



KANSAS PUBLIC HEALTH INFORMATICS SYSTEM ASSESSMENT

Summary Report

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Summary Report

Prepared for the Kansas Public Health Informatics Workgroup

AUGUST 2017

Author

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Executive Summary

Public health informatics is central to public health work and public health programs. Agencies depend on reliable data and information systems to perform their work. Without reliable data and systems, the capacity of public health informatics diminishes. In Kansas, unique challenges have restricted the successful operation of an informatics-savvy public health system and these challenges have yet to be studied to identify and measure gaps in informatics capacity.

Using an assessment tool adapted from nationally available resources and customized to meet Kansas' needs, a focus group collaborated to identify capacity scores for public health informatics at the local, state and system levels. The multi-disciplinary focus group represented local and state governmental public health, academia and other partners. The structure of the assessment tool and process matches that of the assessment instruments developed by the Association of State and Territorial Health Officials (ASTHO) for the Centers for Disease Control and Prevention's (CDC) National Public Health Performance Standards Program. The assessment tool is organized in sections by Foundational Capabilities, which are cross-cutting skills required to be present in each governmental health department. The Foundational Capabilities, as defined by RESOLVE, include *Assessment, All Hazards Preparedness and Response, Communications, Community Partnership Development, Policy Development and Support* and *Organizational Competencies*. All participants voted twice for each topic question: one vote with respect to all local health departments ("*Local*") and one with respect to Kansas Department of Health and Environment (KDHE) programs ("*State*").

The Kansas Public Health Informatics System Assessment resulted in a collaborative determination of the current informatics capacity within the Kansas public health system as well as an understanding of gaps in specific capacities. KDHE possessed a higher informatics capacity than local health departments for all but a few topic questions, often by a wide margin. The public health system was highly regarded in informatics capacity for *Assessment* activities, while *Policy Development and Support* was present at a lower capacity. Informatics functions related to communicable disease control, surveillance and public health emergency preparedness had the highest performance within the system. Interoperability and information system design were the lowest performing.

The Kansas Public Health Informatics System Assessment was a critical first step in the process to raise the informatics capacities within the Kansas public health system. This assessment will enable stakeholders to devise and prioritize interventions in order to address the gaps perceived by the focus group to move toward an optimal state of informatics performance.

Findings:

- Informatics activities for *Assessment* and those relating to communicable disease control, surveillance, and emergency preparedness are the highest performing within the public health system.
- Informatics activities for *Policy Development and Support* and those relating to information system interoperability and integration are the lowest performing within the public health system.
- Capacity scores provided a metric to estimate the current informatics performance versus maximum possible performance: local health departments (36 percent of potential capacity), state health department (60 percent of potential capacity), and public health system (48 percent of potential capacity).
- Participants highly regarded the state for its staff expertise, data quality, data collection and data sharing processes. Local health departments were recognized for their strengths in informatics activities related to partnerships and data sharing.

Introduction

All public health programs and agencies rely on information to guide their operations and require a technical capacity to use information effectively. There is wide diversity of technical capacity to process data, knowledge and information in public health programs and agencies in Kansas. Even though these issues are central to building a strong public health system, little is known about the extent of the diversity in technical capacity and about how the Kansas public health system performs in relation to public health informatics. Informatics capacity gaps have yet to be identified for the public health system and strategies to address those gaps have yet to be developed.

The assessment tool used for this project aimed to examine the informatics capacity within the public health system, with a focus primarily on government public health agencies. The assessment aimed to identify perceptions on capacities at local, state and system levels. The outcomes of this process included a collaborative measurement of the current informatics capacity within the Kansas public health system as well as an understanding of specific gaps in capacities.

Methods

A team from the Kansas Health Institute, with support from the Kansas Public Health Informatics Workgroup (Informatics Workgroup), designed the assessment tool for deployment within a diverse focus group with representation from multiple stakeholder groups. The selected participants represented the state health department, local health departments, academic institutions and other partners.

Assessment Tool Development

The team adapted questions from assessment tools designed by the Health Metrics Network and the Public Health Informatics Institute.^{1,2} Tool format and structure were similar to the Association of State and Territorial Health Officials' (ASTHO) assessment instruments for the Centers for Disease Control and Prevention's (CDC) National Public Health Performance Standards Program (NPHPS).³ Sections within the tool were arranged by Foundational Capabilities—cross-cutting skills to be present in each governmental health department—as outlined within a model describing a minimum package of public health services assembled by

the independent, nonprofit organization RESOLVE: *Assessment, All Hazards Preparedness and Response, Communications, Community Partnership Development, Policy Development and Support and Organizational Competencies*.⁴

Focus Group Activity

The Center for Public Health Initiatives (CPHI) at Wichita State University coordinated the focus group. Each participant received the Informatics System Assessment Tool and a document containing definitions for technical terms present within the tool. To obtain voting data and provide real-time visualization of voting, CPHI provided access to *Poll Everywhere*, an application which allowed participants to vote electronically.

Participants provided representation from the state health department, local health departments, academia and other partners (a list of participants are available within *Appendix A*). Participants within the focus group could freely provide their vote for each topic question. Votes varied with each session with as few as seven and as many as 13.

