

# 2024 PUBLIC HEALTH INFORMATICS PROFILE

An assessment of informatics capacity  
among local health departments

# Acknowledgements

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# 01 | INTRODUCTION

## **In this section:**

- Background and methods
- Data analysis and reporting

## Background and Methods

### Background

Public health informatics—the systematic application of data, technology, and information systems to public health practice and research—is vital to local health departments' (LHD) efforts to protect and promote health within their communities. Informatics supports virtually all aspects of LHD services, increasing efficiency and effectiveness. LHDs rely on data systems, informatics, and analytics as they monitor population health status; investigate threats to health; inform and educate the public; mobilize community partnerships; and maintain a diverse, skilled public health workforce. The Centers for Disease Control and Prevention's (CDC) Data Modernization Initiative (DMI), which aims to advance insights for decision-making at all levels of public health, highlights the need to better understand the scope of public health informatics at the local level.

The National Association of County and City Health Officials (NACCHO) collected data on the landscape of public health informatics across LHDs in the U.S. through the 2024 National Informatics Assessment. This assessment covered topics including informatics workforce, data modernization, interoperability of data systems, use of artificial intelligence, and outbreak response to understand experiences, challenges, and opportunities in the public health informatics space.

### Study Population and Sampling

There are more than 3,300 agencies or units in the United States (U.S.) that meet the definition of an LHD. For the purposes of surveying, NACCHO utilizes a methodology to account for the most unique individuals in the U.S. at the level closest to the local level without “double counting.” For example, if a region has three counties served by three LHDs, all three LHDs are surveyed. However, if a region has three counties served by a city, two county, and a district LHD, only the district LHD may be surveyed. NACCHO uses a database of LHDs based on previous National Profile of Local Health Department studies and consults with state health agencies and state associations of local health officials (SACCHOs) to identify the 2,507 LHDs in this assessment's study population. Rhode Island was excluded because the state has no sub-state public health units.

A stratified random sample of 1,200 LHDs were invited to complete the survey, with strata defined by a seven-category measure of population served by the LHD (i.e., less than 25,000, 25,000–49,999, 50,000–99,999, 100,000–249,999, 250,000–499,999, 500,000–999,999, and more than 1,000,000 people). NACCHO administered the survey from January to February 2024 via Qualtrics with a 43% response rate.

## Data Analysis and Reporting

### Data Analysis

Nationally representative estimates were computed using post-stratification weighting, based on size of jurisdiction served. Some detail may be lost in the figures due to rounding. Analyses presented in this report are not tested for statistical significance.

### Limitations

All data are self-reported by LHD staff and are not independently verified. LHDs may have provided incomplete, imperfect, or inconsistent information for various reasons. In addition, non-response bias could impact the results presented in this report.

### Over Time Comparisons

This report includes data from the [2018 Forces of Change](#), [2022 National Profile of Local Health Departments](#), and [2023 Forces of Change](#) surveys for several question items. Caution is advised when comparing these data due to methodological differences. Although these surveys were designed to be nationally representative, they employed different sampling strategies.

Throughout this report, results are described based on different subgroup analyses.

### Size of Population Served

Statistics are compared across the size of the population served by the LHDs. Small LHDs serve populations of less than 50,000 people. Medium LHDs serve populations of 50,000 to 499,999 people. Large LHDs serve populations of 500,000 people or more.

### Type of Governance

Data are also presented by type of governance, which refers to the LHD's relationship to their state public health agency. Locally governed LHDs are agencies of local government. State-governed LHDs are local or regional units of the state health agency. LHDs that are governed by both state and local authorities are referred to as shared governance.

### Degree of Rurality

Statistics are compared across LHD jurisdiction degree of urbanization. Using the Census Bureau classification system, each LHD in the study population was classified as serving either an urban or rural jurisdiction based on whether the majority of people it served were from urban or rural settings (i.e., more than 50% urban were classified as urban).



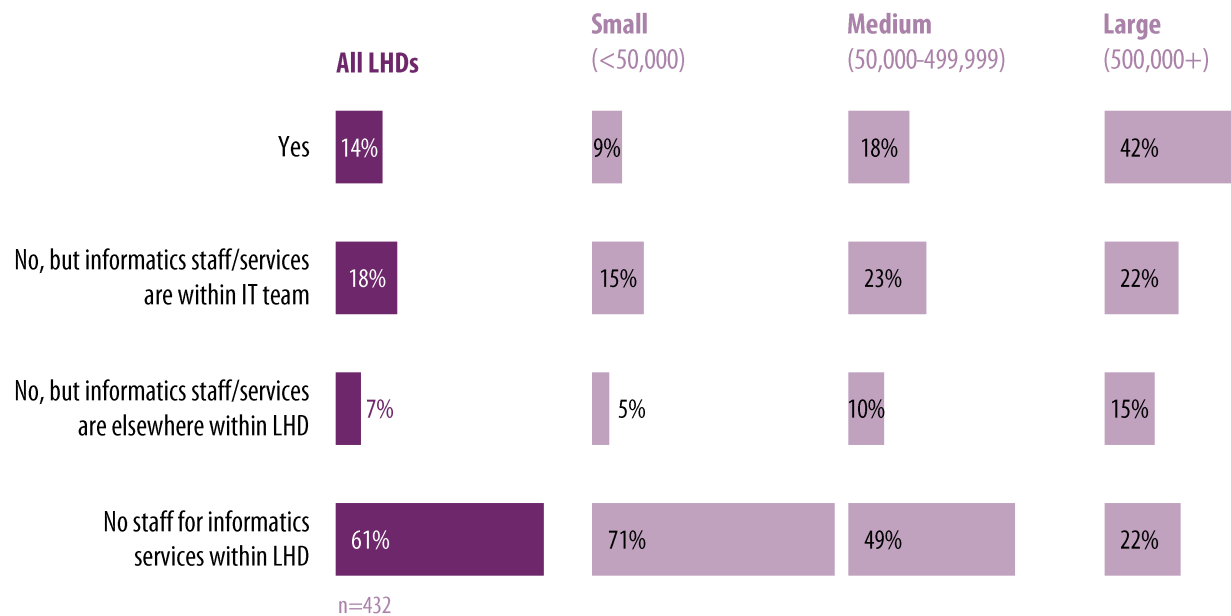
## 02 | INFORMATICS WORKFORCE

### **In this section:**

- Organizational structure of informatics within LHD
- Occupations of dedicated in-house LHD staff
- Assignment of responsibility for informatics activities
- Areas for staff development related to information systems

# Organizational structure of informatics within LHD, by size of population served

Percent of LHDs



Only 14% of LHDs reported having a dedicated informatics team or department. A majority of LHDs reported not having any staff for informatics services within their LHD.

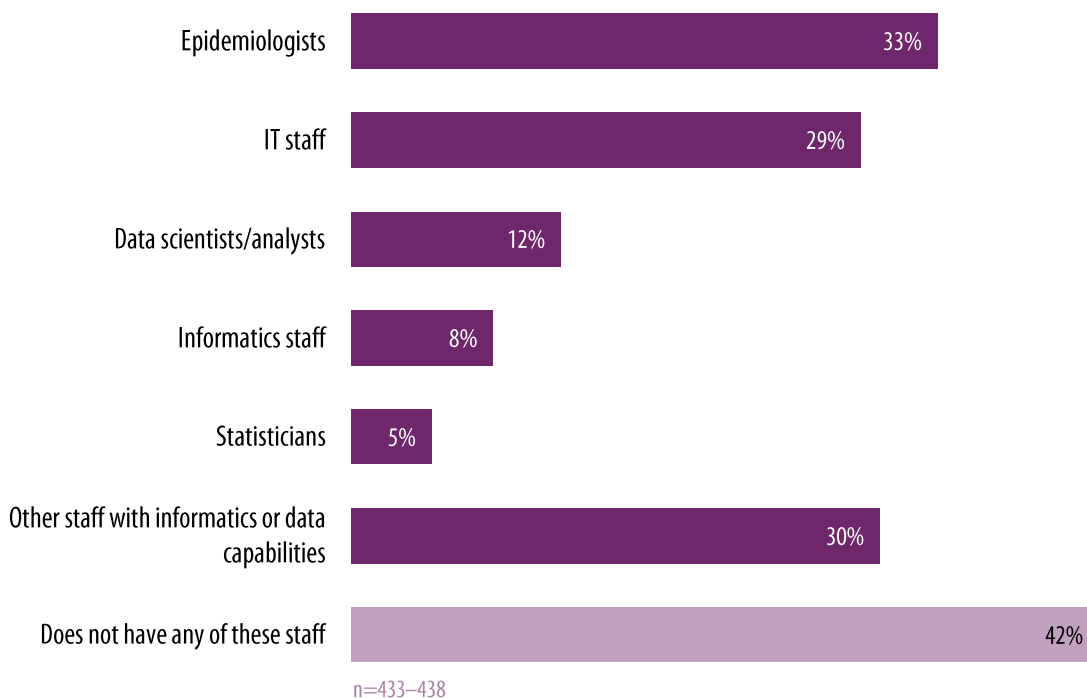
Among small LHDs, 71% reported not having dedicated informatics staff, compared to only 22% of large LHDs.

Although not shown, urban LHDs were more likely to report having a dedicated informatics team/department (18%), compared to rural LHDs (9%).



## Occupations of dedicated in-house LHD staff

### Percent of LHDs



Four in 10 LHDs did not have in-house staff in occupations related to informatics or data analysis. LHDs with dedicated staff most frequently reported having epidemiologists or IT staff, while very few had statisticians.

