

Costing the FPHS in Ohio: Analysis for FY 2019 Final Report

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Executive summary

For this report, we analyzed data for fiscal year (FY) 2019 on current levels of spending on and attainment of the Foundational Public Health Services (FPHS) by local health departments (LHDs) in Ohio. The sample included 72 of the 113 Ohio LHDs (64 percent) serving 9,569,838 Ohioans (82 percent of Ohio's total 2019 population).

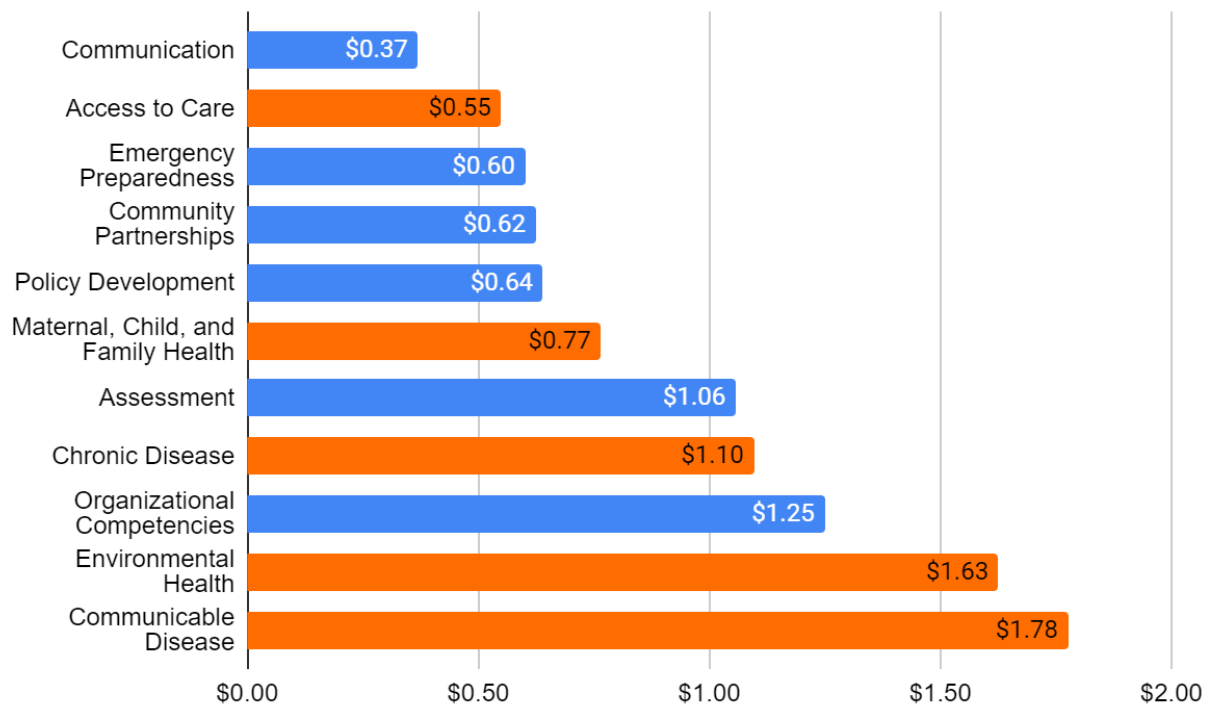
We described how much Ohio LHDs spent on the FPHS in 2019 and any gaps in full attainment of the FPHS. Based on current levels of spending on and attainment of the FPHS, we estimated the additional annual investment necessary to close existing resource gaps and assure a more adequate provision of the FPHS in communities across Ohio.

In addition to our analysis, we provided an overview of how other states that have engaged in similar FPHS costing efforts have used the information collected and any next steps they have taken based on these efforts. We concluded with a set of recommendations for public health policymakers and practitioners aimed at improving the provision of the FPHS in communities across Ohio.

Key findings:

- In FY 2019, Ohio LHDs spent an average of \$26.89 per capita on the FPHS: \$11.76 per capita was spent on the Foundational Capabilities and \$15.13 per capita was spent on the Foundational Areas. At the current level of spending, Ohio LHDs reported average attainment gaps ranging from 15 percent (Emergency Preparedness) to 33 percent (Policy Development).
- Based on these findings, an estimated annual investment of \$10.35 per capita is needed to close existing funding gaps and fully implement the FPHS in Ohio: \$4.54 per capita for implementing the Foundational Capabilities and \$5.81 per capita for implementing the Foundational Areas (see Figure E1).
- Based on the Ohio population of 11,690,000 residents in 2019, this translates into an annual investment need of approximately \$121 million for all LHDs in the state. Of this amount, \$53 million is needed to implement the Foundational Capabilities and \$68 million is needed to implement the Foundational Areas.

Figure E1: Average additional investment (in dollars per capita) needed by local health departments to fully implement the FPHS in Ohio, by foundational service



- Similar to the findings for FY 2018, resource gaps and additional investment needs varied widely across LHDs based on geographic location and population size served. LHDs located in the Southeast District had by far the greatest additional investment need (\$15.95 per capita) while LHDs in the remaining four districts has much lower average resource gaps, ranging from \$6.31 to \$8.83 per capita. LHDs serving the smallest communities had some of the largest additional investment needs (\$16.98 per capita). As population size increased, the average additional investment needed per capita decreased. For LHDs serving 100,000 and more residents, the additional resource need was only \$6.36 per capita.
- Additional investment needs also varied somewhat across the composition of LHDs' revenue sources (i.e., their levels of unrestricted local revenues and state revenues), yet none of the differences in investment needs was statistically significant.