A short, facilitated discussion followed the introduction of each topic question. After discussion, participants voted on their perceptions for local capacities. Voting options consisted of the following categories, by process maturity:

- *Absent* – No efforts present.
- *Sporadic* – Few organized efforts, not systematically documented, measured or coordinated.
- *Often* – Systematic, ongoing efforts underway, but no overall method to measure progress or to ensure coordination.
- *Institutionalized* – Systematic, ongoing efforts underway including activities to align results with guiding vision, strategies, and performance and quality metrics. When applicable, policies, procedures and guidelines incorporate these efforts.

Following the discussion, participants cast votes for the category of process maturity they perceived for each topic question with regards to two structures within the Kansas public health system: 1) informatics capacities perceived across all local health departments (*“Local”*); and 2) informatics capacities perceived for KDHE programs (*“State”*). Participant voting was held separately for *Local* and *State* capacities for each topic question. *Poll Everywhere* allowed real-

time visualization of polling results and participants could change their response for a given question if the question was in current discussion. After each Foundational Capability section, participants discussed additional strengths and weaknesses within that Foundational Capability. At the conclusion of the focus group, the facilitators collected the lists produced by the additional discussions.

Voting Analysis

CPHI accessed the raw voting data from the *Poll Everywhere* application following the focus group. Voting data represented a proportion of votes falling within a response category (e.g., four votes for *Often* out of twelve participants would afford 0.33 for *Often*). Voting data were first assigned weights per the process maturity response (*Absent* = 0, *Sporadic* = 1, *Often* = 2, *Institutionalized* = 3), then summed across response categories for each topic question:

$$\text{Data Weighting} = 0 \times [\text{Absent Votes}] + 1 \times [\text{Sporadic Votes}] + 2 \times [\text{Often Votes}] + 3 \times [\text{Institutionalized Votes}]$$

$$\text{Example. } 0 \times [0.0 \text{ Absent}] + 1 \times [0.33 \text{ Sporadic}] + 2 \times [0.50 \text{ Often}] + 3 \times [0.17 \text{ Institutional}] = 0.0 + 0.33 + 1.00 + 0.51 = 1.84$$

By this formula, the minimum possible weighted score for a given topic would be **0.00** (all participants voting *Absent*) and the maximum possible weighted score for a given topic would be **3.00** (all participants voting *Institutionalized*). For convenience, we then fit the data to fall between 0 and 1, using those possible minimum and maximum scores, to create “capacity scores:”

$$\text{Capacity Score} = \frac{\text{Weighted Sum} - \text{Minimum Score}}{\text{Maximum Score} - \text{Minimum Score}}$$

$$\text{Example. } 1.84 - 0.00 / 3.00 - 0.00 = 1.84 / 3.00 = 0.61$$

The capacity scores within each topic question were averaged for the *State* responses and *Local* responses to provide capacity scores for each Foundational Capability by those two groups. The *State* and *Local* capacity scores were then averaged together for each topic question to create capacity scores for the “*System*.”

All topic and Foundational Capability capacity scores for the *State*, *Local* and *System* were assigned per quartile within the scale for additional visualization of perceived performance for

each topic and category. Quartile cutoffs were made at equal intervals between 0 and 1: ≤ 0.24 , $0.25-0.49$, $0.50-0.74$, and ≥ 0.75 (Figure 2, Appendix C). For the examples above, the topic question would fall within the third quartile (considered to be at 61 percent of potential capacity or “often” present).