Although not shown, large LHDs were more likely than medium or small LHDs to report having any of these staff. In particular, all large LHDs had epidemiologists, compared to 13% of small LHDs.

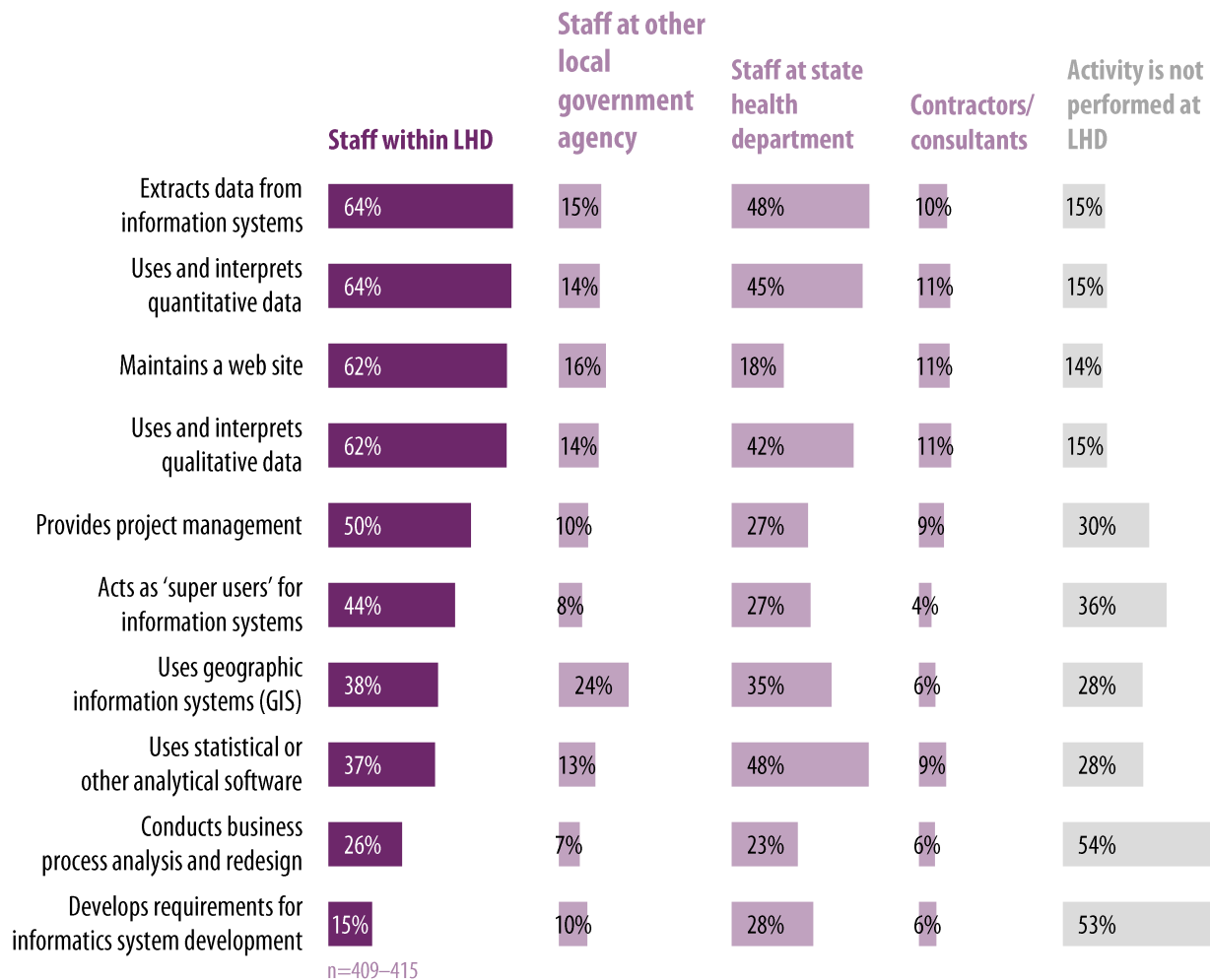
There is almost no variation from **2023** (41%) in terms of how many LHDs do not have any of these dedicated in-house staff.

### Technical note

This is reflective of the person's primary job function rather than their training, education, or title. LHDs were asked to select all response options that applied to their agency.

# Assignment of responsibility for informatics activities

Percent of LHDs



Most frequently, LHD informatics activities included extracting data from information system, using/ interpreting qualitative or quantitative data, and maintaining a website.

For most informatics activities, staff within the LHD were more likely to conduct them than staff from other sources. However, this was not the case for using statistical/analytical software, which was more often performed by staff within the state health department.

Although not shown, it is notable that two in five small LHDs reported not using statistical software or GIS.

### Technical note

LHDs were asked to check all response options that applied to their agency.

## Assignment of responsibility for informatics activities, by type of governance

### Percent of LHDs

	Staff within your LHD	Staff at a different local government agency	Staff at state health department	Contractors/consultants	This activity is not performed at or for your LHD
<b>Local</b>					
Extracts data from information systems	68%	13%	40%	11%	17%
Uses and interprets quantitative data	66%	12%	37%	12%	18%
Uses and interprets qualitative data	65%	11%	34%	12%	18%
Uses statistical or other analytical software	37%	11%	39%	11%	33%
Uses geographic information systems (GIS)	40%	25%	25%	7%	31%
Conducts business process analysis and redesign	26%	7%	12%	6%	62%
Develops requirements for informatics system development	17%	11%	17%	7%	62%
Provides project management	54%	10%	15%	9%	35%
Acts as 'super users' for information systems	45%	7%	15%	4%	43%
Maintains (modifies content of) a web site	68%	18%	6%	11%	15%

n=409-415

Locally governed LHDs reported that staff within their agency conducted many of the activities. However, staff at the state health department used statistical/analytical software and developed requirements for informatics system development.

Among these LHDs, more than six in 10 did not conduct business process analysis/redesign or develop requirements for informatics system development.

### Technical note

LHDs were asked to check all response options that applied to their agency.

## Assignment of responsibility for informatics activities, by type of governance (*continued*)

### Percent of LHDs

	Staff within your LHD	Staff at a different local government agency	Staff at state health department	Contractors/consultants	This activity is not performed at or for your LHD
<b>Shared</b>					
Extracts data from information systems	71%	21%	32%	4%	17%
Uses and interprets quantitative data	70%	20%	32%	4%	17%
Uses and interprets qualitative data	62%	15%	33%	8%	17%
Uses statistical or other analytical software	50%	8%	37%	4%	31%
Uses geographic information systems (GIS)	46%	18%	36%	0%	29%
Conducts business process analysis and redesign	46%	8%	24%	0%	42%
Develops requirements for informatics system development	23%	4%	31%	10%	44%
Provides project management	59%	8%	28%	14%	20%
Acts as 'super users' for information systems	50%	14%	23%	9%	40%
Maintains (modifies content of) a web site	67%	13%	13%	24%	8%

n=409-415

LHDs with shared governance reported that staff within their agency conducted many of the activities. However, staff at the state health department developed requirements for informatics system development.

Among these LHDs, more than two in five did not conduct business process analysis/redesign, develop requirements for informatics system development, or act as 'super users' for their information systems.

### Technical note

LHDs were asked to check all response options that applied to their agency.

## Assignment of responsibility for informatics activities, by type of governance (*continued*)

### Percent of LHDs

	Staff within your LHD	Staff at a different local government agency	Staff at state health department	Contractors/consultants	This activity is not performed at or for your LHD
<b>State</b>					
Extracts data from information systems	43%	22%	89%	6%	3%
Uses and interprets quantitative data	50%	24%	86%	9%	3%
Uses and interprets qualitative data	50%	26%	85%	10%	3%
Uses statistical or other analytical software	33%	21%	89%	6%	6%
Uses geographic information systems (GIS)	26%	23%	76%	4%	12%
Conducts business process analysis and redesign	18%	9%	73%	8%	21%
Develops requirements for informatics system development	6%	9%	78%	3%	18%
Provides project management	26%	12%	79%	6%	12%
Acts as 'super users' for information systems	41%	12%	83%	3%	7%
Maintains (modifies content of) a web site	32%	9%	75%	5%	9%

