMA regions are accounted for, some regions and states have significantly higher representation than others.



Table 1. Responses by Federal Emergency Management Agency (FEMA) Region ( $n = 126$ )

FEMA Region	# of Responses	Responses by State
1	7	Connecticut (3), Maine (0), Massachusetts (3), New Hampshire (1), Rhode Island (0), Vermont (0)
2	0	New Jersey (0), New York (0), Puerto Rico (0), Virgin Islands (0)
3	10	Delaware (0), Maryland (1), Pennsylvania (3), Virginia (2), District of Columbia (2), West Virginia (2)
4	9	Alabama (2), Florida (1), Georgia (2), Kentucky (0), Mississippi (0), North Carolina (3), South Carolina (1), Tennessee (0)
5	26	Illinois (5), Indiana (3), Michigan (3), Minnesota (3), Ohio (2), Wisconsin (10)
6	12	Arkansas (0), Louisiana (0), New Mexico (4), Oklahoma (2), Texas (6)
7	12	Iowa (1), Kansas (2), Missouri (1), Nebraska (8)
8	21	Colorado (12), Montana (2), North Dakota (5), South Dakota (0), Utah (2), Wyoming (0)
9	15	Arizona (8), California (5), Hawaii (0), Nevada (4), Guam (0), American Samoa (2), Northern Marianas Islands (0)
10	14	Alaska (5), Idaho (1), Oregon (3), Washington (5)

### Organizational Structure

Of the data reported ( $n=128$ ) environmental public health programs are housed in various departments within a public health framework. Most programs (63%) are based in public health departments while others are housed in health and human services (9%), environmental services (7%), environmental protection (3%), and independent environmental health departments (2%). Additionally, 16% of respondents selected the "other" category and noted working in agriculture, engineering, regulatory affairs, environmental quality, public works, community development, building inspections, and tribal health agencies.

### Population Size Served

Overall, the group of respondents serving  $\geq 1$  million people comprised the largest segment of responses at 20%, followed by 18% of participants serving a population of 100,000–349,999. In contrast, a small percentage of respondents (9%) reported working at agencies that served a population of 350,000–499,999. Further, 7% of respondents were unsure of the population size their organization served (Table 2).



Respondents who reported working at a state agency typically served  $\geq 1$  million people (74%), while local agencies worked across all population sizes, from  $< 25,000$  to  $> 1$  million. Agencies associated with tribal, regional, or territorial entities tended to serve smaller populations.

Table 2. Responses for Population Size Served by Agency Type ( $n = 128$ )

Population Size	Local	State	Regional/ Territorial	Tribal	Total
<b>&lt;25,000 (#)</b>	10	0	1	5	16
Within agency type (%)	11	0	50	39	13
<b>25,000–49,999 (#)</b>	13	0	0	0	13
Within agency type (%)	14	0	0	0	10
<b>50,000–99,999 (#)</b>	16	0	0	1	17
Within agency type (%)	17	0	0	8	13
<b>100,000–349,999 (#)</b>	18	0	0	5	23
Within agency type (%)	19	0	0	39	18
<b>350,000–499,999 (#)</b>	9	1	1	0	11
Within agency type (%)	10	5	50	0	9
<b>500,000–999,999 (#)</b>	12	1	0	0	13
Within agency type (%)	13	5	0	0	10
<b><math>\geq 1,000,000</math> (#)</b>	12	14	0	0	26
Within agency type (%)	13	74	0	0	20
<b>Do not know (#)</b>	4	3	0	2	9
Within agency type (%)	4	16	0	15	7
<b>Total (#)</b>	94	19	2	13	128
Within agency type (%)	100	100	100	100	100

### Agency Staff Size

Based on 117 respondents to the assessment question, just less than half (48%) reported staff sizes of  $\geq 100$  people. Staff sizes ranging from 1–100 staff members accounted for a smaller proportion of the responses, with a gradual decrease in representation as the staff size increased. Respondents working at agencies that serve local or state levels most often had a staff size of  $\geq 100$  people. Only a single respondent was uncertain of the staff size of their agency (Table 3).



Table 3. Responses for Staff Size by Agency Type (*n* = 117)

Staff Size	Local	State	Regional/ Territorial	Tribal	Total
<b>1–10 (#)</b>	10	0	0	6	16
Within agency type (%)	12	0	0	50	14
<b>11–25 (#)</b>	10	2	0	2	14
Within agency type (%)	12	12	0	17	12
<b>26–49 (#)</b>	11	0	0	0	11
Within agency type (%)	13	0	0	0	9
<b>50–75 (#)</b>	10	0	0	0	10
Within agency type (%)	12	0	0	0	9
<b>76–100 (#)</b>	8	0	1	0	9
Within agency type (%)	9	0	100	0	8
<b>≥100 (#)</b>	37	15	0	4	56
Within agency type (%)	43	88	0	33	48
<b>Do not know (#)</b>	1	0	0	0	0
Within agency type (%)	1	0	0	0	0
<b>Total (#)</b>	87	17	1	12	117
Within agency type (%)	100	100	100	100	100

Specifically related to the size of the environmental public health workforce at their agency, 42% of respondents indicated an environmental public health staff size of 1–10 people while 16% reported sizes of 11–25 and 15% reported staff sizes of 26–49. Only 3% of respondents reported environmental public health staff sizes of 50–75, and 4% reported working at agencies with 76–100 staff. Teams of environmental public health staff  $\geq 100$  accounted for 14% of the respondents. Additionally, 6% were unsure of the size of the environmental health team in their organization (Table 4).

Respondents working at local agencies tended to report environmental public health staff teams of 1–10 people (51%) while respondents from state agencies predominantly reported teams of  $\geq 100$  people (41%). Respondents working at tribal agencies typically reported smaller environmental public health teams of 1–10 people and up to teams of 26–49. The one response from a regional or territorial agency had an environmental public health staff of  $\geq 100$  people.



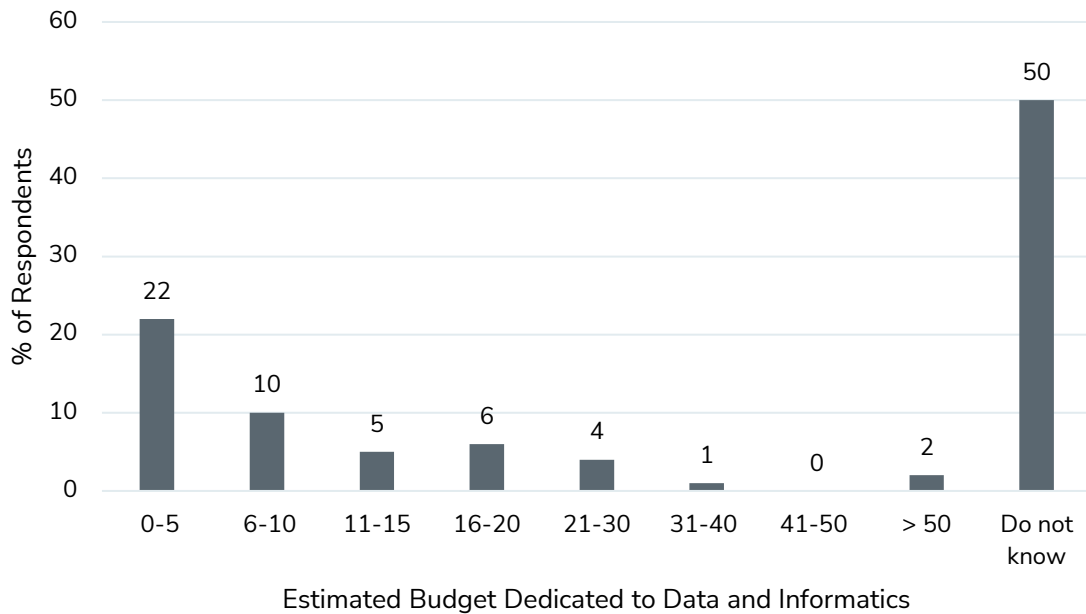
Table 4. Responses for Environmental Public Health Staff by Agency Type (n = 118)