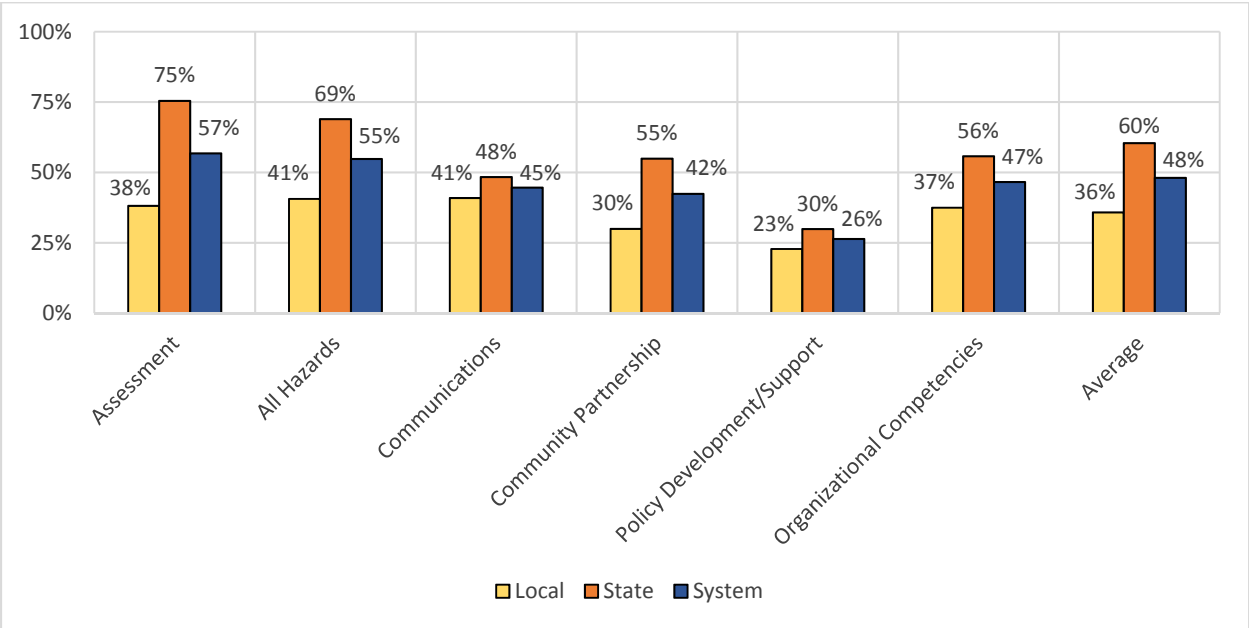
Results

Perceptions on informatics performance varied between Foundational Capabilities, showing clear differences in informatics capacities between these categories; differences in perceptions within a Foundational Capability were smaller than the differences in the average scores between Foundational Capabilities. There were substantial differences in the perceived capacities of *State* and *Local*/governmental public health. Participants perceived *Local* capacity to be “sporadically” present, with votes cast typically falling within the second quartile. Similarly, participants perceived *State* capacity to be “often” present, with votes cast typically falling within the third quartile. The average of *State* and *Local* capacity scores for each topic question led to an understanding of the focus group’s perceived informatics performance of the Kansas public health system. Combining the performance for *Local* and *State* led to a median perception of informatics performance of the public health *System*.

Analysis of Voting Data

On average, participants tended toward a response of *Sporadic*, making up from 40 to 74 percent of votes cast throughout the assessment for a given Foundational Capability. As seen in Figure 1, page 5, participants perceived informatics functions for *Assessment* to be operating at the highest capacity, in large part due to the *State* role. Both *State* and *Local* performance were highest in this Foundational Capability for population health assessment resources and data accessibility. *Policy Development and Support* operated at the lowest capacity, with weaknesses perceived for informatics policies, but with greater weaknesses perceived in policymaker decision-making at both *State* and *Local* levels. While *Organizational Competencies* operated at a moderate level of capacity, the topic question on availability of financial tools received the highest capacity scores in the entire assessment.

Figure 1. Capacity Scores by Foundational Capability for Local, State and System



Source: KHI analysis of votes cast by focus group in October 2016 Kansas Public Health Informatics Assessment.

Local Performance

Participants perceived *Locals* to have an average informatics performance of 36 percent of its potential maximum capacity across all Foundational Capabilities. *All Hazards Preparedness and Response* and *Communications* received the highest support (41 percent each). The lowest informatics performance was in *Policy Development and Support* (23 percent). *Local* performance for topic questions most often fell within the second quartile as “sporadically” present.

State Performance

Participants perceived the *State* to have an average informatics performance of 60 percent of its potential maximum capacity across all Foundational Capabilities. The highest performance was in *Assessment* (75 percent) and the lowest performance was in *Policy Development and Support* (26 percent). *State* performance for topic questions typically fell within the third quartile as “often” present.

Public Health System Performance

Participants perceived the public health *System* to have an average informatics performance of 48 percent of its potential maximum capacity across all Foundational Capabilities. The highest

performance for Foundational Capabilities was in *Assessment* (57 percent) and the lowest performance was in *Policy Development and Support* (23 percent).

Common Themes from Focus Group

Notes combined with lists provided to facilitators within the assessment process reflected a small number of common themes for informatics strengths and weaknesses within the public health system:

Strengths

1. The *System* was considered to have highest performance in areas related to epidemiology, preparedness and surveillance. Participants widely viewed KDHE's EpiTrax—Kansas' electronic disease surveillance system—to be a great information system.
2. The *State* was well-regarded by participants for having staff with informatics expertise.
3. The *State* was well-regarded for data quality within certain key data sources, particularly those linked to authorities provided by Kansas statutes (cancer, mortality, birth and other data).
4. Participants reported high capacity for data collection and sharing by the *State*.
5. Participants found capacity for *Locals* to have the greatest strength in partnerships, preparedness activities and utilization of available resources.

Weaknesses

1. The *System* was very low-performing in information system interoperability and data integration.
2. The *State* was found to have weaknesses in activities related to informatics policies.
3. *Locals* were found to have issues in areas related to data quality and information systems.
4. *Locals* also had large gaps in capacity and were sometimes unaware of available resources.

Discussion

Of the strengths identified throughout this assessment, the *System* excelled in communicable disease control, public health emergency preparedness and surveillance activities. These linked functions often receive more interest and funding in public health and tend to attract those with higher expertise. KDHE can operate at a higher level within current processes, capacity and performance, in comparison with most local health departments. This is likely due to KDHE having a diverse workforce with technical expertise not available to most local health departments. These staff and processes allow the *State* to function at a higher level than *Locals*. There was a consensus that state data quality is typically high, and the advent of meaningful use policies from the Centers for Medicare and Medicaid Services (CMS)—that support data sharing from electronic health record technology—has increased capacity for data collection and sharing by the state. *Local* strengths were discussed to be the highest in regards to partnerships. Participants shared that many local health departments foster great relationships with external partners to accomplish their goals, especially leveraging those with analytical and technical expertise to support informatics.

The assessment also identified some key weaknesses in the public health system. Information systems that were perceived to be isolated from other systems, or “siloes” within the *State*, prevent easy aggregation of data from multiple systems. Examples of siloes systems discussed were; DAISEY, an information system for maternal and child health data, and KSWebIZ, Kansas’ statewide immunization registry. Both information systems were identified as having limited data sharing for public health uses. Additionally, no instances were identified where independent systems held by the *State* or local entities have been integrated by developing custom integrations. This greatly inhibits the ability to use and compare public health data within the state. Several participants noted that recently developed systems did not have interoperability in mind during design often resulting in independent information systems with duplicated data elements or data sets. *Local* data collection and program interoperability is often minimal, with local data often having poor data quality. This may be in large part due to gaps in local capacity (specialized knowledge and resources) and in knowledge about available data sources for Kansas public health data.