Key recommendations:

- Data collection and analysis: We recommended several minor changes to the FPHS costing tool and data collection process to improve the timeliness and completeness of any data collected going forward. We also provided suggestions for incorporating into the costing tool indicators of LHDs' spending aimed at reducing health disparities and improving health equity.
- Implementation of findings: We provided a comprehensive set of recommendations on how to implement the FPHS in Ohio based on the experiences of public health policymakers and practitioners in three other states: Colorado, Oregon, and Washington.

Acknowledgements:

Annie Sieger of Sieger Consulting SPC contributed two sections to this report: "Implementation of FPHS in Ohio, Colorado, Oregon, and Washington" and "Implementation of findings".

Thank you for the opportunity to analyze FPHS costing data for Ohio LHDs for FY 2019. For questions or more information, please contact Simone Singh at singhsim@umich.edu.

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Methodology

Data and sample

Data for this report came from costing of FPHS spreadsheets submitted to the Ohio Public Health Partnership (OPHP) by Ohio LHDs. Completing these spreadsheets required Ohio LHDs to report detailed information on their agency's expenditures, including both labor and non-labor expenditures, for both the FPHS and any public health services provided by the agency in addition to the FPHS (i.e., Expanded Services).

Based on the FPHS framework developed by the Public Health Leadership Forum (PHLF), funded by the Robert Wood Johnson Foundation (RWJF) and facilitated by RESOLVE, the FPHS consist of Foundational Capabilities and Foundational Areas. Foundational services included in the Foundational Capabilities fall into the areas of Assessment, Communication, Community Partnerships, Emergency Preparedness, Organizational Competencies, and Policy Development. Foundational services included in the Foundational Areas fall into the areas of Access to Care, Chronic Disease, Communicable Disease, Environmental Health, and Maternal, Child, and Family Health.

In addition to the FPHS, Ohio LHDs frequently provide additional public health protections and services to meet the unique needs of their communities (Expanded Services). Programs included in the Expanded Services fall into the areas of Access to Care, Chronic Disease, Communicable Disease, Environmental Health, and Maternal, Child, and Family Health.

In addition to expenditures, LHDs were asked to estimate the percentage of FPHS being met by the agency and its community partners and the resulting gap in attainment of the FPHS, by foundational service. LHDs were also asked to report the size of the population served using data from either the 2010 Census or a more recent data source, if the size of the population served had changed meaningfully since 2010.

For this report, we analyzed data for FY 2019. These data were collected by OH LHDs between January and May 2020. Data was cleaned, validated, and analyzed in June 2021. We examined 76 costing of FPHS spreadsheets. Of these, four LHDs provided no information on attainment levels. As a result, the final sample was limited to 72 Ohio LHDs covering a population of 9,569,838 (82 percent of Ohio's total 2019 population of 11.69 million). Sample LHDs were located in all five health districts as defined by the Association of Ohio Health Commissioners (AOHC) and served populations ranging in size from 10,512 to 883,307. A complete list of LHDs included in this report can be found in the appendix (see Appendix Tables A to C).

Measures

Key measures analyzed and presented in this report included current levels of spending on the FPHS; current levels of attainment of the FPHS; and the estimated cost to close any attainment gaps. Current levels of spending on the FPHS were defined as total per capita spending on the FPHS as reported by Ohio LHDs on the costing of FPHS spreadsheets (page 6, column O). Total per capita spending included both labor and non-labor spending and was adjusted for regional or cross-jurisdictional shared service agreements.

Current levels of attainment of the FPHS were defined as the percentages of the FPHS currently achieved by Ohio LHDs and their community partners. Specifically, attainment was measured as (a) the percentage of FPHS currently being achieved by Ohio LHDs (page 5, column C); (b) the percentage of FPHS currently being achieved by entities serving the community or in partnership with but not including the LHD (page 5, column D); (c) the percentage of FPHS currently being achieved jointly by Ohio LHDs and their community partners (page 5, column E); and (d) the percentage gap in meeting 100 percent of the FPHS (page 5, column F).

The estimated cost to close any attainment gaps was defined as the cost to fill the gap between what LHDs currently provides and what LHDs should be providing to meet the FPHS. Estimates were computed using the following steps:

1. We divided each LHD's per capita cost for each foundational service by the respective attainment percentage to obtain the expected per capita cost at full (100 percent) attainment for each foundational service. To reduce the impact of outliers on the results, we excluded programs for which the expected per capita cost at full attainment were (1) negative or (2) exceeded the 95th percentile.
2. We multiplied the expected per capita cost at full attainment for each foundational service by the respective attainment gap to obtain the per capita cost required to fill the current gap in attainment, by foundational service.
3. We multiplied the average per capita cost required to fill the current gap in attainment by the Ohio 2019 population of 11,690,000 residents to obtain the total dollar amount required to fill the gap.