Environmental Public Health Staff Size	Local	State	Regional/ Territorial	Tribal	Total
<b>1–10 (#)</b>	44	0	0	6	50
Within agency type (%)	51	0	0	50	42
<b>11–25 (#)</b>	14	3	0	2	19
Within agency type (%)	16	18	0	17	16
<b>26–49 (#)</b>	14	1	0	3	18
Within agency type (%)	16	6	0	25	15
<b>50–75 (#)</b>	2	1	0	0	3
Within agency type (%)	2	6	0	0	3
<b>76–100 (#)</b>	3	2	0	0	5
Within agency type (%)	3	12	0	0	4
<b>≥100 (#)</b>	8	7	1	0	16
Within agency type (%)	9	41	50	0	14
<b>Do not know (#)</b>	2	3	1	1	7
Within agency type (%)	2	18	50	8	6
<b>Total (#)</b>	87	17	2	12	118
Within agency type (%)	100	100	100	100	100

### Health Data and Informatics Budget

Of the 117 respondents, one-half (50%) were unaware of the percentage of the budget allocated to data and informatics. Among the respondents who provided an estimate, the majority indicated that ≤10% of the budget was dedicated to data and informatics, with 22% of respondents stating 0–5% and 10% of respondents indicating 6–10%. The percentages decreased as the budget allocation increased, with 5% of respondents estimating 11–15%, 6% estimating 16–20%, and 4% estimating 21–30%. Only a small fraction of respondents reported that >30% of the budget is allocated to data and informatics (Figure 3).



Figure 3. Responses for Estimated Percentage of Budget Dedicated to Data and Informatics ( $n = 117$ )

### Job Titles

Of the 118 respondents to the assessment question, environmental health professionals, health inspectors, and sanitarians constituted the largest group of reported titles, representing 50% of responses.

Environmental health supervisors, managers, and coordinators were titles reported by 36% of respondents while senior leadership roles, such as environmental health department directors, senior public health directors, and state directors, accounted for 12% of the responses. Epidemiologists and health department director/officer titles each made up approximately 5% of the responses. Other roles like administrative staff, health program assistant, health educator, policy specialist, and chief data/information officer represented 1–3% of the responses.

Of the total respondents, 8% reported other titles such as data administrator and scientist, laboratory scientist, preparedness coordinator, and specialized inspector focusing on specific areas like nuisance control and stormwater management. Notably, no respondents stated they had titles related to boards of health, state health commissioners, or IT staff/technicians/managers.



## Inspection Data

### Review and Use

Of all assessment respondents, 95 (60%) noted that inspection data were reviewed by their agencies in a variety of ways (Table 5). The most commonly noted practice among respondents was regularly reviewing past inspection data to inform decision-making, followed by running regular reports on inspection data and sharing that information with inspectors. Sharing data with external organizations and other departments within the organization was also practiced by one-third of the respondents. Nearly one-quarter of respondents, however, indicated that inspection data were stored without any standard use of it. Furthermore, another 7% of respondents selected “other.” The following table summarizes the responses.

Table 5. Responses for How Inspection Data Are Reviewed and Used (*n* = 158)

Inspection Data Review and Use	% of Respondents
Regular review to inform decision-making	54
Regular reports on inspection data and sharing with inspectors regularly	35
Share data with external organizations	34
Share data with other departments within the organization	33
Data stored but no standard use	24
Unsure	7

Respondents noted that past inspection data were primarily reviewed on an as-needed basis, particularly before conducting new inspections to gain a better understanding of the operator's history and to inform the current inspection process. Some respondents were working toward standard reports to streamline the review process. One respondent mentioned that their state randomly selects inspection data for review across all categories.

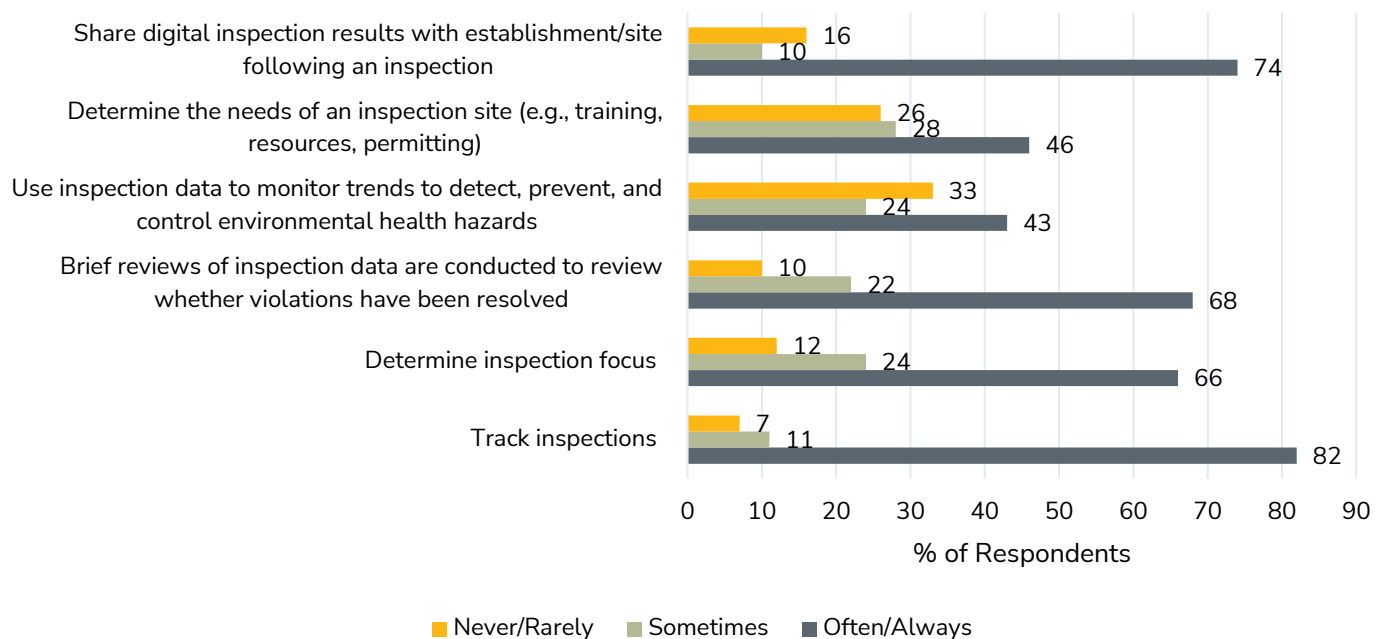
A subsequent assessment question explored the extent to which environmental public health data were used for a range of inspection-related tasks. The majority of respondents indicated that they often or always used environmental public health data for tracking inspections (82%), including the number and types of inspections conducted, the number of corrective actions, the number and type of violations, duration of inspections, and open complaints. Using inspection data for determining inspection focus—such as managing poor-performing facilities or prioritizing inspections by risk and/or due date—was reported by 66% of



respondents, while 68% reported using it for violation resolution. Further, 74% of respondents reported using it for sharing digital inspection results with establishments.