Future Opportunities

KDHE representatives shared that future on-boarding and improvements for ESSENCE—a CDC syndromic surveillance system in use by KDHE—will greatly increase capacity for the *State*. Other improvements to technology and process automation will improve efficiency and accuracy of data collection. A key opportunity noted by most participants was that future information system design should include interoperability considerations.

Local health departments will benefit from identified surveillance indicators to identify shifts in disease states. There is potential for local health departments to provide standardization for regular use of public health data with policymakers. The public health system could work to standardize communications processes to include messaging to special populations, and evaluation processes could be set in place to ensure messages reach target audience(s).

This work is also supported by Kansas Association of Local Health Departments (KALHD) Informatics Sub-Committee, a group of local health department directors led by CPHI with a focus on information systems in use by local health departments. Current work by the Informatics Workgroup and the KALHD Informatics Subcommittee aim to improve collaboration of partners for investment and engagement within the public health system.

Limitations of Assessment

The focus group participating within this assessment was small, having three participants representing KDHE and seven representing local health departments. Although all participants voted in both *State* and *Local* categories, the small group may have had limited knowledge about the actual system capacity to inform voting. Future assessments should strive to have a higher representation from the public health system to improve validity.

Conclusions

The Kansas Public Health Informatics System Assessment provided the data necessary to evaluate the functionality of informatics operations within the Kansas public health system. Significant gaps were identified to be present—both between the state and local level—and overall, between current and optimal states of performance within the Kansas public health system. The assessment was a critical first step in the process to raise the informatics capacities within the Kansas public health system. This assessment will allow stakeholders to devise and

prioritize interventions to address the gaps perceived by the focus group. The Informatics Workgroup will lead this effort and will benefit from the work being performed by the KALHD Informatics Subcommittee. Both groups will use these data to support strategic initiatives moving forward to raise the informatics capacities within the Kansas public health system.

Appendix A: Focus Group Participants

Participants provided representation from the state health department (three representatives), local health departments (seven representatives), academic and other partners (four representatives).

Kansas Department of Health and Environment (3)

- Greg Crawford, B.A. (*Bureau of Epidemiology and Public Health Informatics*)
- Charlie Hunt, M.P.H. (*Bureau of Epidemiology and Public Health Informatics*)
- Ghazala Perveen, Ph.D., M.P.H. (*Bureau of Health Promotion*)

Local Health Departments (7)

- Nick Baldetti, M.S. (*Reno County*)
- Jessica Fiscus, M.P.H. (*Riley County*)
- Kaylee Hervey, M.P.H. (*Sedgwick County*)
- Lougene Marsh, M.P.A. (*Johnson County*)
- Lynnette Redington, M.Ed. (*Harvey County*)
- Dana Rickley, R.N. (*Clay County*)
- Kristin Watkins, M.B.A. (*Atchison County - NEK Multicounty*)

Academic/Other (4)

- Aaron Davis, M.B.A. (*Community Engagement Institute—Wichita State University*)
- Suzanne Hawley, Ph.D., M.P.H. (*Wichita State University*)
- Tanya Honderick, R.N., M.S., M.P.H., (*University of Kansas*)
- Bruce Miyahara, M.H.A.

Support Staff — *Non-voting* (4)

- Sonja Armbruster, M.A. (*Community Engagement Institute—Wichita State University*)
- Caitlin Brock (*Community Engagement Institute—Wichita State University*)
- Jason Orr, M.P.H. (*Kansas Health Institute*)
- Gianfranco Pezzino, M.D., M.P.H. (*Kansas Health Institute*)

Appendix B: Kansas Public Health Informatics Assessment Questions

Assessment

1. Does the Kansas public health system utilize a process to plan and design high-quality surveillance systems that support the Foundational Public Health Services?
2. Does the Kansas public health system maintain adequate data collection and monitoring programs designed to measure the population's health status at the state and local levels?
3. Does the Kansas public health system have an adequate data management and collation process?
4. Are there adequate tools and resources available to support community and state health assessments?
5. Are data from health surveillance and other health programs accessible to those who need them?
6. Are public health data available showing where disparities in health outcomes, health determinants, and resource allocations exist?
7. Is the Kansas public health system able to identify health problems and threats to individual communities with the desired level of sensitivity and timeliness?
8. Does the Kansas public health system utilize adequate processes in place to provide interpretation of the surveillance data collected?
9. Does the Kansas public health system utilize adequate processes in place to disseminate surveillance analysis results?
10. Does the Kansas public health system have the capability to securely send and receive laboratory test results electronically?

All Hazards Preparedness/Response

11. Are data available to establish a baseline for public health emergency surveillance?
12. Does the Kansas public health system have processes in place to monitor the status of a public health emergency?
13. Does the Kansas public health system have a means to electronically alert health providers, public health staff and the public of new or ongoing emergencies on a 24/7 basis?
14. Does the Kansas public health system have processes to ensure continuity of operations for mission-critical information and communication systems during emergency situations?