Our calculations of the estimated per capita and total costs to fill any gap in attainment of the FPHS required us to make assumptions, including:

1. We assumed that any gaps in attainment would be fully covered by the LHD alone, without relying on community partners.
2. We assumed that the costs to cover any gaps in attainment followed the same levels and patterns as the costs LHDs already expended on the FPHS. This implied, for instance, that the cost to achieve a ten percentage point increase in attainment remained

constant irrespective of the current level of attainment (i.e., there are no economies or diseconomies of scale). This also implied that the share of labor and non-labor costs remained constant across levels of attainment.

Analytical strategy

Descriptive analysis, including the computation of means, medians, interquartile ranges, and ranges, was conducted to describe current levels of spending on the FPHS by Ohio LHDs and the gaps attainment of the FPHS, by foundational services. All results presented were weighted by population size served to account for the large variation in jurisdiction size across sample LHDs.

All analyses were conducted first for all Ohio LHDs in the aggregate and then broken out by geography, population size, and revenue composition.

For the purpose of the analysis, geography was defined in terms of the five health districts as defined by the AOHC. The five health districts are Central, Northeast, Northwest, Southeast, and Southwest. A table of all sample LHDs located in each of the five health districts can be found in the appendix (see Table B).

Population size was defined as the number of people served by each Ohio LHD. Based on population data provided by Ohio LHDs, we grouped Ohio LHDs into the following four population groups: fewer than 30,000; 30,000 to 49,999; 50,000 to 99,999; and 100,000 and more people served. A table of all sample LHDs located in each of the four population groups can be found in the appendix (see Table C).

Revenue composition was defined using two indicators: (1) unrestricted (non-fee-based) local revenues as a percentage of an LHD's total revenues and (2) state revenues as a percentage of an LHD's total revenues. For both indicators, we compared LHDs with below vs. above median percentages of total revenues. The median for unrestricted local revenues as a percentage of an LHD's total revenues was 22.1 percent; the median for state revenues as a percentage of an LHD's total revenues was 19.6 percent.

Bivariate analysis using non-parametric Kruskal-Wallis tests was conducted to examine differences in means across geographic location and population size served. This test examines whether there are statistically significant differences in the average spending or attainment levels of LHDs located in different districts or serving populations of different sizes. T-tests of differences in means were used to examine variation across revenue composition. We used a p-value of 0.05 when reporting which results were statistically significant.

Results

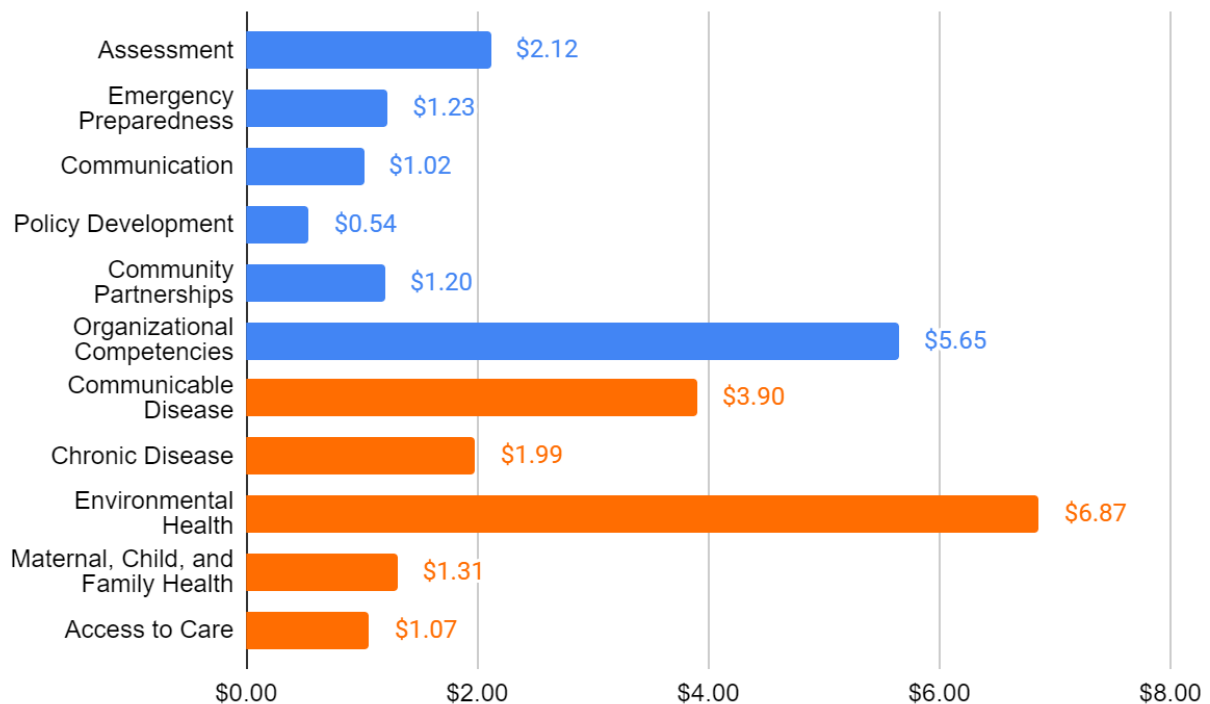
Part 1: Additional investment needed to fully attain the FPHS at the state level

In FY 2019, Ohio LHDs reported average total spending on the FPHS of \$26.89 per capita. Of this amount, an average of \$11.76 per capita was spent on the Foundational Capabilities while \$15.13 per capita was spent the Foundational Areas (see Table 1 and Figure 1).