An impressive 82% of respondents reported that they often or always track inspections and 74% often or always share the digital inspection results with the establishment or site (Figure 4). Additionally, 68% of respondents often or always use data to review whether violations have been resolved, and 66% of respondents often or always use data to determine inspection focus, allowing for targeted, risk-based assessments. Other results were mixed with 43% of respondents frequently using inspection data to monitor trends, detect, prevent, and control environmental health hazards, and 46% often or always using data to determine the needs of an inspection site in terms of training, resources, and permitting.

Figure 4. Responses for Data Use for Inspection Tasks (n = 90)



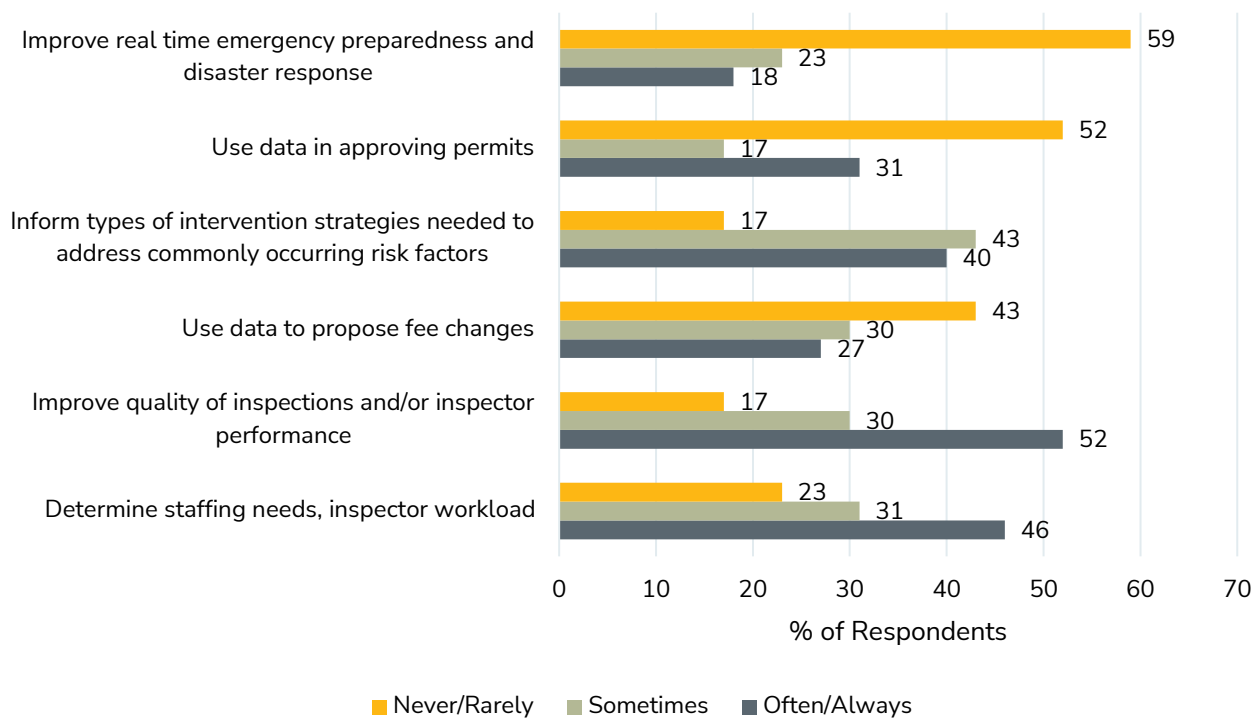
### Data Use for Quality Improvement

Assessment respondents reported using environmental public health data for quality improvement activities to different degrees within their agencies (Figure 5). Nearly one-half of the respondents (46%) reported that they often or always used data to determine staffing needs and inspector workload, while 52% of respondents said they often or always used data to improve the quality of inspections and inspector



performance. Respondents also reported that data are sometimes (43%) or often (30%) used to inform intervention strategies for addressing common risk factors. Related to using data for proposing fee changes, 43% of respondents reported rarely or never using it for this purpose. Interestingly, responses were mixed on the use of data in approving permits, with 52% rarely or never using data for this task and 31% often or always doing so. Similarly, 59% of respondents reported rarely or never using data to improve real-time emergency preparedness and disaster response.

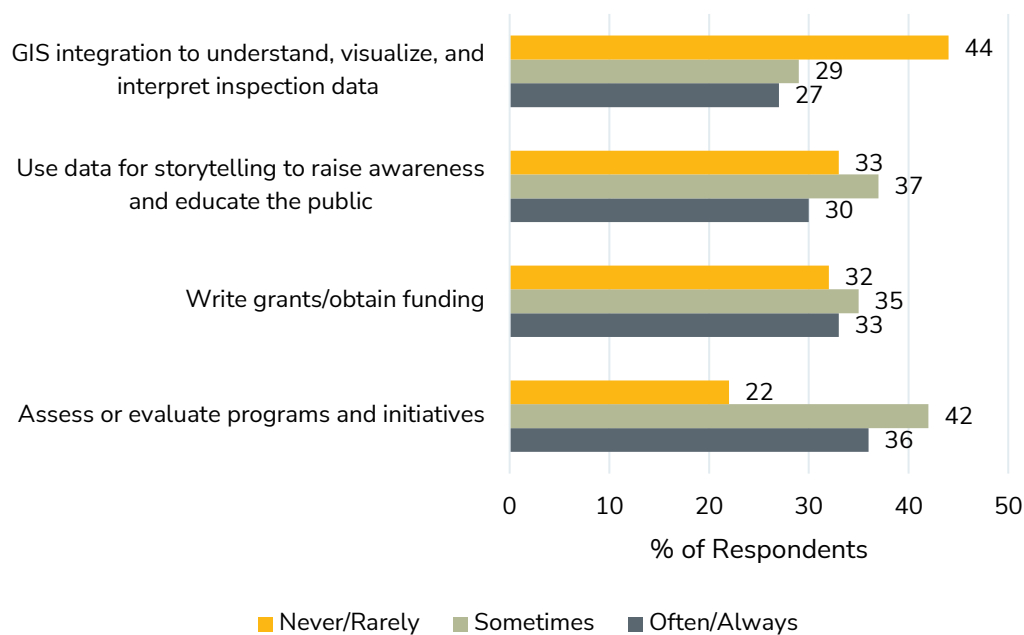
Figure 5. Responses for Data Use for Quality Improvement (n = 93)



## Data Use for Program or Communication Activities

According to the assessment respondents, environmental public health data were used to varying extents for programmatic and communication activities. The most common use was for assessing and evaluating programs and initiatives, with 42% of respondents reporting they sometimes used data for this purpose and 36% indicating that they often or always do so. Respondents also noted that they used data for writing grants and obtaining funding, with 35% sometimes using it and 33% frequently leveraging data for this task. Similarly, some respondents reported using data to raise awareness and educate the public, with 37% sometimes using it and 30% often or always doing so. The integration of GIS to understand, visualize, and interpret inspection data was less prevalent, with 44% of respondents reporting rarely or never using data for this purpose, 29% sometimes doing so, and 27% often or always incorporating GIS (Figure 6).