n=409-415

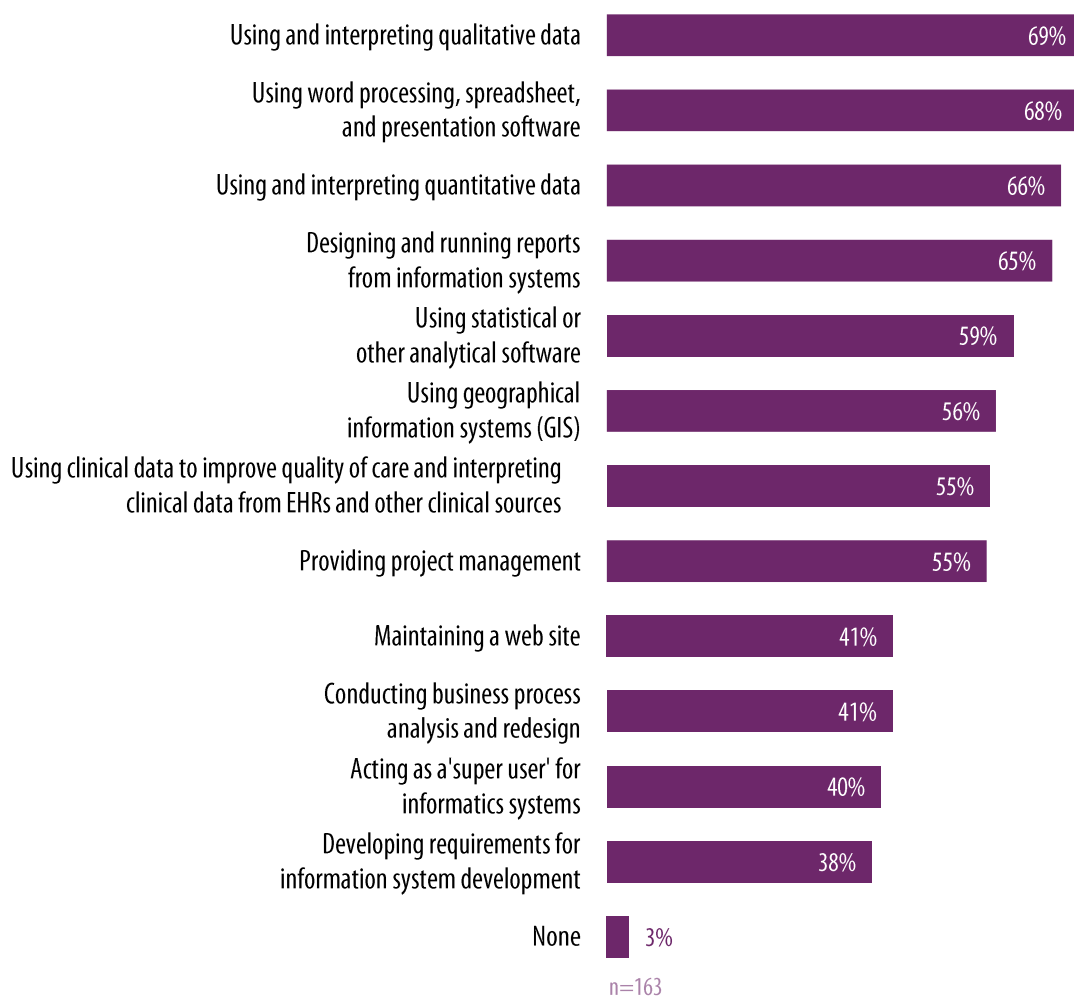
State-governed LHDs were more likely to report that state health department staff conducted activities, compared to LHDs with shared or local governance.

### Technical note

LHDs were asked to check all response options that applied to their agency.

## Areas for staff development related to information systems

Percent of LHDs among those that did have staff for informatics services



For LHDs with informatics staff, almost all reported needing staff development in some area(s). At least two in three LHDs indicated staff needed skill development in using/interpreting qualitative and quantitative data and using word processing, spreadsheet, and presentation software.

**In 2018**, the most common staff development needs for IT/informatics staff were developing requirements for informatics systems, conducting business process analysis/redesign, and designing and running reports from information systems.

### Technical note

The analysis includes only the LHDs that reported having staff for informatics services within their LHD.



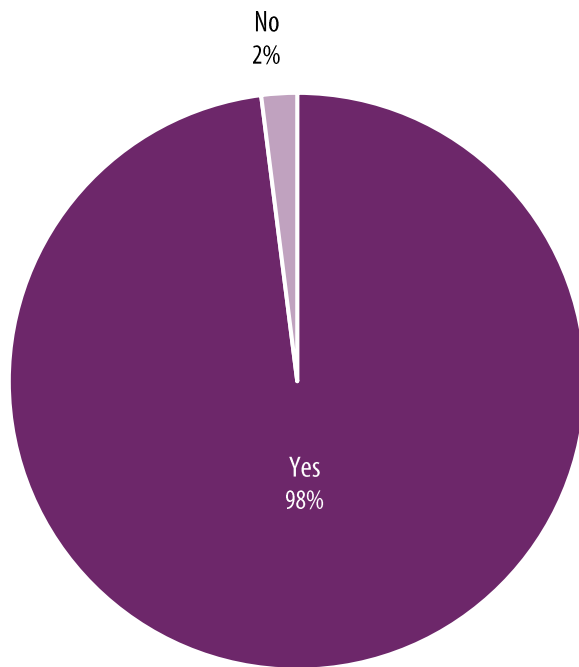
## 03 | INFORMATICS INFRASTRUCTURE AND USE

### **In this section:**

- LHD access of reliable internet
- Use of informatics within LHD
- Program areas utilizing informatics within LHD
- Organizational informatics activities conducted in the past two years
- Current level of activity in information technology systems
- Development of LHD's electronic health record (EHR) system

## LHD access of reliable internet

Percent of LHDs



n=483

Almost all LHDs reported having reliable internet access.

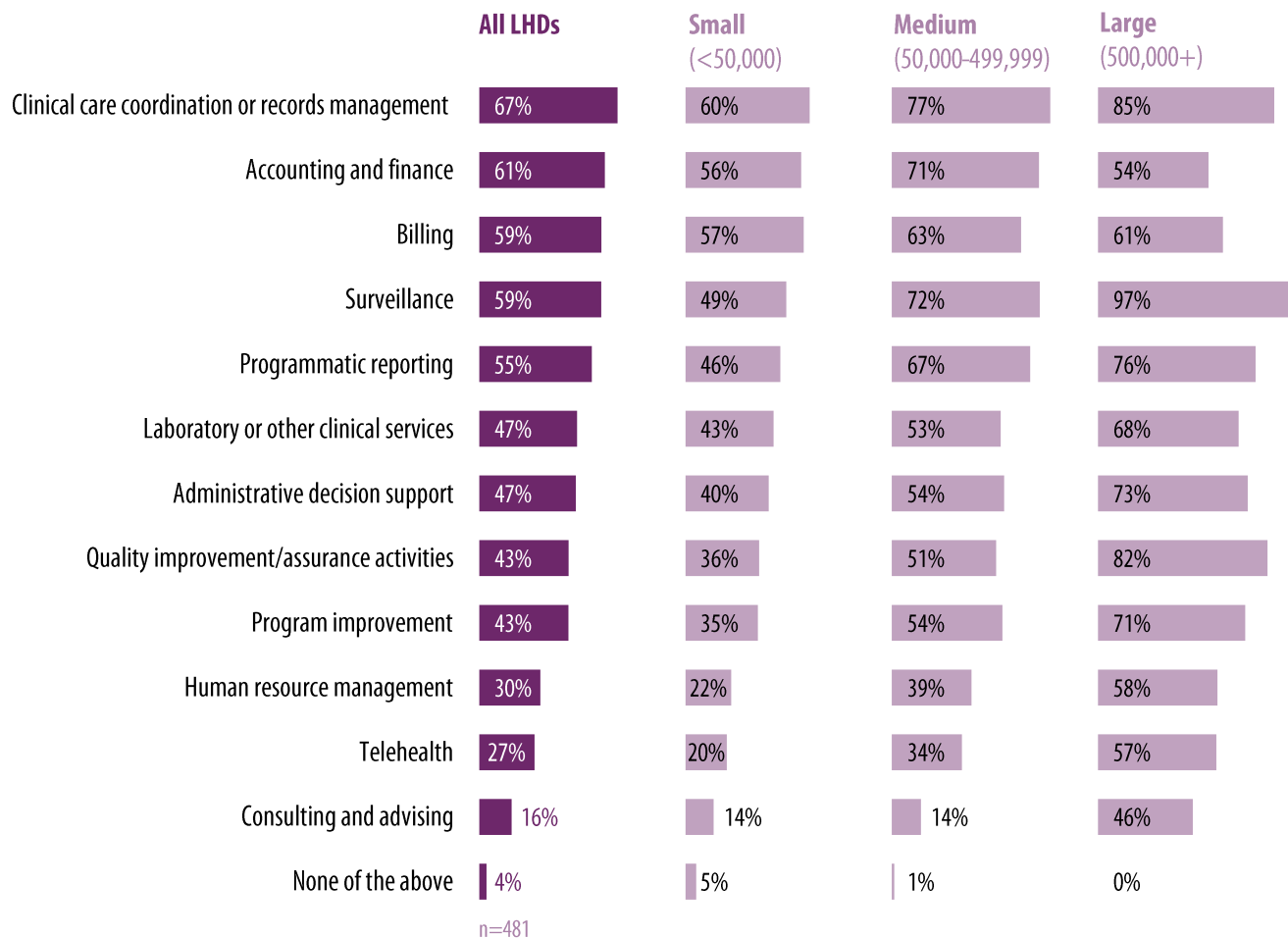
Although not shown, only 1% of urban LHDs reported not having access to reliable internet, compared to 4% of rural LHDs—a small difference.

Although not shown, the most common internet service/connections were fiber optic, mobile/wireless internet, and traditional cable internet.