Among the Foundational Capabilities, LHDs spent the most on Organizational Competencies (\$5.65 per capita), followed by Assessment (\$2.12 per capita), Emergency Preparedness (\$1.23 per capita), and Community Partnerships (\$1.20 per capita).

Among the Foundational Areas, LHDs spent the most on Environmental Health (\$6.87 per capita), followed by Communicable Disease (\$3.90 per capita) and Chronic Disease (\$1.99 per capita).

Figure 1: Per capita spending on the FPHS, by foundational service



Spending on both the FPHS varied substantially across LHDs (see Table 1). For the Foundational Capabilities, the bottom quarter of LHDs reported spending of less than \$5.21 per capita while the top quarter spent more than \$16.32 per capita.

Similarly, for the Foundational Areas, the bottom quarter of LHDs reported spending of less than \$8.15 per capita while the top quarter spent more than \$17.89 per capita. For the Expanded Services, the bottom quarter of LHDs spent less than \$3.70 per capita while the top quarter spent over \$20.68 per capita.

Table 1: Per capita spending on the FPHS, by foundational service

Program	Mean	Min	P25	Med	P75	Max
Assessment	2.12	0.25	1.08	1.48	2.47	8.36
Emergency Preparedness	1.23	0.11	0.60	0.97	1.84	7.12
Communication	1.02	0.00	0.34	0.83	1.13	12.64
Policy Development	0.54	0.00	0.17	0.33	0.77	6.91
Community Partnerships	1.20	0.00	0.38	0.71	1.35	7.31
Organizational Competencies	5.65	0.34	2.65	5.07	8.76	17.74
Total Foundational Capabilities	11.76	0.70	5.21	9.40	16.32	60.09
Communicable Disease	3.90	0.22	1.70	2.22	4.47	24.69
Chronic Disease	1.99	-1.56	0.43	1.18	2.70	7.81
Environmental Health	6.87	0.19	5.44	7.28	8.02	16.22
Maternal, Child, and Family Health	1.31	-1.93	0.54	0.92	1.59	16.04
Access to Care	1.07	0.00	0.04	0.40	1.11	31.48
Total Foundational Areas	15.13	-3.07	8.15	12.00	17.89	96.23
Total FPHS	26.89	-2.37	13.36	21.40	34.20	156.32

Note: Min represents the minimum; P25 represents the 25th percentile; Med represents the median; P75 represents the 75th percentile; Max represents the maximum. Negative values are the result of shared service arrangements.

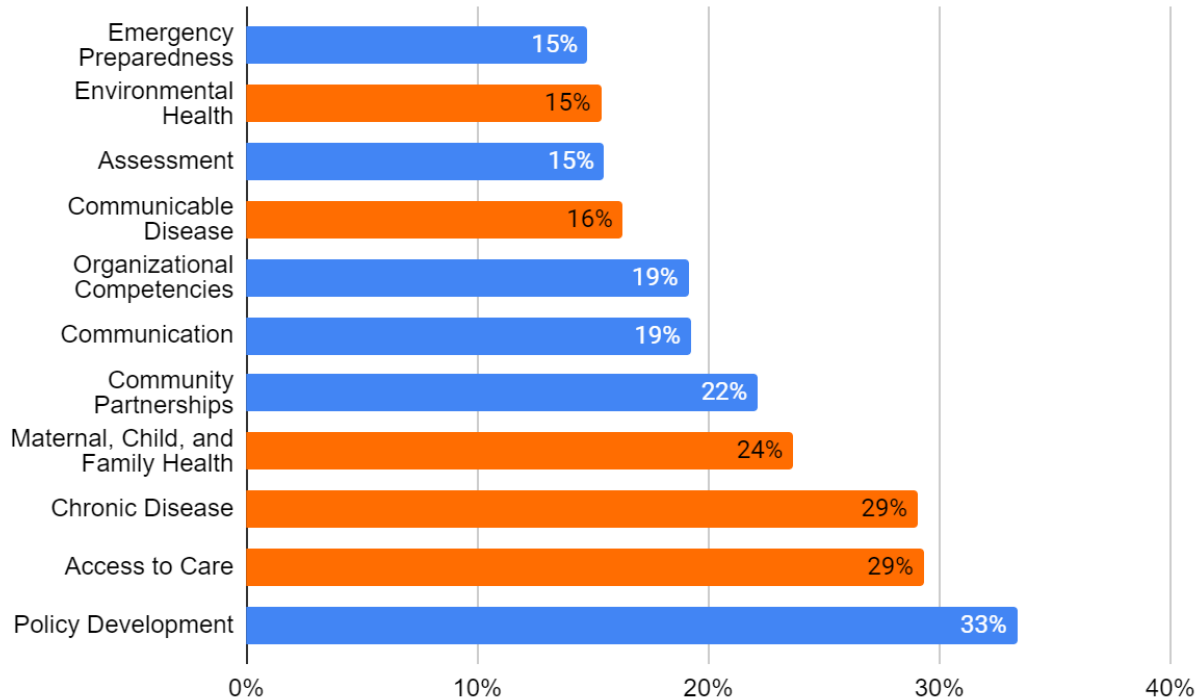
In many cases, current levels of spending did not allow Ohio LHDs to fully attain the FPHS. In FY 2019, Ohio LHDs reported average agency-level attainment rates between 52 percent (Policy Development) and 77 percent (Environmental Health) across the eleven foundational services that comprise the FPHS (see Table 2). Average attainment rates for community partners ranged from 9 percent (Environmental Health) to 23 percent (Access to Care). Combined, LHDs and their community partners reported average attainment rates ranging from 67 percent (Policy Development) to 85 percent (Assessment, Emergency Preparedness, and Environmental Health). The resulting attainment gaps ranged from 15 percent to 33 percent (see Figure 2).