Figure 6. Responses for Data Use for Communication and Programmatic Activities (n = 91)



## Electronic Data

### Gathering and Storage

Respondents reported that their agencies collected and uploaded electronic records to varying degrees across different environmental public health areas (Table 6). The areas with the highest reported rates of electronic record collection and storage included:



- Body art/tattoo permitting (92%), inspections (89%), and complaints (95%)
- Retail food and temporary food service for permitting (90%), inspections (93%), and complaints (93%)
- Institutions for inspections (86%) and complaints (93%)
- Childcare facilities for inspections (88%) and complaints (80%)
- Onsite wastewater sewage for permitting (81%), inspections (89%), and complaints (85%)

Areas with lower rates of electronic record collection and uploading included:

- Climate and health across all categories, with the highest being 75% for complaints
- Vector control for permitting (17%) and inspections (52%), but a higher rate for complaints (80%)
- Hazardous waste for permitting (40%) and inspections (60%), but a higher rate for complaints (76%)
- Sampling and testing with the highest rates in water wells (70%), water systems (66%), and recreational water (55%)

Table 6. Responses for Electronic Record Collection and Uploading by Environmental Public Health Areas

Environmental Public Health Area	Permitting (%)	Inspections (%)	Complaints (%)	Sampling or Testing (%)
Body art/tattoo ( <i>n</i> = 37)	92	89	95	11
Retail food and temporary food service ( <i>n</i> = 70)	90	93	93	20
Institutions ( <i>n</i> = 29)	72	86	93	17
Childcare facilities ( <i>n</i> = 41)	61	88	80	15
Onsite wastewater sewage ( <i>n</i> = 47)	81	89	85	30
Food production/manufacturing ( <i>n</i> = 33)	79	91	91	33
Lodging/tourist accommodation ( <i>n</i> = 32)	81	88	91	6
Septage/grease handling ( <i>n</i> = 24)	54	58	92	17
Recreational water ( <i>n</i> = 47)	72	83	83	55
Solid waste ( <i>n</i> = 31)	55	68	81	23
Healthy homes ( <i>n</i> = 32)	22	66	81	31
Wastewater systems ( <i>n</i> = 32)	63	75	75	41
Hazardous waste ( <i>n</i> = 25)	40	60	76	28
Water systems ( <i>n</i> = 35)	51	77	49	66
Water wells ( <i>n</i> = 43)	40	58	56	70
Vector control ( <i>n</i> = 46)	17	52	80	41
Climate and health ( <i>n</i> = 12)	8	25	75	50



## Website Access

The most common services offered on the websites of respondent agencies, based on 87 responses, included:

- Ask a question/seek information (78%)
- Submit a complaint (75%)
- Publicly accessible environmental public health data portal/dashboard (56%)
- Request a service (56%)
- Submit a permit/license application (53%)
- Pay a fee or fine (52%)

A small percentage of respondents (5%) indicated that their websites offer none of the listed services, while 1% reported not having a public website at all. Additionally, 3% of respondents were unsure about the services provided by their agency's website.

## Oversight

### *Within Agencies*

Based on the responses of 87 respondents, nearly one-half (49%) reported not having a dedicated person who oversees data and information systems work, while just more than one-third of respondents reported their agencies had someone in this role (37%). A small percentage (2%) reported plans to hire someone for this responsibility and 11% of respondents were unsure about the existence of this role in their agencies.

### *State Oversight*

Of the 84 respondents who answered the question, 69% stated their state department of health does not provide oversight for environmental public health data collected in their state (40%) or were unsure about the oversight (29%). Only about one-third of respondents (31%) confirmed that their state department of health provides oversight for these data.

In comments, respondents reported varied levels of state oversight for environmental public health data depending on the specific program or area. In some cases, respondents reported state-required data—such as inspections for lead-based paint, food establishments, body art facilities, and tanning facilities—to be uploaded or submitted for grants or compliance purposes. Respondents also mentioned that state oversight existed for programs such as asbestos, lead, radioactive materials, and X-ray inspections. Other programs such as pools, nuisances, and septic systems were reported to be managed independently by local agencies.



In some instances, respondents from local agencies reported uploading data to the state via spreadsheets, which were then incorporated into the state's data system. For one person, the state randomly selects data for review and correction when necessary. They also bear the responsibility for funding and managing the database, as well as providing technical assistance to users.

## Data and Informatics Systems

### System Types

The assessment also provided information about the current environmental public health data and informatics systems used by the respondent agencies. Of the 84 respondents to the question, 64% reported using vendor programs or software, either tailored to their needs or off-the-shelf, for their environmental public health data and informatics systems. A smaller percentage of respondents reported having developed their own digital systems, while a few reported that they do not have a system in place at all (Table 7).

Table 7. Assessment Responses for the Type of Data and Informatics System Used ( $n = 84$ )

Type of System	% of Respondents
Tailored vendor program/software	42
Off-the-shelf vendor program/software	23
Own system	15
No system	8
Other	12

Of the respondents who selected "other," some reported their agencies used a combination of vendor programs and in-house systems for different aspects of their environmental health data management while a few had a vendor program in place but did not regularly analyze the data due to the reporting system not being user friendly. Others reported their agencies are in the process of transitioning to new systems and certain programs have grants and partnerships with outside partners for their data and informatics systems. And lastly, one respondent's agency used a state surveillance program.

### System Storage

The assessment also examined the storage methods for electronic environmental public health records, revealing that agencies employed a range of approaches. The data from 84 respondents indicated that the most common storage solutions are networked computers (file share systems), web-based applications on



cloud-hosted systems, web-based servers (non-cloud), and local computer hard drives, in descending order of popularity. The most common storage methods reported by respondents were:

- On networked computers (file share system): 63%
- Web-based application on a cloud-hosted system: 52%
- On a web-based server (not cloud): 31%
- On local computer hard drive: 20%

A small percentage of respondents (2%) indicated that they have no electronic records for environmental health work data, while 5% of respondents were unsure about how their electronic records are stored. One respondent indicated they still have paper records as well.