## Use of informatics within LHD, by size of population served

Percent of LHDs

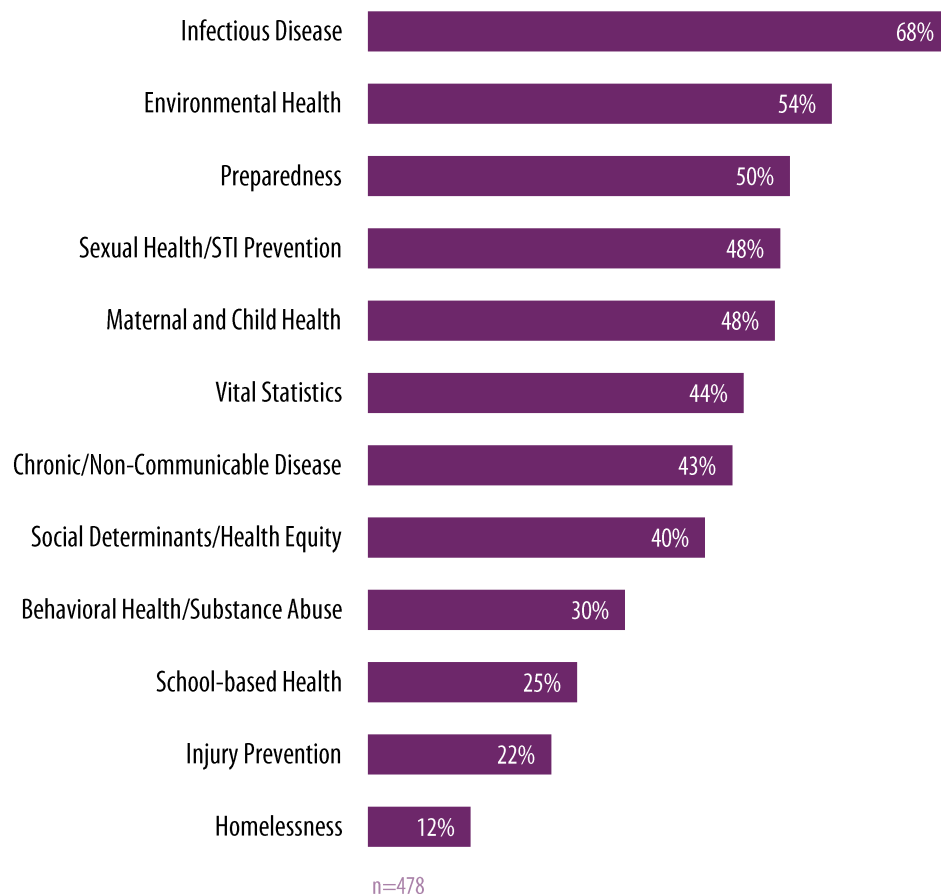


Most LHDs used informatics in their work. More than half of LHDs used informatics for clinical care, accounting and finance, billing, surveillance, and programmatic reporting.

Large LHDs were usually more likely to report using informatics than small or medium LHDs. However, this was not the case for using informatics in accounting and finance or billing. Notably, large LHDs were about twice as likely as small LHDs to report using informatics for surveillance, QI, and program improvement.

## Program areas utilizing informatics within LHD

Percent of LHDs

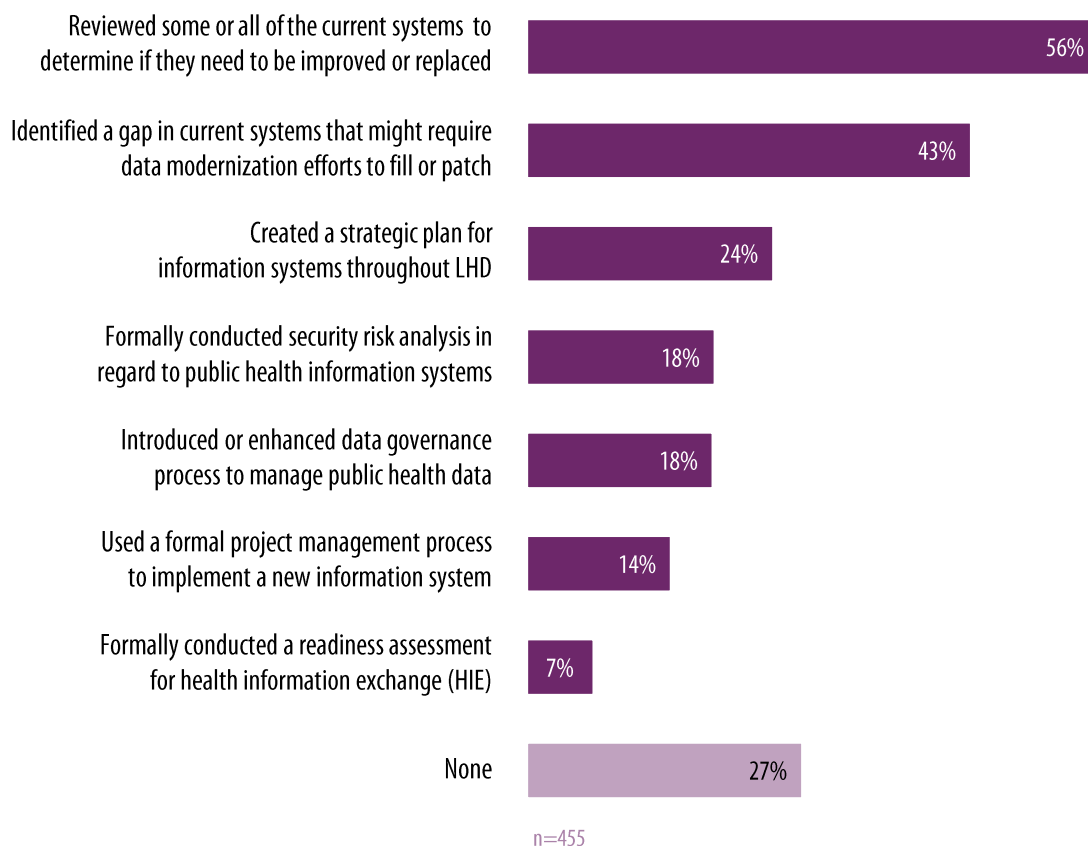


LHDs most frequently use informatics in infectious disease and environmental health program areas.

Although not shown, infectious disease was the most frequent use for informatics across size and rurality. However, the use of informatics for environmental health was not a top use across all categories. Small LHDs were more likely to report using informatics for preparedness (72%), while rural LHDs were more likely to report using it for preparedness (75%) or maternal/child health (73%).

## Organizational informatics activities conducted in the past two years

### Percent of LHDs



Approximately one in four LHDs had not conducted organizational activities relating to informatics in the past two years. The most commonly reported activities were reviewing and identifying gaps in current systems to determine improvements or modernization needed.

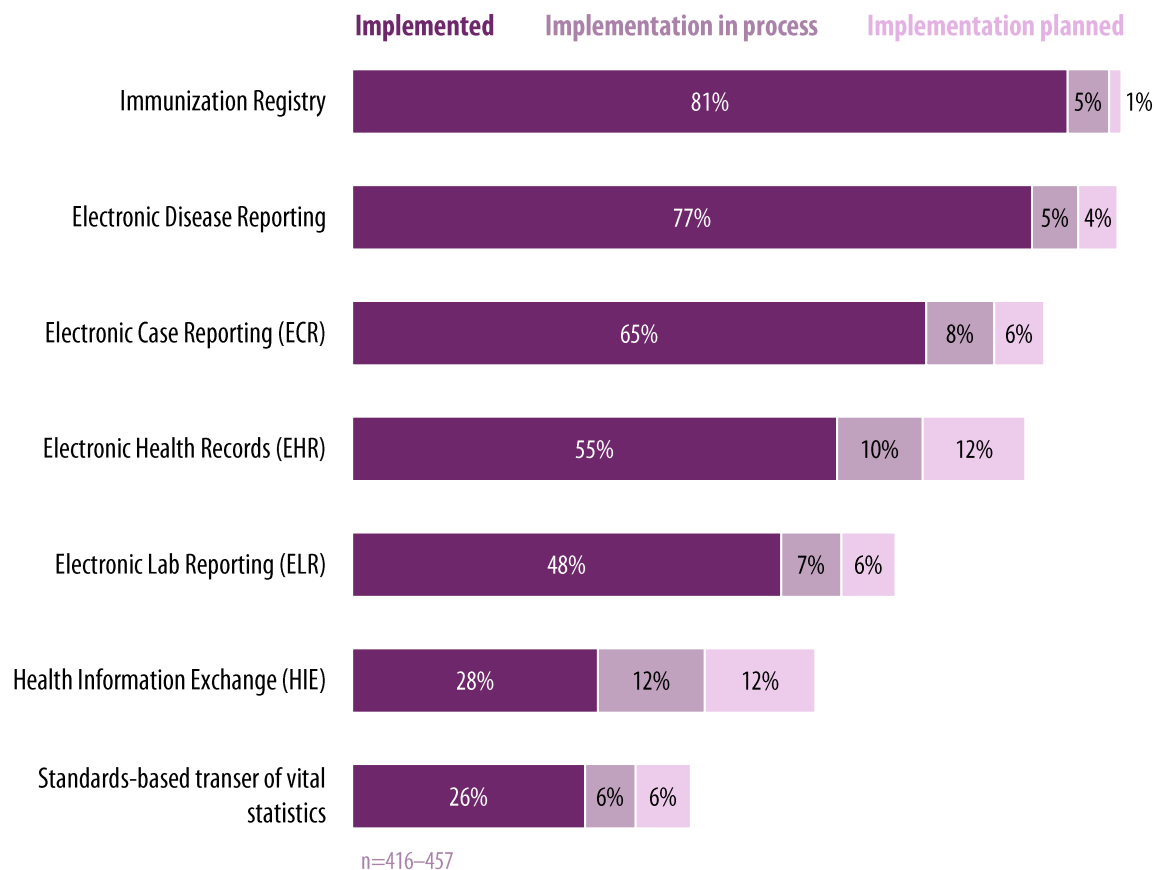
Although not shown, large LHDs and those in urban areas were less likely to report no organizational activities compared to their counterparts.