Table 2: Current levels of attainment of the FPHS, by foundational service

	Agency	Partners	Combined	Gap
<i>Foundational Capabilities</i>				
Assessment	69%	16%	85%	15%
Emergency Preparedness	66%	21%	85%	15%
Communication	69%	13%	81%	19%
Policy Development	52%	15%	67%	33%
Community Partnerships	62%	17%	78%	22%
Organizational Competencies	74%	15%	81%	19%
<i>Foundational Areas</i>				
Communicable Disease	69%	16%	84%	16%
Chronic Disease	53%	20%	71%	29%
Environmental Health	77%	9%	85%	15%
Maternal, Child, and Family Health	57%	30%	76%	24%
Access to Care	49%	23%	71%	29%

Foundational services with the lowest gaps in attainment included Emergency Preparedness, Communicable Disease, and Assessment (see Figure 2). On the other end of the spectrum, foundational services with the highest gaps in attainment included Access to Care, Chronic Disease, and Policy Development.

Figure 2: Gaps in attainment of the FPHS, by foundational service



Based on current levels of spending on and attainment of the FPHS by the 72 Ohio LHDs analyzed for this report, additional spending of \$10.35 per capita will be needed to close the attainment gap and ensure adequate provision of the FPHS in communities across Ohio. Of this amount, \$4.54 per capita is needed to fully implement the Foundational Capabilities and \$5.81 per capita is needed to fully implement the Foundational Areas. Table 3 shows the additional investment per capita needed to fully attain each of the foundational services.

These estimates translate into an annual total dollar investment of approximately \$121 million needed to close the attainment gaps in the FPHS for all LHDs in Ohio, assuming the average resource gap identified for sample LHDs applies to all LHDs in Ohio. A total of \$53 million is needed to fully implement the Foundational Capabilities and a total of \$68 million is needed to fully implement the Foundational Areas. Table 3 shows the additional total investment needed to fully attain each of the foundational services in communities across Ohio.

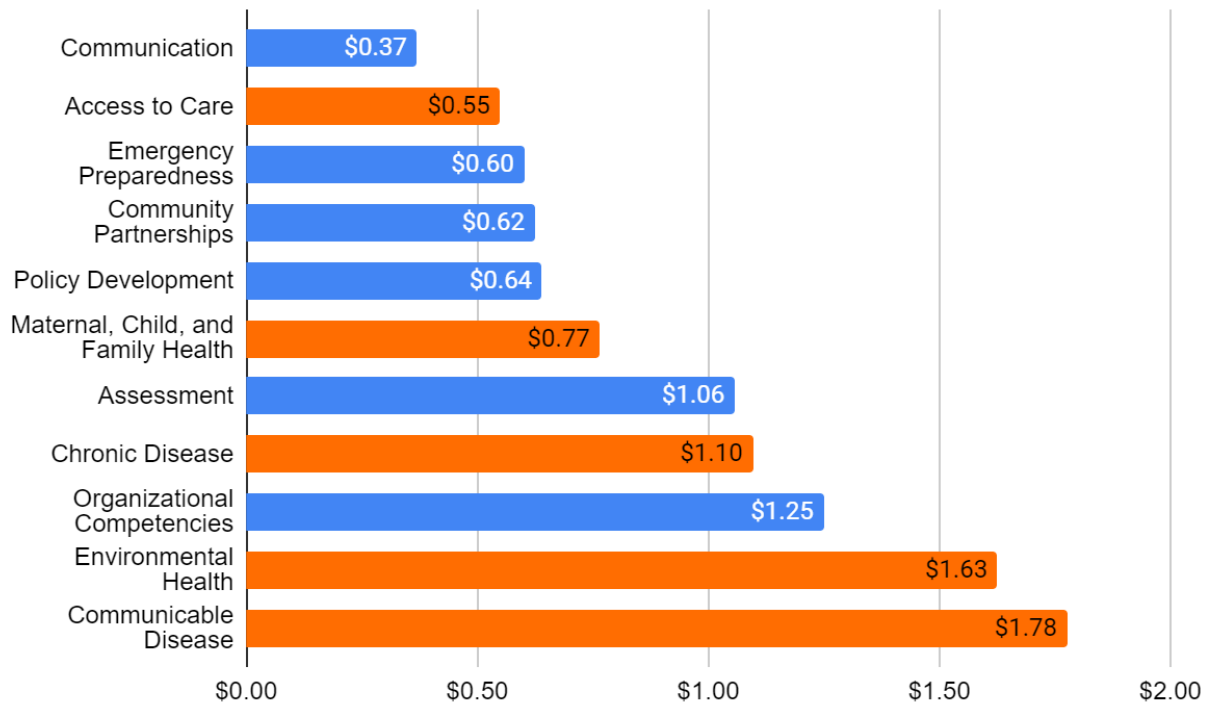
Table 3: Additional investment needed to fully attain the FPHS, by foundational service