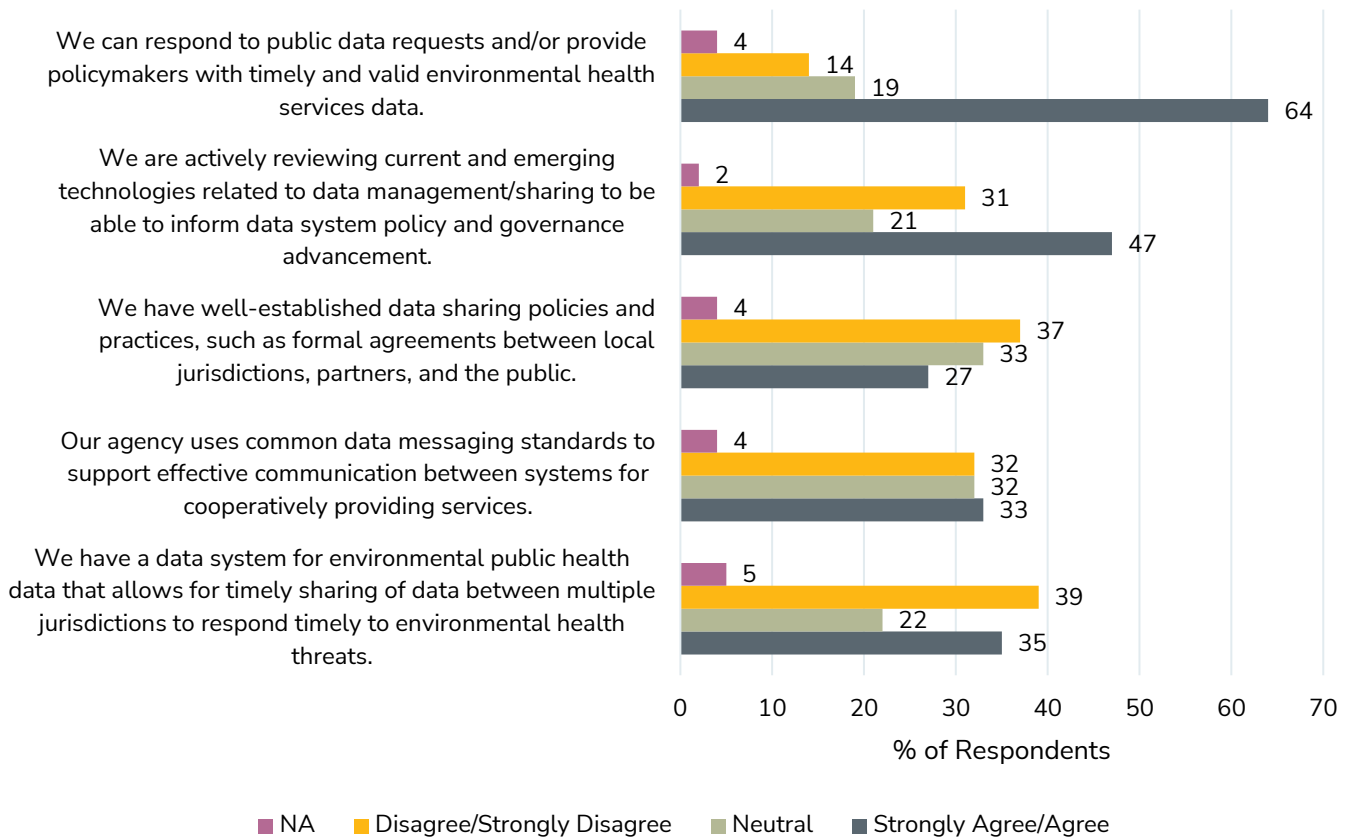
### **Common Data Sets, Data Standards, and Data Sharing Practices**

A question assessed the extent to which local jurisdictions across the state use a common data set or data standards/formats to support data transfer between systems and jurisdictions. Of the 85 respondents, 31% indicated that only some environmental public health programs use common data sets or standards for data sharing. About one-fifth of respondents (22%) said that local jurisdictions are unable to share their data with the state, while a smaller percentage (15%) reported that all programs use common data sets or standards for data sharing. Over one-quarter of respondents (27%) were unsure. Those who chose “other” (5%) included one respondent who was from a tribal nation and they do not share their data with the state. Another respondent indicated that yearly reporting was done in a PDF form and compilation was done by hand for its 15 counties.

A follow-up question asked respondents to indicate their level of agreement with statements related to their environmental public health data systems, policies, and practices (Figure 7). While most respondents (64%) agreed they could respond to public data requests and provide timely data, and nearly half (46%) were actively reviewing technologies for data management/sharing, there was less consensus on the existence of data systems for timely data sharing (35% agreed), the use of common data messaging standards (33% agreed), and the presence of well-established data sharing policies and practices (27% agreed).



Figure 7. Responses About Environmental Public Health Data Systems, Policies, and Practices (n = 83)



## Environmental Health Informatics System

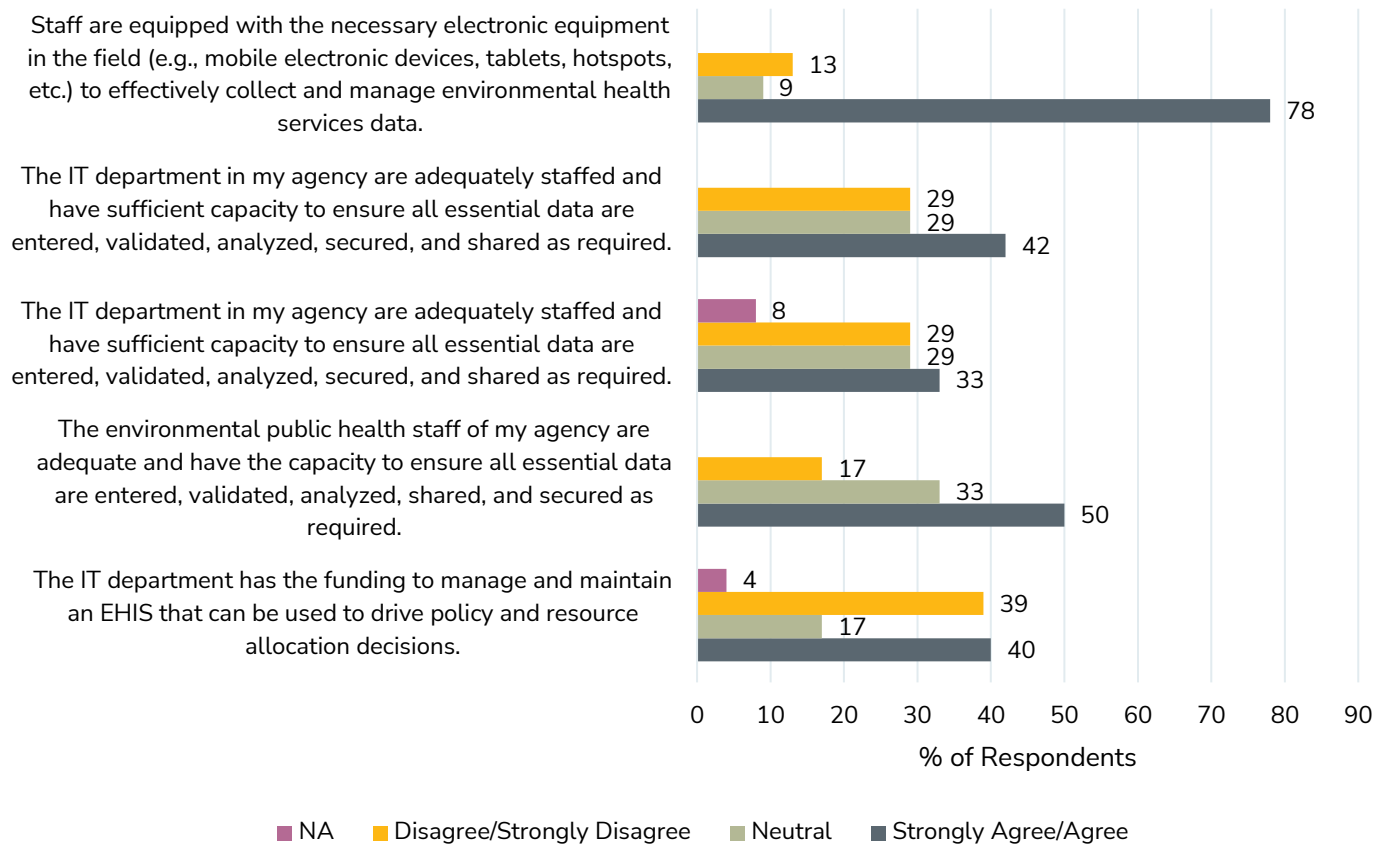
### Existing Environmental Health Informatics Systems

An environmental health informatics system (EHIS) includes personnel, paper and electronic records, processes, policies, GIS, and other data management and analysis tools that work in concert to actively drive decisions at all levels of operation and management within environmental public health. The assessment asked respondents whether their agency had an EHIS in place. Of 84 respondents, just more than one quarter (27%) said yes and 51% said no. Another 21% of respondents did not know if their agency had an EHIS in place. Of those respondents who answered yes to having an EHIS, 70% were from local agencies, 17% were state, 9% were tribal, and one (4%) was a region or territorial agency. Agencies with an EHIS tended to have a large staff size of  $\geq 100$  people (68%).