### Technical note

LHDs were asked to select all response options that applied to their agency.

# Current level of activity in information technology systems

Percent of LHDs



More than eight in 10 LHDs either used or were in process of implementing immunization registries and electronic disease reporting systems. LHDs were less likely to have activity related to HIEs or standards-based transfer of vital statistics.

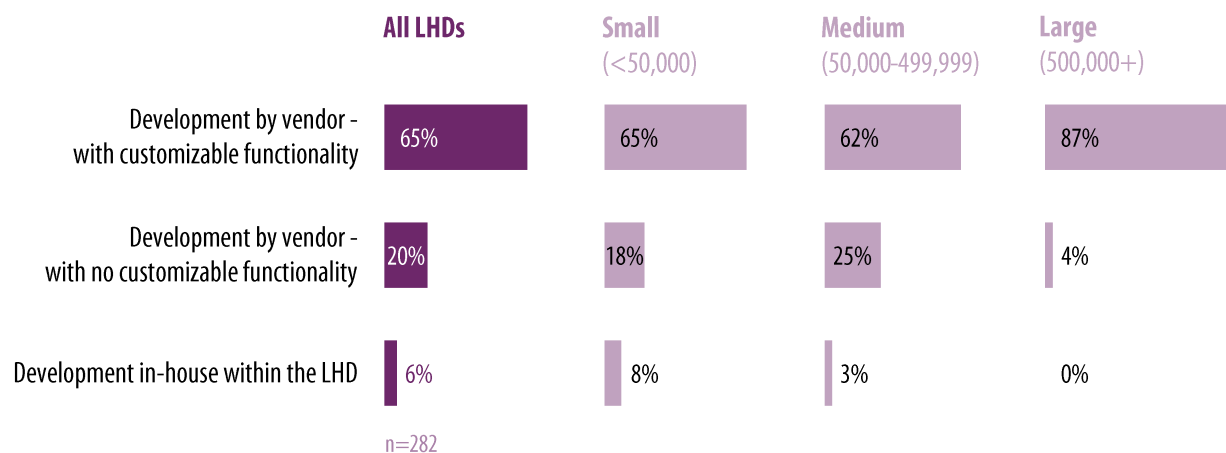
Although not shown, for most of these information technology systems, LHDs were less likely to have implemented them in 2024 than in **2022**. However, implementation has increased overall since 2008.

### Technical note

These statistics include a number of “not applicable” and “don’t know” responses not displayed.

## Development of LHD’s electronic health record (EHR) system, by size of population served

Percent of LHDs among those that implemented or are in the process of implementing EHR



For those LHDs who were implementing or had implemented an EHR, very few reported that their EHRs were developed in house. A majority of LHDs indicated their EHR was developed by a vendor with customizable functionality. This was the case regardless of size, governance, or rurality.



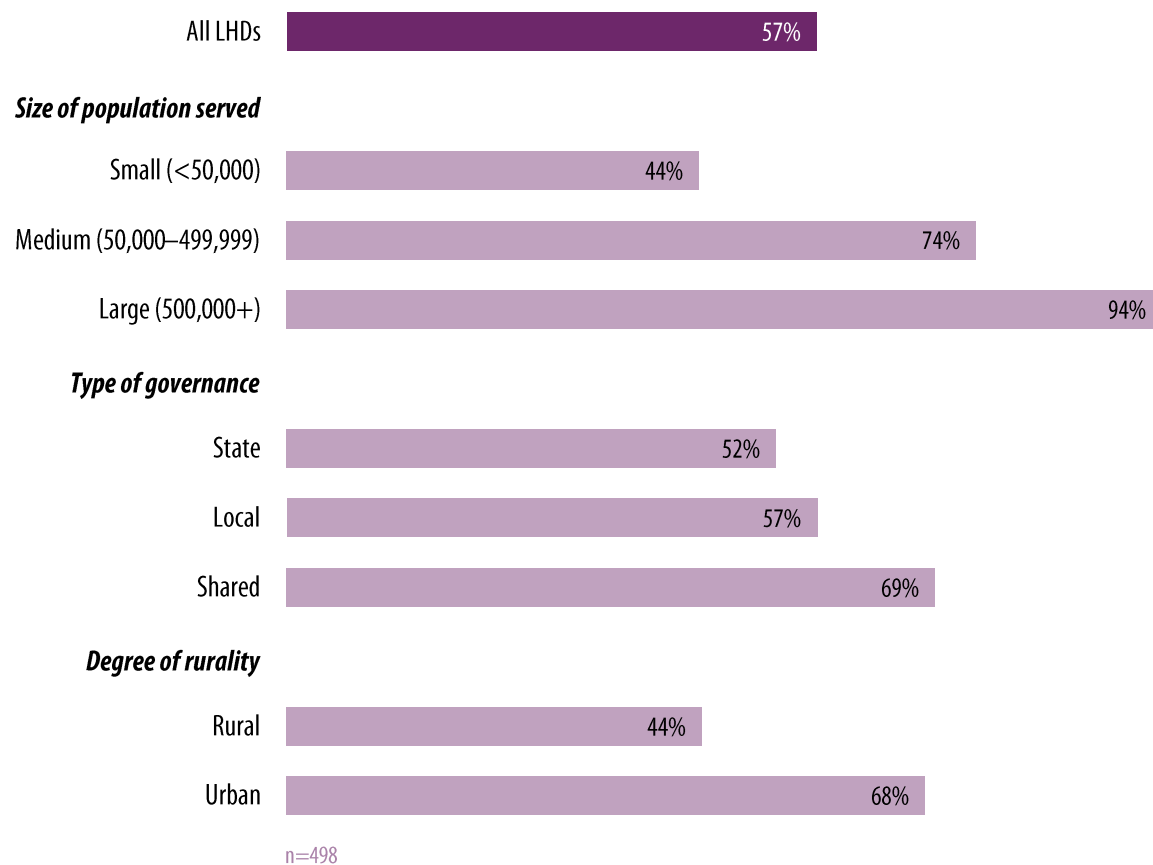
## 04 | DATA MODERNIZATION

### **In this section:**

- Currently working on data modernization projects
- Planning to work on data modernization efforts
- Receipt of supplemental funding for data modernization
- Sources of funding for data modernization efforts

## Currently working on data modernization (DM) projects, by LHD characteristics

Percent of LHDs



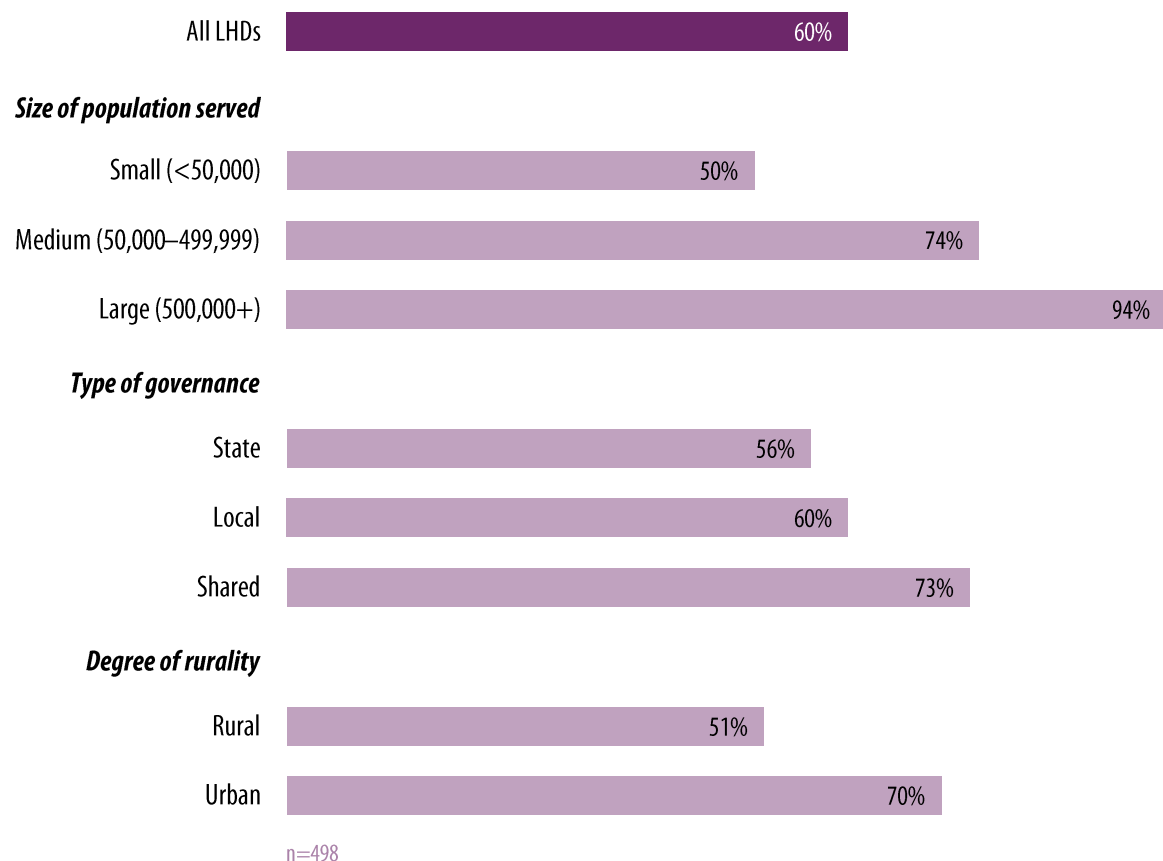
Almost three in five LHDs had existing DM efforts.