	Per capita (\$)	Total (million \$)
<i>Foundational Capabilities</i>		
Assessment	\$1.06	\$12.4
Emergency Preparedness	\$0.60	\$7.0
Communication	\$0.37	\$4.3
Policy Development	\$0.64	\$7.5
Community Partnerships	\$0.62	\$7.3
Organizational Competencies	\$1.25	\$14.6
Total	\$4.54	\$53.0
<i>Foundational Areas</i>		
Communicable Disease	\$1.78	\$20.8
Chronic Disease	\$1.10	\$12.8
Environmental Health	\$1.63	\$19.0
Maternal, Child, and Family Health	\$0.77	\$8.0
Access to Care	\$0.55	\$6.4
Total	\$5.81	\$68.0
Total FPHS	\$10.35	\$121.0

As shown in Figure 3, foundational services with the smallest resource gap include Communication (\$0.37 per capita), Access to Care (\$0.55 per capita), and Emergency Preparedness (\$0.60 per capita).

On the other end, foundational services that will require the most significant investments include Communicable Disease (\$1.78 per capita), Environmental Health (\$1.63 per capita), and Organizational Competencies (\$1.25 per capita).

Figure 3: Average additional investment (in dollars per capita) needed to fully implement the FPHS, by foundational service



Part 2: Additional investment needed to fully attain the FPHS, by geography

Total per capita spending on the FPHS varied significantly across health districts (see Figure 4 and Table 4). Per capita spending was highest in the Central District (\$33.89), followed by the Southeast District (\$31.73). In the remaining three districts, per capita spending was significantly lower: LHDs spent an average of \$24.46 per capita in the Northeast District, \$24.29 per capita in the Southwest District, and \$23.21 in the Northwest District.

Across all five Districts, LHDs spent more per capita on the Foundational Areas than the Foundational Capabilities. As a percent of total FPHS spending, spending on the Foundational Areas averaged between 52 percent and 60 percent of total spending on the FPHS.

Figure 4: Per capita spending on the FPHS, by district

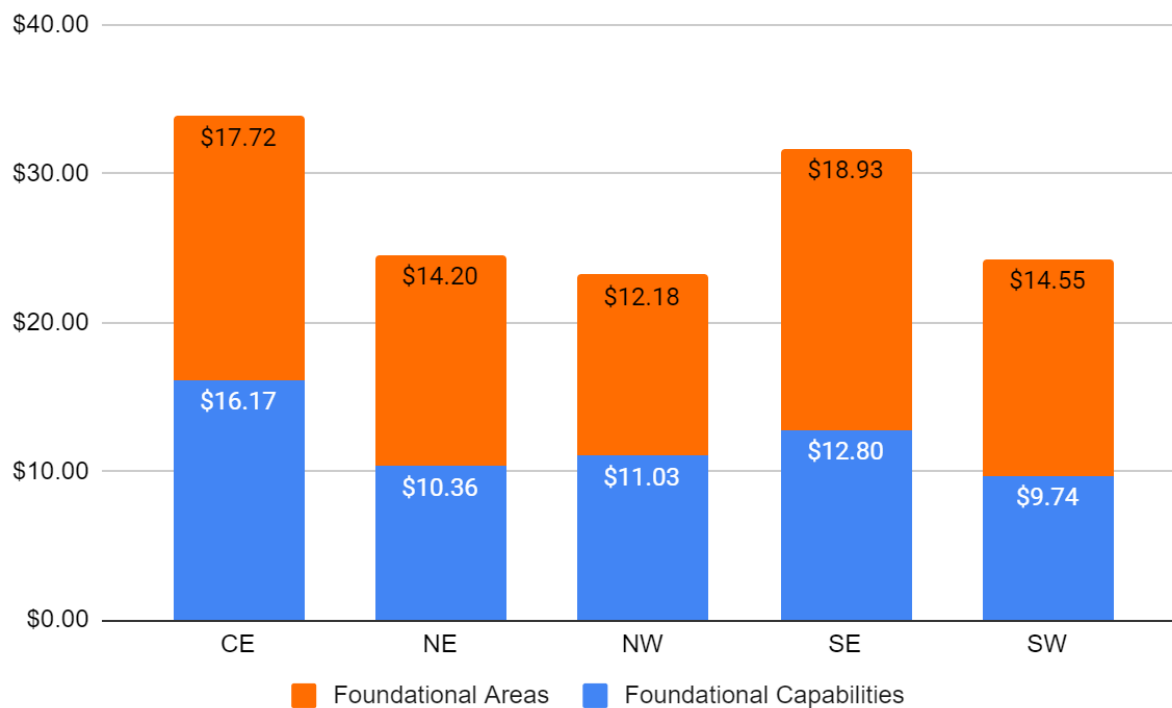


Table 4: Average per capita spending on the FPHS, by foundational service and district