Further, for those respondents who indicated their agency had an EHIS in place, a follow-up question assessed the EHIS components used in their agencies for environmental health services (Figure 8). While 50% of respondents agree or strongly agree that their agency's environmental public health staff have adequate capacity to manage essential data, opinions were more divided on IT department funding and staffing, with 42% agreeing or strongly agreeing that the IT department has sufficient funding and only 33% agreeing or strongly agreeing that the IT department is adequately staffed. Familiarity with an EHIS among staff was also mixed, with 42% agreeing or strongly agreeing that staff are familiar with the system's analytical capabilities. A clear majority (78%) agree or strongly agree, however, that field staff are equipped with the necessary electronic equipment to effectively collect and manage data.

Figure 8. Responses About Environmental Health Informatics System (EHIS) Components (n = 24)



### *Discrepancy in Understanding and the Reported Use of Environmental Health Information Systems*

On further analysis of the responses to the assessment question about the presence of an EHIS, a significant discrepancy was observed between the direct answers to this question and the responses to other questions related to data use and storage. While only 23 respondents explicitly stated that they had an EHIS in place, the answers to other questions suggest that additional respondents (76) used some form of data system in their environmental public health operations.

To determine the extent to which data systems were being used, the analysis took into account responses to questions that indicated the use of data in different facets of environmental public health work. These questions covered topics such as the storage, review, and sharing of inspection data, as well as the use of electronic data for various purposes. The relevant data from these questions are presented in the Inspection Data and Electronic Data sections of this report. While the responses to these questions might not definitively confirm the presence of an EHIS, they provided a stronger indication that data systems are being used compared to the direct responses to the EHIS question. The difference between the responses to the EHIS use question and the more specific data system element questions suggests there could have been confusion about how the relevant questions were worded and interpreted. Future assessments would benefit from a modified design and question phrasing.

Ultimately, the responses to questions about data practices reveal many environmental public health organizations engage in data review and recordkeeping as part of their routine operations. This finding suggests that data use plays a crucial role in the work of these organizations, even if respondents do not explicitly identify their data systems as a formal EHIS.

## Challenges

Respondents were asked to describe any challenges to collecting, using, and/or sharing environmental public health data. Several key themes emerged:

1. **Lack of standardization and integration:** Respondents mentioned the lack of standardized systems and processes across jurisdictions and programs, making it difficult to share and compare data effectively. One person stated, “An integrated system that has electronic food inspections, food complaints, and foodborne outbreaks is still not available” in their agency.



2. **Inadequate technology and software:** Respondents noted that their current software systems are outdated, not user-friendly, or not well-suited to their specific needs, which hinders efficient data management and analysis. As noted by a respondent, “The system we have is not written for food inspections. It is a building inspection software that we are trying to make a food inspection program. Square peg in a round hole. Clunky at best.” Another shared that they use multiple platforms that “do not speak to each other. The permitting system is good for permitting, but poor for inspections. Inspectional software is good for that, not permitting.”
3. **Insufficient resources:** Respondents cited a lack of funding, staffing, and time as major barriers to implementing and maintaining effective data systems and processes. As one respondent succinctly put it, “One word—FUNDING.”
4. **Limited IT support:** Respondents mentioned that their IT departments are not adequately equipped or responsive to their needs, making it challenging to develop and maintain data systems. Others shared they do not have dedicated IT staff to support their efforts.
5. **Data entry and quality issues:** A few respondents noted that manual data entry processes and inconsistent data quality can make it difficult to effectively use and analyze the collected data. In addition, a respondent identified the financial burden of maintaining data systems as a significant obstacle, stating, “Data entry quality and cost to maintain the system are major challenges.” One respondent detailed the cumbersome process of managing inspection reports, which involves scanning paper documents or saving interactive PDF forms, filing them on a network drive, and emailing copies to operators. They emphasized the challenge of manually analyzing inspection data to identify patterns and drive improvements, stating, “The challenge to using inspection data is I have to manually go through it and look for patterns of issues to make changes based on inspection findings.”
6. **Challenges with sharing data:** Respondents mentioned difficulties in sharing data with partners and other agencies due to different systems, confidentiality concerns, or lack of established processes.
7. **Need for better data analysis and reporting:** Respondents expressed a desire for improved tools and capabilities to analyze and report on their data, such as dashboards and the ability to easily identify trends and patterns. One person described the potential benefits of having a more advanced system, saying, “If I had all my inspections on a software database, I imagine it would be simply as export all



complaints or export all violations to an Excel spreadsheet from the software and then I could make graphs based off tables on, for example, what is the most common violation in 2023 versus 2022." Another respondent highlighted the difficulty in tracking trends and generating conclusions, noting, "Maintaining and monitoring trends of historical data is difficult. We do not have a true dashboard to look comprehensively at our data and must run manual reports on a regular basis."

## Summary and Conclusions

This assessment provided valuable insight into the current landscape of environmental public health data and informatics systems across state, territorial, local, and tribal jurisdictions nationwide. The findings highlight both the progress made and the significant challenges that remain in creating a more reliable, effective, sustainable, and standardized national environmental public health data system.

The limited participation in this assessment underscores the pressing need to tackle the obstacles that hinder widespread engagement and comprehension of the vital importance of environmental public health data in safeguarding our communities. The complexity of data accessibility, the need for technical expertise, and the intricacies of coordinating efforts among multiple agencies, disciplines, and departments have presented obstacles to the successful implementation of initiatives aimed at improving environmental public health data systems and infrastructure.

The assessment revealed that while some agencies are actively collecting and storing electronic records across various environmental public health areas, there is a lack of standardization and integration across different jurisdictions and programs. This system hinders effective data sharing, comparison, and analysis that would advance the ability to prepare for and respond to disasters, identify emerging issues, and identify disease outbreaks early across jurisdictions.

Moreover, many agencies are struggling with insufficient resources resulting in inadequate technology and software, inadequate staff training in data and informatics, limited IT support, data entry and quality issues, and difficulties in sharing data with partners. The assessment also underscored the need for improved tools and capabilities to analyze and report on environmental public health data, with many respondents expressing a desire for user-friendly data dashboards and the ability to easily use identified trends and patterns to drive evidence-based decision-making and program improvements.



Moving forward, it is essential to foster clear communication and a shared understanding of an EHIS among those in the environmental public health field, regardless of the specific terminology used to describe these systems. This effort will help ensure that everyone is working toward a common goal of enhancing data-driven decision-making in environmental public health.

Despite these challenges, there were also signs of progress. A noteworthy proportion of agencies are actively reviewing technologies for data management and sharing and have dedicated staff who oversee data and information systems work. Moreover, many field staff are equipped with the necessary electronic equipment to effectively collect and manage data.