Almost all large LHDs were working on DM, while this was less frequently reported among small and medium sized LHDs.

In addition, nearly seven in 10 LHDs in urban areas were working on DM efforts, compared to about four in 10 LHDs in rural areas.

## Planning to work on data modernization (DM) efforts, by LHD characteristics

### Percent of LHDs



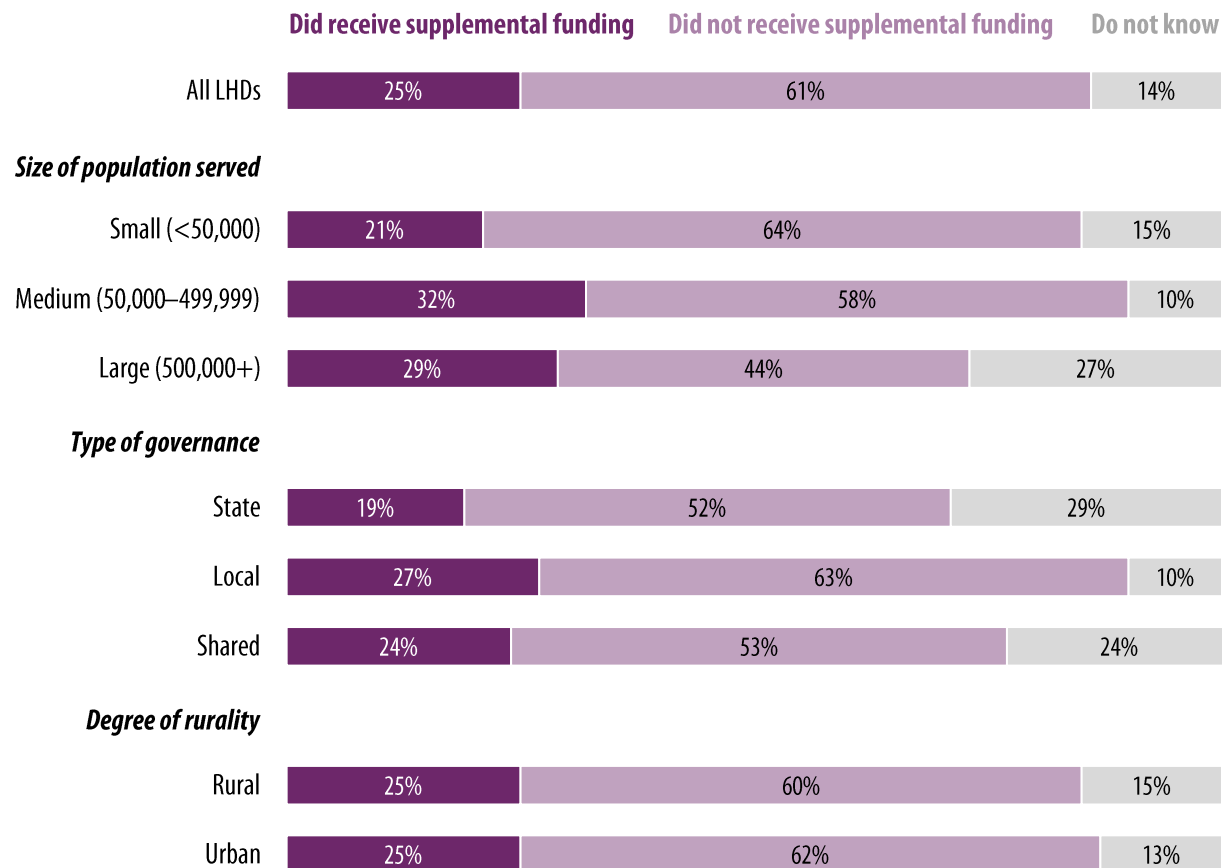
Similar to LHDs with current DM efforts, three in five were planning work for the next fiscal year.

LHDs serving large populations, with shared governed, or in urban areas were more likely to be planning DM efforts than their counterparts. Notably, nearly all large LHDs planned to work on DM efforts, compared to only half of small LHDs.



## Receipt of supplemental funding for data modernization (DM), by LHD characteristics

### Percent of LHDs



n=508

Most LHDs did not receive supplemental funding for DM efforts between fiscal years 2020 and 2023. This is regardless of size, governance, and rurality.

Medium LHDs were the most likely to report receiving supplemental funding for data modernization, while state-governed LHDs were the least likely to report this.

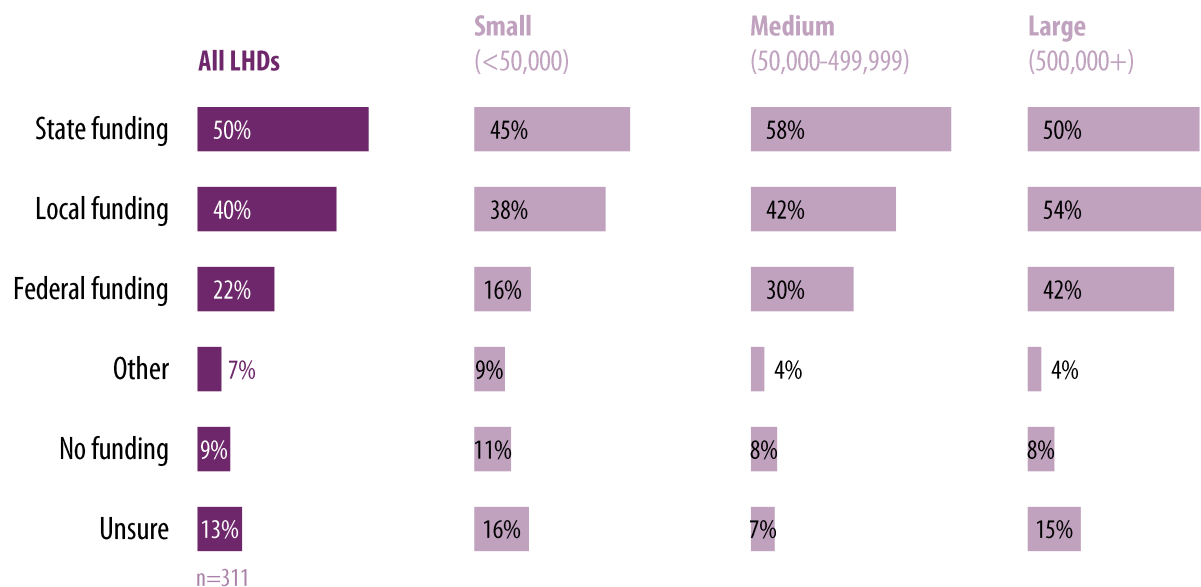
**As of early 2023**, 21% of LHDs reported receiving supplemental funding in fiscal years 2020 to 2022. Now, this has increased to 25% for fiscal years 2020 to 2023—an increase of 4 percentage points over one year.

### Technical note

Supplemental funding could originate from any source, local, state, fed, or NGO.

## Sources of funding for data modernization (DM) efforts, by size of population served

Percent of LHDs among those that were working on or planning to work on DM efforts



Among LHDs that had existing or upcoming DM efforts, funding was most often from local or state sources.

Though this was the case regardless of jurisdiction size, large LHDs were more likely to report receiving federal funding than medium or small LHDs.

Although not shown, almost half of urban LHDs reported local funding sources (49%), compared to only 29% of rural LHDs.

### Technical note

Funding received from the state may have originated from federal funding and been passed through to the LHD. LHDs were asked to select all response options that applied to their agency.



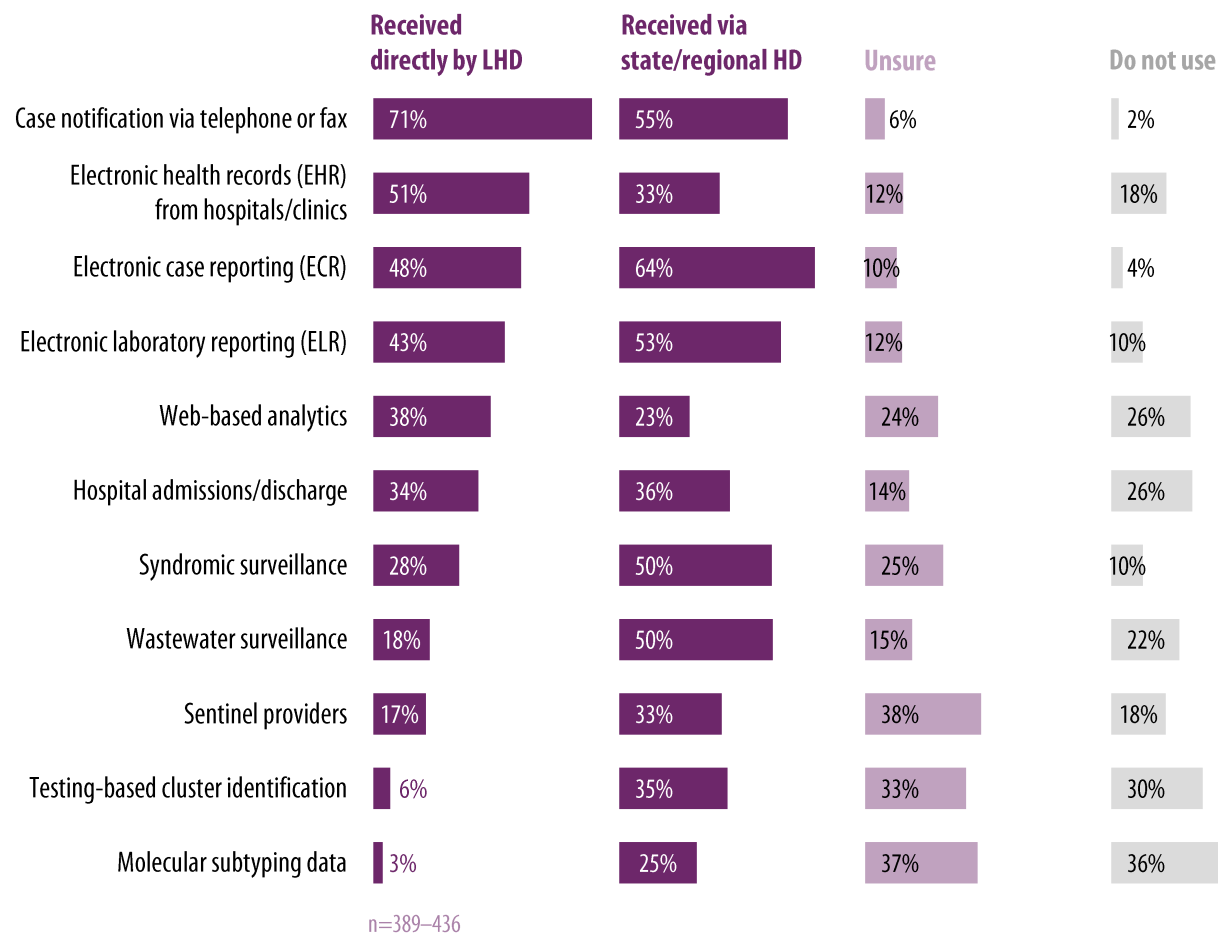
## 05 | DATA AND INTEROPERABILITY OF SYSTEMS