Communications

15. Are health data summaries on important health issues regularly disseminated to relevant parties, including the public and media?
16. Is appropriate information on health education and disease prevention systematically used to advocate for the adoption of lower-risk behaviors by the general public?
17. Is appropriate information on health education and disease prevention systematically used to advocate for the adoption of lower-risk behaviors by targeted vulnerable groups?

Community Partnership Development

18. Do the agencies in the Kansas public health system have the capability to receive electronic data from external partners?
19. Do the agencies in the Kansas public health system have the capability to process electronic data received from external partners?
20. Does integration of data collection and reporting from multiple public health programs occur?
21. How well do agencies in the public health system collaborate to maintain surveillance systems designed to identify and describe potential public health threats?

22. How well do agencies in the public health system work together to make data accessible to each other to support public health interventions and a community health improvement process?

Policy Development/Support

23. Does the Kansas public health system have adequate policies to support public health informatics?
24. Do policymakers routinely use the available public health data (e.g., population health status, health impact assessments, etc.) to make policy decisions?
25. Do policymakers routinely use public health data pertaining to health disparities (e.g., health outcomes, health risk factors, etc.) to make policy decisions?

Organizational Competencies

26. Do organizational leaders routinely use public health data (e.g., population health status, health risk factors, health impact assessments, etc.) for decision-making, resource allocation and improved practice?
27. Does the Kansas public health system have the capability to electronically send and receive data internally between program-specific health information systems?
28. Does the Kansas public health system have the capability to process data shared internally between program-specific health information systems?
29. Are there information technology tools for monitoring the quality improvement (QI) and performance management (PM) of public health programs and their various components?
30. Are there electronic tools to support general agency financial functions, such as budgeting, auditing, billing, financial system, and chart of expense and revenue accounts?
31. Does the public health system have adequate capacity to maintain and procure the hardware and software needed to access electronic health information and to support agency operations and analysis of public health data?

Appendix C: Data Table

Figure 2. Scaled capacity scores of perceived performances for each topic and category

Questions		Local	State	System
Assessment	Q.1. Surveillance System Design	31%	70%	50%
	Q.2. Data Collection/Monitoring	33%	73%	53%
	Q.3. Data Management/Collation	33%	58%	46%
	Q.4. CHA/SHA Resources	53%	89%	71%
	Q.5. Data Accessibility	61%	89%	75%
	Q.6. Disparity Data	39%	70%	55%
	Q.7. Threat Identification	42%	70%	56%
	Q.8. Surveillance Interpretation	36%	75%	56%
	Q.9. Surveillance Reporting	36%	69%	53%
	Q.10. Send/Receive Laboratory	16%	92%	54%
All Hazards	Q.11. Baseline Hazard Data	31%	61%	46%
	Q.12. Situational Awareness	33%	64%	48%
	Q.13. Electronic Alerting	46%	85%	65%
	Q.14. COOP	53%	66%	59%
Comm.	Q.15. Health Data Summaries	41%	60%	50%
	Q.16. Education (general)	45%	44%	45%
	Q.17. Education (at-risk)	36%	42%	39%
Partnership	Q.18. Receiving External Data	19%	67%	43%
	Q.19. Processing External Data	26%	69%	48%
	Q.20. Data Integration	25%	33%	29%
	Q.21. Collaboration (surveillance)	31%	38%	35%
	Q.22. Collaboration (intervention)	49%	67%	58%
Policy	Q.23. Informatics Policies	12%	33%	23%
	Q.24. Policymakers (public health decisions)	38%	33%	36%
	Q.25. Policymakers (at-risk decisions)	18%	23%	21%
Organizational	Q.26. Leaders (public health decisions)	56%	58%	57%
	Q.27. IS Interoperability (receiving)	21%	36%	28%
	Q.28. IS Interoperability (processing)	13%	33%	23%
	Q.29. QI/PM Tools	28%	61%	44%
	Q.30. Financial Tools	78%	100%	89%
	Q.31. Hardware/Software	30%	47%	39%