	CE	NE	NW	SE	SW
<i>Foundational Capabilities</i>					
Assessment	2.61	2.07	1.94	2.49	1.65
Emergency Preparedness*	1.57	1.16	1.05	2.02	0.81
Communication	1.62	0.98	0.60	1.16	0.60
Policy Development	0.82	0.53	0.43	0.64	0.30
Community Partnerships	2.48	0.78	0.93	1.56	0.67
Organizational Competencies	7.07	4.83	6.10	4.93	5.71
Total	16.17	10.36	11.03	12.80	9.74
<i>Foundational Areas</i>					
Communicable Disease	5.19	2.56	4.21	5.48	4.52
Chronic Disease	3.11	1.61	0.85	2.04	2.09
Environmental Health	6.64	7.63	5.75	7.04	6.13
Maternal, Child, and Family Health	1.24	1.20	0.83	3.27	1.25
Access to Care	1.54	1.20	0.53	1.10	0.56
Total	17.72	14.20	12.18	18.93	14.55
FPHS Total	33.89	24.56	23.21	31.73	24.29

Note: * indicates that the difference in average per capita spending across health districts was statistically significant at the 5 percent confidence level.

Average gaps in attainment of the FPHS varied across health districts. As shown in Table 5, LHDs in the Northwest District consistently reported some of the highest attainment gaps while LHDs in the Central and Southwest Districts reported some of the lowest attainment gaps.

As shown in Figure 5, across the five districts, the average resource gaps were largest in the Southeast District (\$15.95 per capita). In all other districts, the resource gaps averaged between \$6.31 and \$8.83 per capita.

In two districts (Southeast and Southwest), per capita resource gaps for the Foundational Areas were larger than for the Foundational Capabilities. In the remaining three districts, per capita resource gaps for the Foundational Areas were smaller than for the Foundational Capabilities.

Table 5: Average gaps in attainment of the FPHS, by foundational service and health district

	CE	NE	NW	SE	SW
<i>Foundational Capabilities</i>					
Assessment	9%	14%	45%	23%	7%
Emergency Preparedness	14%	8%	46%	22%	11%
Communication	7%	18%	41%	24%	21%
Policy Development	22%	29%	52%	51%	39%
Community Partnerships	8%	22%	41%	26%	27%
Organizational Competencies	13%	16%	48%	22%	17%
<i>Foundational Areas</i>					
Communicable Disease	10%	15%	44%	14%	12%
Chronic Disease*	30%	25%	52%	32%	24%
Environmental Health	10%	14%	34%	19%	13%
Maternal, Child, and Family Health	28%	19%	48%	25%	14%
Access to Care	21%	24%	58%	51%	28%

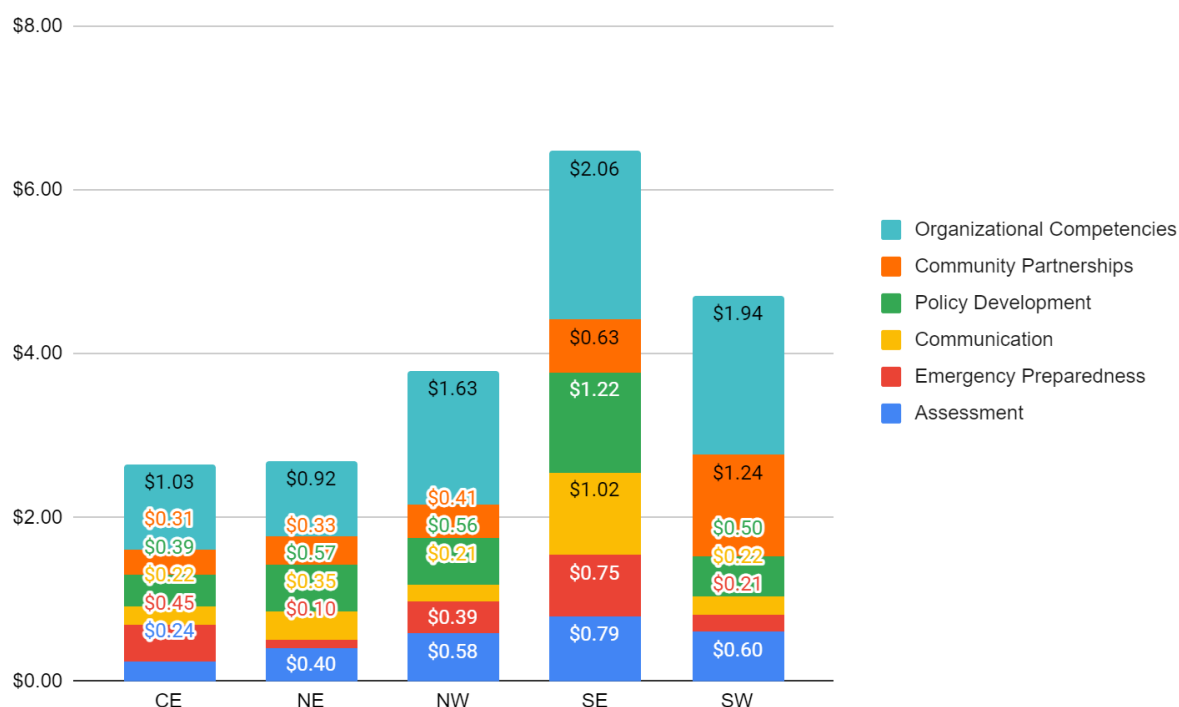
Note: * indicates that the difference in average attainment gaps across health districts was statistically significant at the 5 percent confidence level.