### **In this section:**

- Data sources used to monitor and respond to potential outbreaks
- Level of interoperability of LHD's electronic information or data systems with other agencies
- Challenges with current data systems

## Data sources used to monitor and respond to potential outbreaks

### Percent of LHDs



Across most sources, LHDs were more likely to receive data via state/regional health department (HD) than directly.

More than half of LHDs received case notifications via phone/fax, ECR, syndromic surveillance, EHR, ELR, or wastewater surveillance either directly or via state/regional HD. At least half of LHDs were either unsure about or not using molecular subtyping data, web-based analytics, sentinel providers, testing based cluster identification to monitor and respond to potential outbreaks.

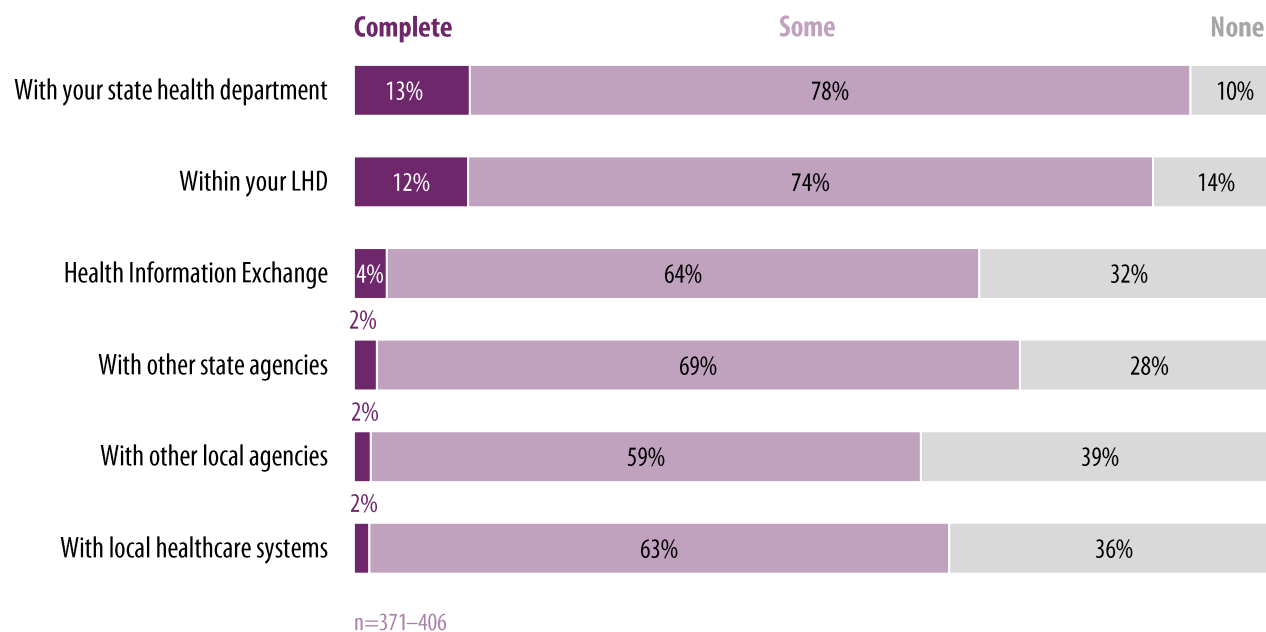
**Since 2023**, data source use has been consistent, with the largest increase of eight percentage points in the use web-based analytics.

#### Technical note

LHDs were asked to select all response options that applied to their agency.

## Level of interoperability of LHD’s electronic information or data systems with other agencies

Percent of LHDs



LHDs often described their information and/or data systems to have some (i.e., high, medium, or low) interoperability with different entities. Similar to these results, most LHDs reported that some of their systems were interoperable **in 2018**.

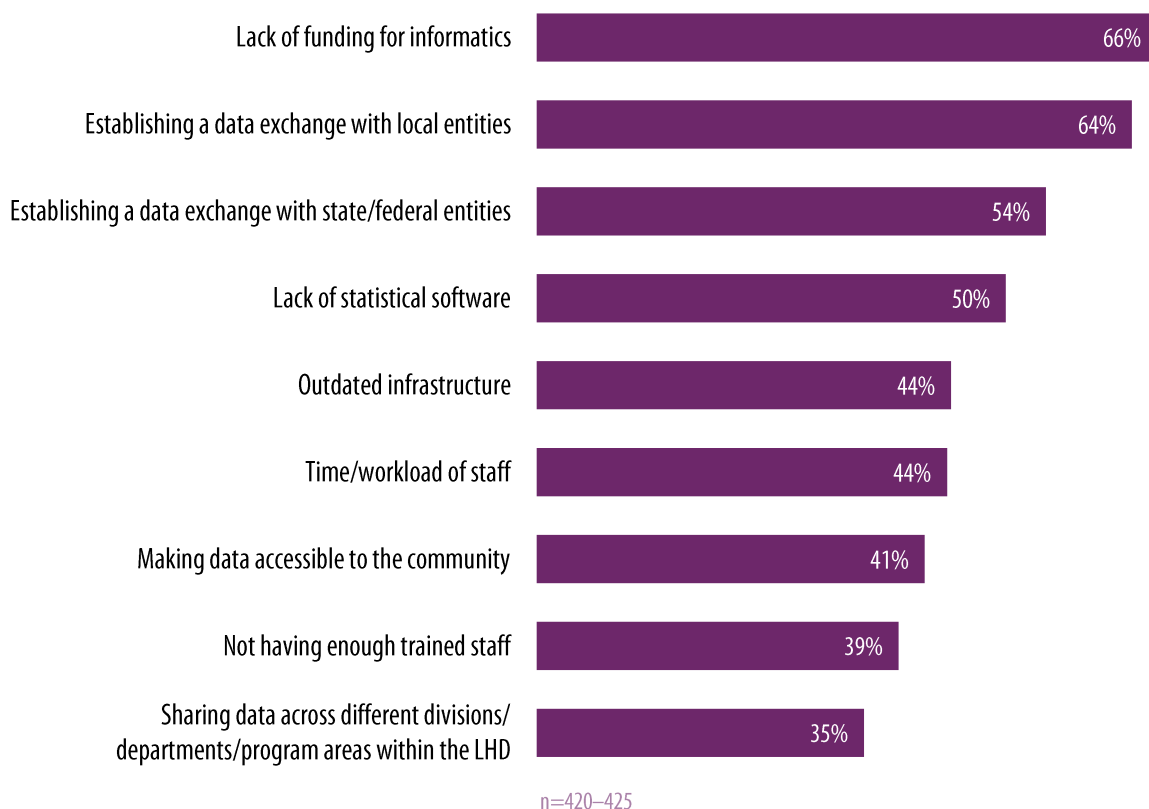
Nearly seven in 10 LHDs reported medium to complete interoperability with their state health department, while less than one in three reported that for other local agencies, local healthcare systems, or HIEs.

### Technical note

In this question, degree of interoperability is measured by the number of systems that were interoperable—no systems to all systems.

## Challenges with current data systems

Percent of LHDs reporting either “very challenging” or “extremely challenging”



Almost two in three LHDs indicated that the lack of funding for informatics or establishing a bi-directional with local entities is very or extremely challenging for their informatics work.

Although not shown, lack of funding and trained staff were more challenging for large LHDs than small LHDs, with 89% and 64% of large LHDs reporting these were very or extremely challenging and only 65% and 38% of small LHDs reporting the same.