To build on this progress, policymakers, public health leaders, and other interested parties can prioritize the development of robust, interoperable data systems and provide the necessary resources and support to strengthen environmental public health data management and use. This work may include investing in modern technology, providing training and technical assistance, and fostering collaboration and data sharing among agencies. By addressing the identified challenges and leveraging the existing progress, we can work toward creating a more data-driven, evidence-based approach to environmental public health practice, ultimately leading to better health outcomes for the communities we serve.

## Opportunities for Next Steps

Based on the findings of our Data and Informatics Infrastructure Assessment, the following opportunities for action and next steps can help address the identified challenges and support the development of a more robust, standardized, and effective environmental public health data and informatics system. These recommendations will also support the goals and strategies outlined in the CDC's Environmental Public Health Tracking Strategic Plan 2022-2026 which outline four goals: 1) Promote the use of data to inform action, 2) Strengthen partnerships, 3) Advance data modernization, and 4) Accelerate workforce development.

1. **Data Standardization:** Develop and promote standardized data sets, formats, and messaging standards across jurisdictions and programs to facilitate seamless data sharing, comparison, research, and decision support systems.



2. **Core Components:** Envision and promote a core set of essential local environmental health information technology infrastructure and functionalities.
3. **Technology Modernization:** Invest in modern, user-friendly technology and software solutions that are tailored to the specific needs of environmental public health agencies, ensuring that these systems are interoperable and can efficiently integrate data bidirectionally across various sources.
4. **Resource Allocation:** Communicate the opportunities for impact that could exist with increased funding and resources dedicated to environmental public health data and informatics infrastructure, including staffing, training and development, sustainable operation, upgrades, and maintenance of the systems.
5. **IT Collaboration:** Foster stronger collaboration between environmental public health agencies and IT departments, ensuring that IT staff are adequately equipped and responsive to the unique needs of environmental public health data management and analysis.
6. **Data Quality Assurance:** Implement standardized data entry processes and quality control measures to ensure the accuracy, completeness, and consistency of environmental public health data.
7. **Data-Sharing Protocols:** Establish clear data-sharing policies and protocols. These systems would include agreements with partners and other agencies to facilitate secure and efficient data exchange while addressing confidentiality concerns, as well as establishing policies and protocols for public data access to support community planning and consumer knowledge of regulated operations.
8. **Data Analytics Tools:** Develop and deploy user-friendly data analysis and reporting tools—such as dashboards and data visualization platforms—to enable environmental public health professionals and organizational partners to easily identify trends, patterns, and areas for improvement.
9. **Workforce Development:** Provide ongoing training and support to environmental public health staff to enhance their data literacy and capacity to effectively use and interpret data for evidence-based decision-making, program evaluation, emergency response, process and quality improvement, and the identification of emerging issues.



10. **Environmental Health Data Integration:** Integrate environmental health data into public health performance metrics to transparently show how data-informed decisions impact community health outcomes and the effectiveness of public health agencies.
11. **Vendor Engagement:** Many assessment respondents (65%) use vendor software packages, highlighting the need to systematically involve these vendors in ongoing discussions and planning related to information technology in the environmental health field. This collaboration ensures that vendor software aligns with the needs of environmental health professionals and fosters the development of more effective IT solutions.

To effectively tackle the specific data and informatics needs and challenges faced by environmental public health agencies, and to design solutions that work, opportunities exist to prioritize additional data collection efforts and address barriers to participation. These efforts could include:

1. **Qualitative follow-up interviews or focus groups:**
  - Conduct in-depth interviews or focus groups with a diverse sample of environmental public health professionals to gather a more detailed understanding of their data and informatics challenges, needs, and priorities.
  - Explore the specific barriers and facilitators to data collection, sharing, and use within different types of agencies and program areas.
  - Gather feedback on potential solutions and strategies to address identified challenges.
2. **Case studies of successful data and informatics initiatives:**
  - Identify and study environmental public health agencies or programs that have successfully implemented robust, standardized, and user-friendly data and informatics systems.
  - Document best practices, lessons learned, and key factors contributing to their success.
  - Explore the potential for replicating and scaling these successful models in other jurisdictions or program areas.
3. **Targeted assessments:**
  - Design and administer targeted assessments to gather more detailed information on specific aspects of environmental public health data and informatics, such as:
    - Data quality and completeness



- Data-sharing practices and barriers
- Data analysis and reporting capabilities
- Staff training and capacity-building needs
- Challenges to implementing an EHIS
- Tailor these assessments to different types of agencies (e.g., local, state, tribal) and program areas to capture their unique perspectives and challenges.

#### 4. Follow-up needs assessment:

- Engage a broad range of partners, including environmental public health professionals, IT staff, policymakers, community partners, and data users, in a comprehensive needs assessment process.
- Gather input on priority data and informatics needs, desired functionalities and features of data systems, and potential strategies to address identified challenges.
- Use this feedback to inform user-centered solutions.

By conducting additional data collection efforts that are tailored to the specific needs and challenges of environmental public health agencies and programs, we can gather valuable knowledge and evidence to inform the design and implementation of more effective, user-centered data and informatics solutions. This work, in turn, can help to strengthen the capacity of environmental public health agencies to collect, share, and use data for evidence-based decision-making and program improvement, ultimately leading to better health outcomes for the communities they serve.

## Reference

Centers for Disease Control and Prevention. (2022). CDC Environmental Public Health Tracking Strategic Plan 2022-2026 [PDF file].

[https://www.cdc.gov/nceh/tracking/pdfs/2022\\_Tracking\\_Strategic\\_Plan\\_FINAL.pdf](https://www.cdc.gov/nceh/tracking/pdfs/2022_Tracking_Strategic_Plan_FINAL.pdf)

Cunningham, M., Patel, K., McCall, T., Hall, K., Garofalini, C., Lee, J., Okereke, D., & Alford, A. (2024). *2022 national profile of local health departments*. National Association of County and City Health Officials.

<https://www.naccho.org/resources/lhd-research/national-profile-of-local-health-departments>



## Appendix A

### Data and Informatics Infrastructure Assessment Questions

1. State/county/Zip Code What is the state where your organization/agency is located? What is the zip code where your organization/agency is located?
2. Which best describes your organization/agency?
  - Local (county/city/town/village/service unit/health district)
  - State
  - Region/territorial
  - Tribal
  - Federal/national ( *\*This assessment is not targeting this group. If they choose this option, take them out of assessment to an end page with explanation and maybe request to share with target audience.*)
3. Where is your environmental public health program housed?
  - a. Within public health department
  - b. Within health and human services department
  - c. Within environmental services department
  - d. Within environmental protection department
  - e. Independent environmental health department
  - f. Other\_\_\_\_\_
4. Select the approximate total population served by your organization/agency:
  - a. Less than 25,000 people
  - b. 25,000-49,999 people
  - c. 50,000-99,999 people
  - d. 100,000-349,999 people
  - e. 350,000-499,999 people
  - f. 500,000-999,999 people
  - g. 1 million or more people
  - h. I don't know



5. Approximately what percentage of your organization/agency's budget is dedicated towards environmental public health data and informatics (e.g., software, staff FTE, training, public portals/ dashboards, IT staff, etc.)?
- a. 0-5%
  - b. 5-10%
  - c. 10-15%
  - d. 15-20%
  - e. 20-30%
  - f. 30-40%
  - g. 40-50%
  - h. More than 50%
  - i. I don't know
6. What is the total staff size of your organization/agency's workforce?
- a. 1-10
  - b. 11-25
  - c. 26-49
  - d. 50-75
  - e. 76-100
  - f. 100+
  - g. I don't know
7. What is the staff size of your organization/agency's environmental public health **workforce**?
- a. 1-10
  - b. 11-25
  - c. 26-49
  - d. 50-75
  - e. 76-100
  - f. 100+
  - g. I don't know