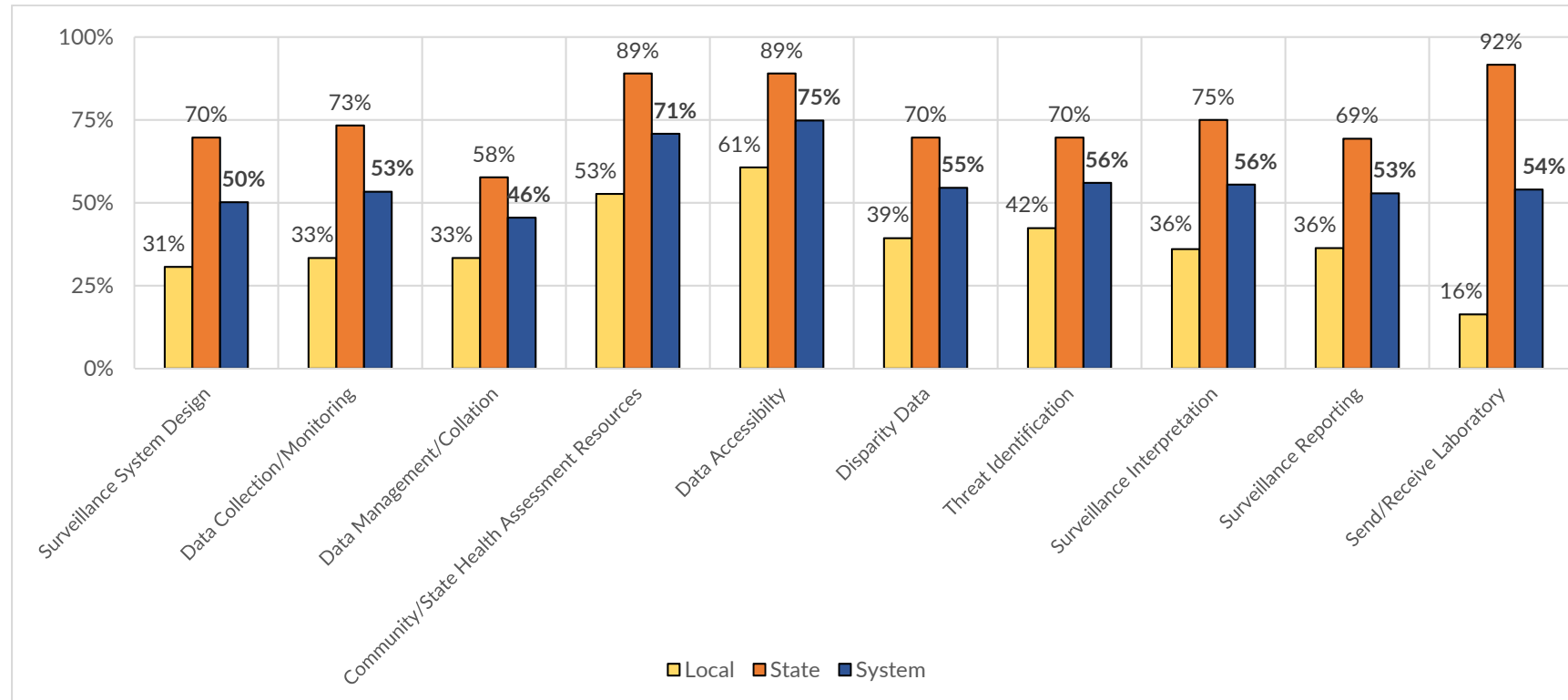
Average	36%	60%	48%
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Legend

1st Quartile	< 0.24	2nd Quartile	0.25 - 0.49	3rd Quartile	0.50 - 0.74	4th Quartile	> 0.75
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Appendix D: Perceptions of Informatics Capacity

Figure 3. Capacity Scores by Topic: Assessment



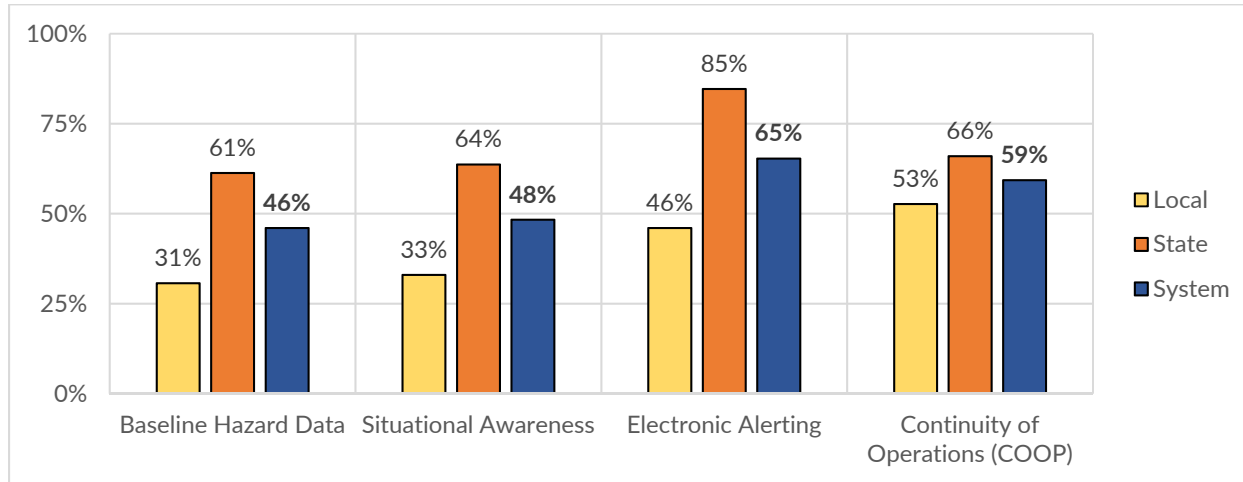
Source: KHI analysis of votes cast by focus group in October 2016 Public Health Informatics Assessment.