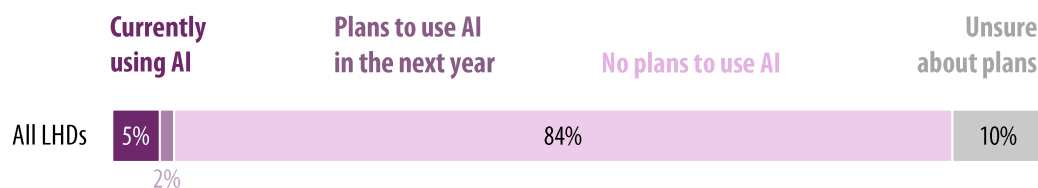
## 06 | ARTIFICIAL INTELLIGENCE (AI)

### **In this section:**

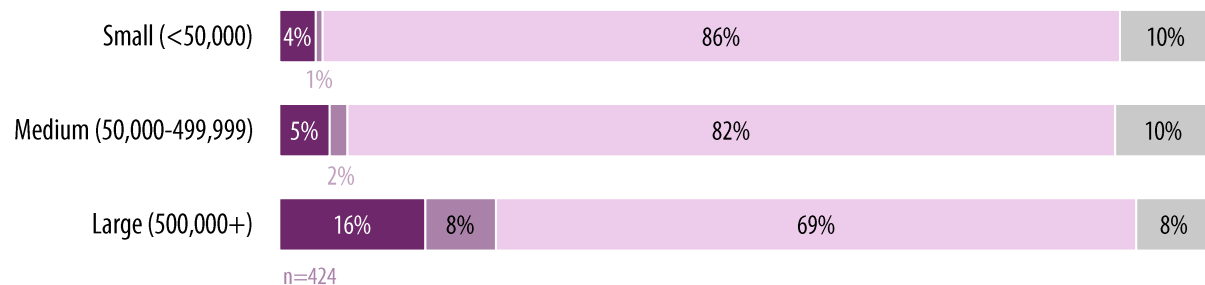
- Current or future use of AI
- Interest in using AI for processes or efficiencies
- LHD perception of threats in using AI

## Current or future use of artificial intelligence (AI)

### Percent of LHDs



### Size of population served



AI use (including machine learning) was uncommon among LHDs, with only 5% of LHDs reporting currently using it to improve LHD processes or efficiency. Among the LHDs that were not using AI, most had not created plans to use AI in the next year.

Large LHDs were three times as likely to report currently using AI as small and medium LHDs. Although not shown, the use of AI was similar for rural (4%) and urban LHDs (6%).

Although not shown, most frequently, the few LHDs that were using AI did so for generating communication materials or plans.

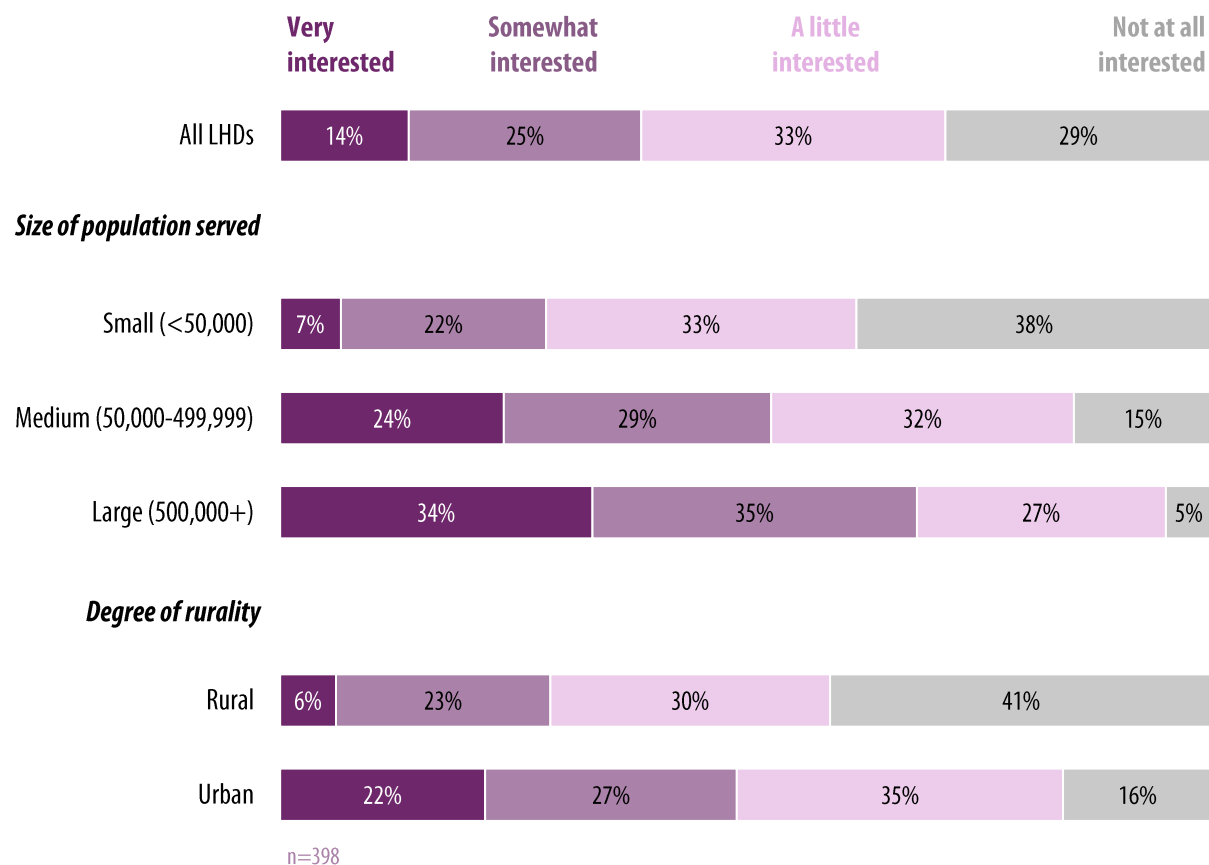
### Technical note

AI is a broad term that encompasses machine learning, natural language processing, rule-based expert systems, physical robots, and robotic automation" to improve efficiency in public health services and decision-making.



## Interest in using AI for processes or efficiencies

Percent of LHDs among those that were not currently using AI

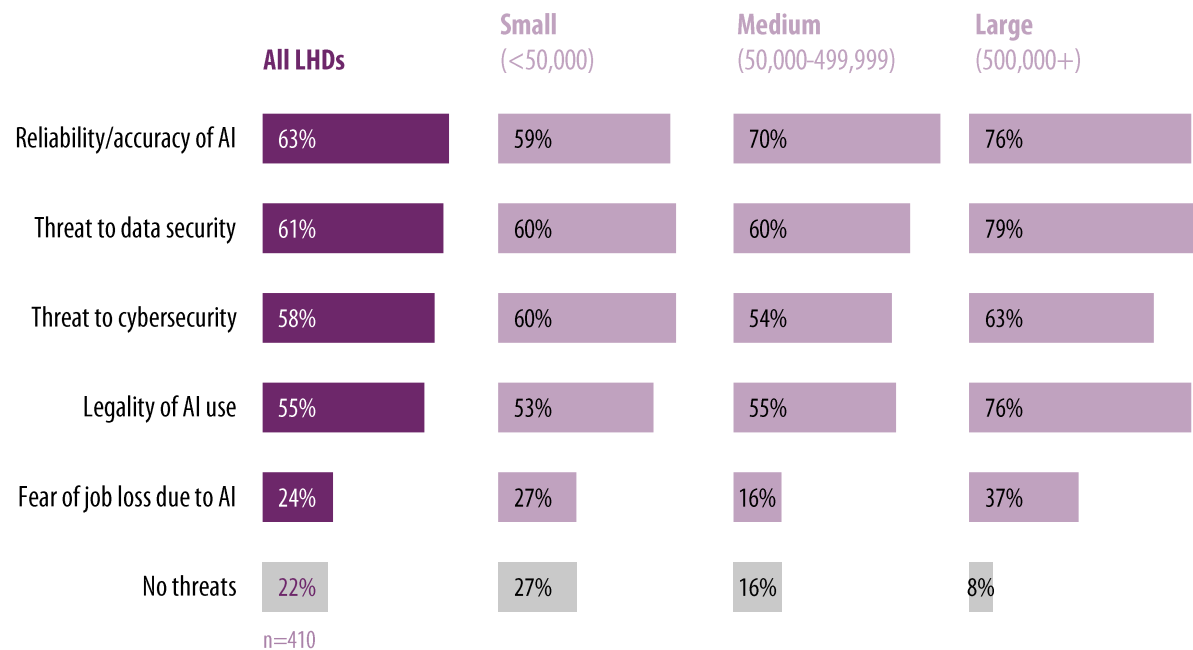


For the LHDs that were not currently using AI, most were interested in using it in their work. While three in 10 of these LHDs were not at all interested in using AI, four in 10 were somewhat or very interested.

Large LHDs tended to report greater levels of interest, compared to small and medium LHDs. While 41% of rural LHDs reported no interest at all, only about 16% of urban LHDs reported the same.

## LHD perception of threats in using AI

Percent of LHDs



A majority of LHDs reported that they perceived threats while using AI. More than three in five LHDs indicated that data security and reliability or accuracy of AI were threats.

Large LHDs were more likely to report perceived threats to data security and legality, compared to medium and small LHDs.

The least common threat—though reported by one in four LHDs—was fear of job loss due to AI use.

### Technical note

LHDs were asked to select all response options that applied to their agency.



The mission of the National Association of County and City Health Officials (NACCHO) is to improve the health of communities by strengthening and advocating for local health departments.

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