8. Which of the following job title(s) identifies your role best? Check all that apply
- Administrative
  - Health Program Assistant
  - Environmental Health Professional/Health Inspector/Sanitarian
  - Epidemiologist
  - Environmental health supervisor/ manager/coordinator
  - Health Department Director/Officer
  - Health educator
  - Policy specialist
  - Senior Leadership: Environmental Health Department Director/Senior Public Health Director/State Director/other Leadership Role
  - Board of Health
  - State Health commissioner
  - IT staff/technician
  - IT systems manager/director/leadership)
  - Chief data officer/ Chief information officer
  - Other\_\_\_\_\_
2. Once you collect inspection data, how is it used? Select all that apply.
- a. Inspection data are stored, and there is no standard use of past inspections.
  - b. Past inspection data are occasionally reviewed to identify potential issues or verify violation corrections.
  - c. Brief reviews of inspection data are done to review whether violations have been resolved.
  - d. Past inspection data are regularly reviewed to inform decision-making.
  - e. We run regular reports on inspection data and share with inspectors regularly.
  - f. We share data with other departments within the organization.
  - g. We share data with external organizations.
  - h. I don't know
  - i. Other\_\_\_\_\_
10. To what extent does your organization/agency use environmental public health data for the following: (No extent to great extent, I don't know) tasks
- a. Track inspections (e.g., number and types of inspections conducted, number of corrective actions, number and type of violations, duration of inspections, open complaints, etc.)



- b. Determine inspection focus, (e.g., manage poor-performing facilities, prioritize inspections by risk and/or due date)
- c. Brief reviews of inspection data are done to detect, prevent, and control environmental health hazards
- d. Determine the needs of an inspection site (e.g., training, resources, permitting, etc.)
- e. Share digital inspection results with establishment/site following an inspection

11. To what extent does your organization/agency use environmental public health data for the following quality improvement activities?

- a. Determine staffing needs, inspector workload
- b. Improve quality of inspections and/or inspector performance
- c. Use data to propose fee changes
- d. Inform types of intervention strategies needed to address commonly occurring risk factors
- e. Use data in approving permits
- f. Improve real time Emergency Preparedness and Disaster Response
- g. Assess/evaluate programs and initiatives
- h. Write grants/Obtain funding
- i. Use data for storytelling to raise awareness and educate the public
- j. GIS integration to understand, visualize, and interpret inspection data

12. Organizations/agencies have different record storage and management methods. Some records may be electronic, such as in databases or spreadsheets, while others are only in paper files. Please mark the environmental public health areas in which your organization/agency **collect and upload electronic records for PERMITTING, INSPECTIONS, COMPLAINTS, SAMPLING/TESTING** in your organization/agency. Mark all that apply for each.

- a. Food Production / Manufacturing Food (Food production, retail food, temp food)
- b. Retail Food & Temporary Food Service
- c. Recreational Water
- d. Wastewater Systems
- e. Onsite sewage
- f. Water Systems
- g. Water Wells



- h. Lodging/Tourist Accommodation
- i. Body Art/Tattoo
- j. Childcare Facilities
- k. Institutional Facilities
- l. Solid Waste
- m. Hazardous Waste
- n. Septage / Grease Handling
- o. Vector
- p. Healthy Homes
- q. Climate and Health

13. Which of the following services does your organization's/agency's website provide to the public? Select all that apply

- a. Publicly accessible environmental public health data portal/dashboard
- b. Request a service
- c. Ask a question/seek information
- d. Submit a permit/license application
- e. Submit a complaint
- f. Pay a fee or fine
- g. None of the above
- h. We do not have a public website
- i. I don't know
- j. Other\_\_\_\_\_

14. Do you have a person on staff or contractor/consultant in your environmental health department or program whose role and responsibility are to provide oversight of your data and information systems work such as quality assurance, data collection, storage, analysis, etc.?

- a. Yes
- b. No
- c. No, but we plan to hire someone



d. I don't know

Please explain:

15. Choose the option that best describes your current environmental public health data and informatics system?
- a. We use a vendor program/software to collect, manage, and prepare the data to analyze
  - b. We use a vendor program/software that has been tailored to our needs to collect, manage, and prepare the data to analyze
  - c. We developed our own digital system to collect, manage, and prepare the data to analyze our environmental health data
  - d. We don't have one
  - e. Other \_\_\_\_\_
16. In general, how are the electronic records for environmental public health data stored in your organization/agency? (Check all that apply)
- a. On local computer's hard drive.
  - b. On networked computer (file share system).
  - c. On a web-based server (not cloud).
  - d. Web based application on a cloud hosted system.
  - e. We have no electronic records for environmental health work items.
  - f. I don't know
17. If you use a vendor program/software program, please identify what the name of what you use to collect and manage your environmental data.
18. Does your state department of health provide state oversight for the environmental public health data that is collected?
- a. Yes
  - b. No
  - c. I don't know

If yes, please explain.



20. To what extent do local jurisdictions across your state use a common data set or data standards/formats to support the transfer of data between systems/jurisdictions?
- Not at all, local jurisdictions are unable to share their data with the state.
  - Some environmental public health programs from local jurisdictions use a common data set or data messaging standard to share data with the state.
  - All environmental public health programs from local jurisdictions use a common data set or data messaging standard to share data with the state.
  - I don't know
  - Other \_\_\_\_\_
21. Indicate your level of agreement with the following statements. (Disagree to agree) (include an NA or I don't know)
- We have a data system for environmental public health data that allows for timely sharing of data between multiple jurisdictions to respond timely to environmental health threats.
  - Our agency uses common data messaging standards to support effective communication between systems for cooperatively providing services.
  - We have well-established data-sharing policies and practices, such as formal agreements between local jurisdictions, partners, and the public.
  - We are actively reviewing current and emerging technologies related to data management/sharing to be able to inform data system policy and governance advancement.
  - We can respond to public data requests and/or provide policymakers with timely and valid environmental health services data.
22. An Environmental Health Informatics System (EHIS) includes personnel, paper and electronic records, processes, policies, GIS, and other data management and analysis tools acting in concert to actively drive decisions at all levels of the environmental public health operation and management. Does your organization/agency have an EHIS in place?
- Yes
  - No
  - I don't know
23. If yes, Indicate your level of agreement with each of the following statements regarding the EHIS utilized in your organization for environmental health services.



- a. The IT department has the funding needed to manage and maintain an EHIS that can be used to drive policy and resource allocation decisions.
- b. The environmental public health **staff** of my organization/agency are adequate and have the capacity to ensure all essential data is entered, validated, analyzed, shared, and secured as required to support improving the health of the communities we serve.
- c. The **IT** department in my organization/agency are adequately staffed and have sufficient capacity to ensure all essential data is entered, validated, analyzed, secured, and shared as required to support improving the health of the communities we serve.
- d. Staff in my organization/agency are familiar with the analytical capacity and products available from our EHIS.
- e. Staff are equipped with the necessary electronic equipment in the field (e.g., mobile electronic devices, tablets, hotspots, etc.) to effectively collect and manage our jurisdictions EH services data.

24. Please describe any challenges to collecting, using, and/or sharing environmental public health data (ex: full inspection findings of a restaurant) within your organization/agency and/or with other partners and agencies.