Average Scores: Local (38%), State (75%), System (57%)

Highest Capacity: Data Accessibility (75%)

Lowest Capacity: Data Management/Collation (46%)

Figure 4. Capacity Scores by Topic: All Hazards Preparedness and Response



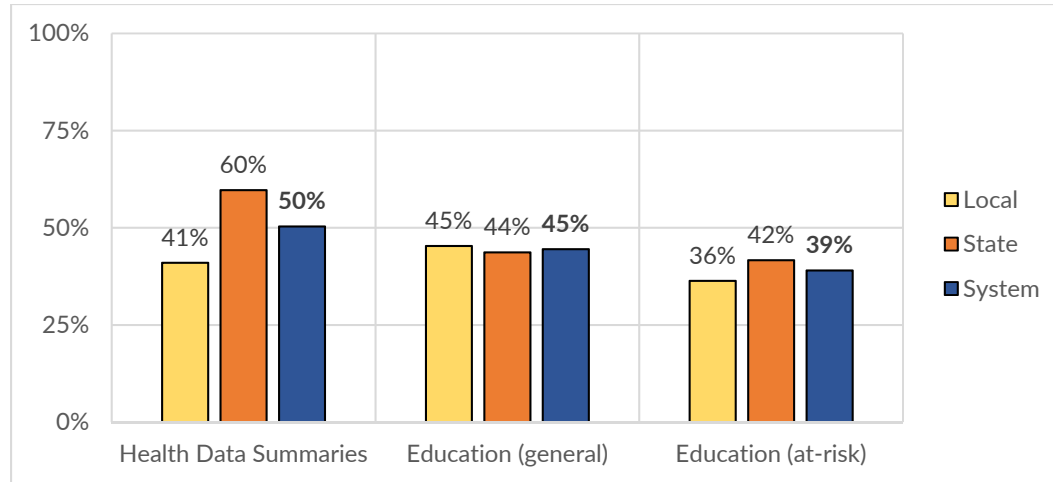
Source: KHI analysis of votes cast by focus group in October 2016 Public Health Informatics Assessment.

Average Scores: Local (41%), State (69%), System (55%)

Highest Capacity: Electronic Alerting (65%)

Lowest Capacity: Baseline Hazard Data (46%)

Figure 5. Capacity Scores by Topic: Communications



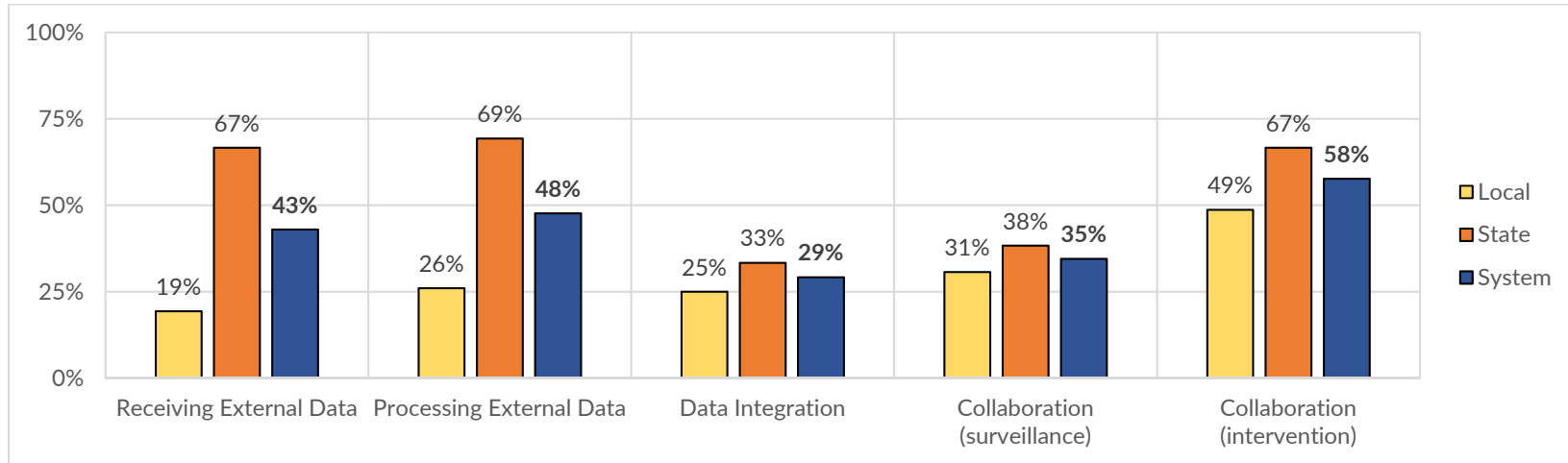
Source: KHI analysis of votes cast by focus group in October 2016 Public Health Informatics Assessment.

Average Scores: Local (41%), State (48%), System (45%)

Highest Capacity: Health Data Summaries (50%)

Lowest Capacity: Education (at-risk populations) (39%)

Figure 6. Capacity Scores by Topic: Community Partnership Development



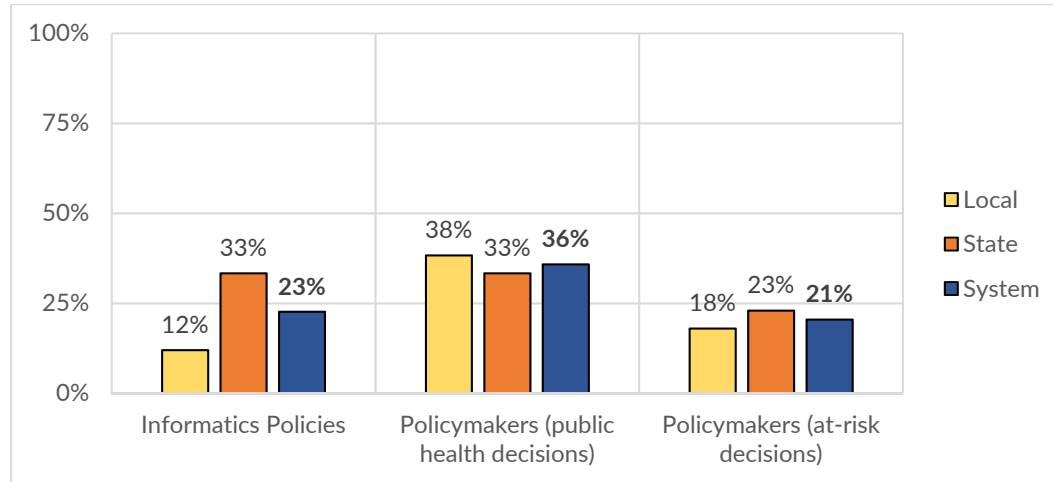
Source: KHI analysis of votes cast by focus group in October 2016 Public Health Informatics Assessment.

Average Scores: Local (30%), State (55%), System (42%)

Highest Capacity: Collaboration (intervention) (58%)

Lowest Capacity: Data Integration (29%)

Figure 7. Capacity Scores by Topic: Policy Development and Support



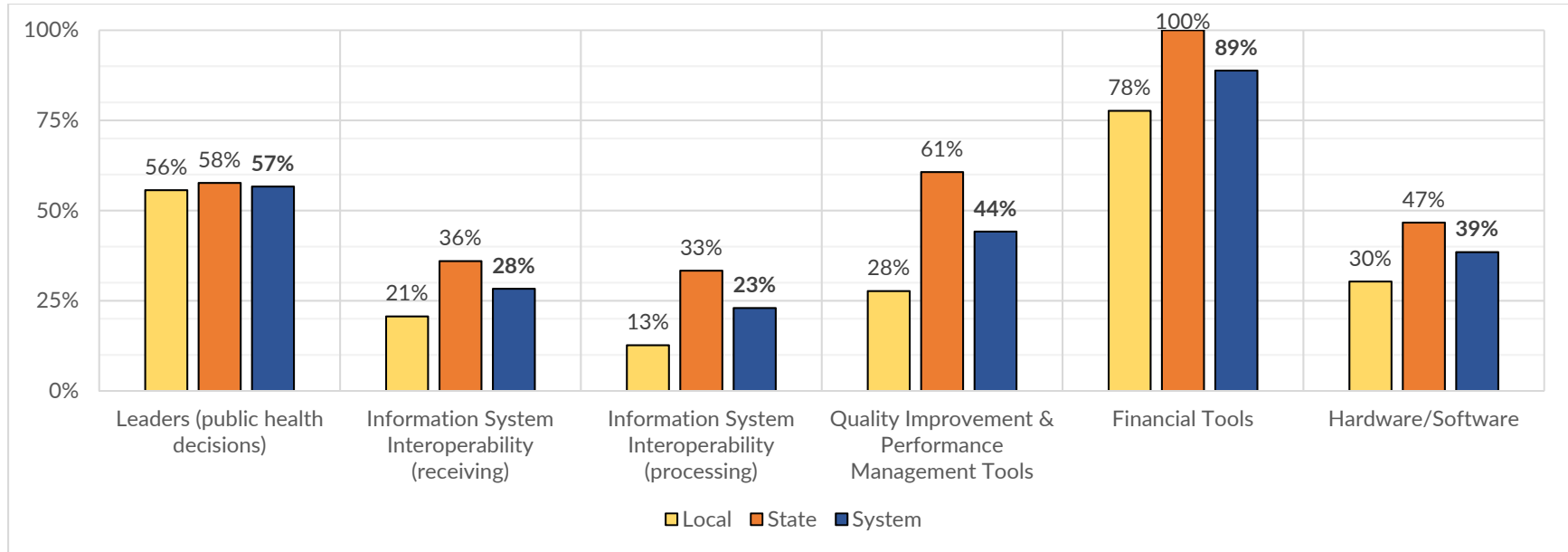
Source: KHI analysis of votes cast by focus group in October 2016 Public Health Informatics Assessment.

Average Scores: Local (23%), State (30%), System (26%)

Highest Capacity: Policymakers (public health decisions) (36%)

Lowest Capacity: Policymakers (at-risk decisions) (21%)

Figure 8. Capacity Scores by Topic: Organizational Competencies



Source: KHI analysis of votes cast by focus group in October 2016 Public Health Informatics Assessment.

Average Scores: Local (37%), State (56%), System (47%)

Highest Capacity: Financial Tools (89%)

Lowest Capacity: Information System Interoperability (processing) (23%)

Appendix E: Endnotes

1. Health Metrics Network. (2008). Assessing the National Health Information System: An Assessment Tool, Version 4.00. Geneva, Switzerland: World Health Organization.
2. The Public Health Informatics Institute. (2015). Building an informatics-savvy health department: a self-assessment tool. Retrieved on May 31, 2015, from <http://phii.org/infosavvy>
3. Association of State and Territorial Health Officials ASTHO. (2013). National Public Health Performance Standards, Version 3.0. Washington, DC: Association of State and Territorial Health Officials.
4. RESOLVE. (2014). Defining and Constituting Foundational Capabilities and Areas – Version 1. Washington, DC: RESOLVE.

KANSAS HEALTH INSTITUTE

The Kansas Health Institute delivers credible information and research enabling policy leaders to make informed health policy decisions that enhance their effectiveness as champions for a healthier Kansas. The Kansas Health Institute is a nonprofit, nonpartisan health policy and research organization based in Topeka that was established in 1995 with a multiyear grant from the Kansas Health Foundation.



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