Figure 5: Average additional investment (in dollars per capita) needed to fully implement the FPHS, by health district



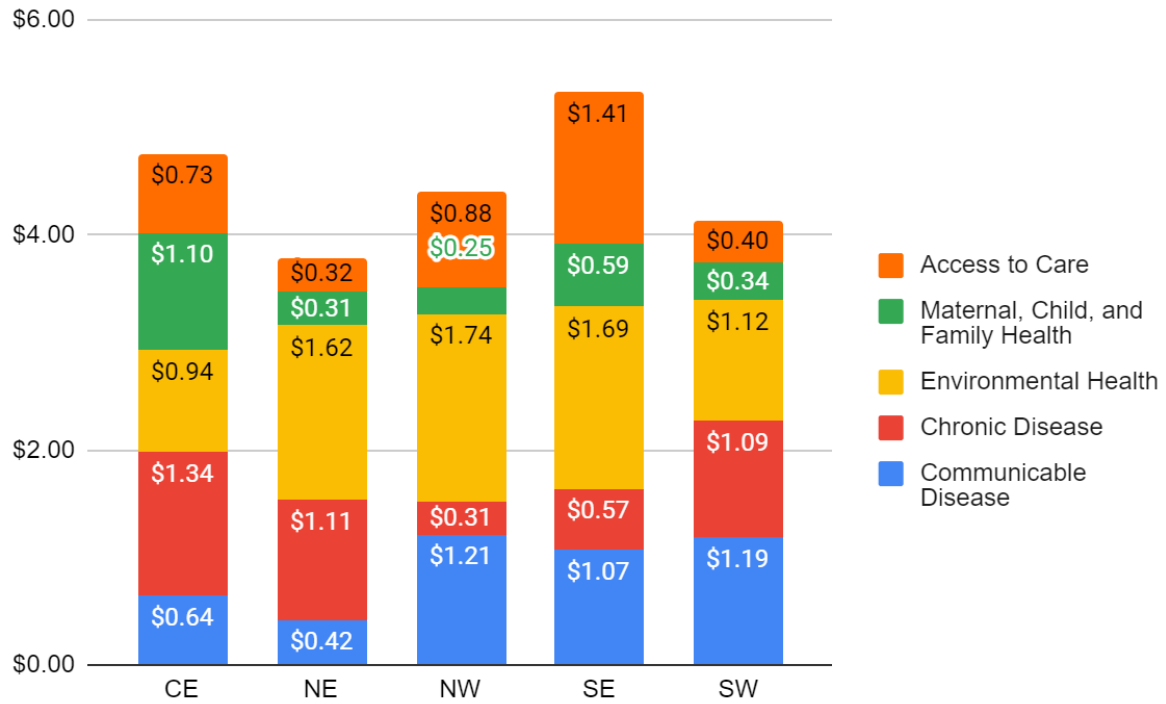
A further decomposition of the additional investments needs to fully attain the Foundational Capabilities showed that, across all five health districts, the largest additional need was in in the area of Organizational Competencies (see Figure 6). Additional investments needed to fully attain the Organizational Competencies ranged from \$0.92 per capita in the Northeast district to \$2.06 per capita in the Southeast district, representing between 32 and 43 percent of total additional investment need.

Figure 6: Average additional investment (in dollars per capita) needed to fully implement the Foundational Capabilities, by foundational service and health district



A further decomposition of the additional investments needed to fully attain the Foundational Areas showed that, in three health districts (Northeast, Northwest, and Southeast), the largest additional need was in in the area of Environmental Health (see Figure 7). For LHDs in the Central district, the largest investment need was in the areas of Chronic Disease, while for LHDs in the Southwest district, the area with the largest investment need was Communicable Disease.

Figure 7: Average additional investment (in dollars per capita) needed to fully implement the Foundational Areas, by foundational service and health district



Part 3: Additional investment needed to fully attain the FPHS, by population

Spending on the FPHS varied significantly across population size served (see Figure 8 and Table 6). In FY 2019, LHDs serving fewer than 30,000 residents spent by far the most on the FPHS (\$35.31 per capita), followed by LHDs serving between 50,000 and 100,000 residents (\$31.55 per capita). LHDs serving between 30,000 and 50,000 residents, on the other hand, spent an average of \$26.95 per capita while LHDs serving 100,000 and more residents spent an average of \$25.85 per capita.

Across all four quartiles, LHDs spent more per capita on the Foundational Areas than the Foundational Capabilities, averaging between 54 percent and 57 percent of total spending on the FPHS.

Figure 8: Per capita spending on the FPHS, by population quartiles

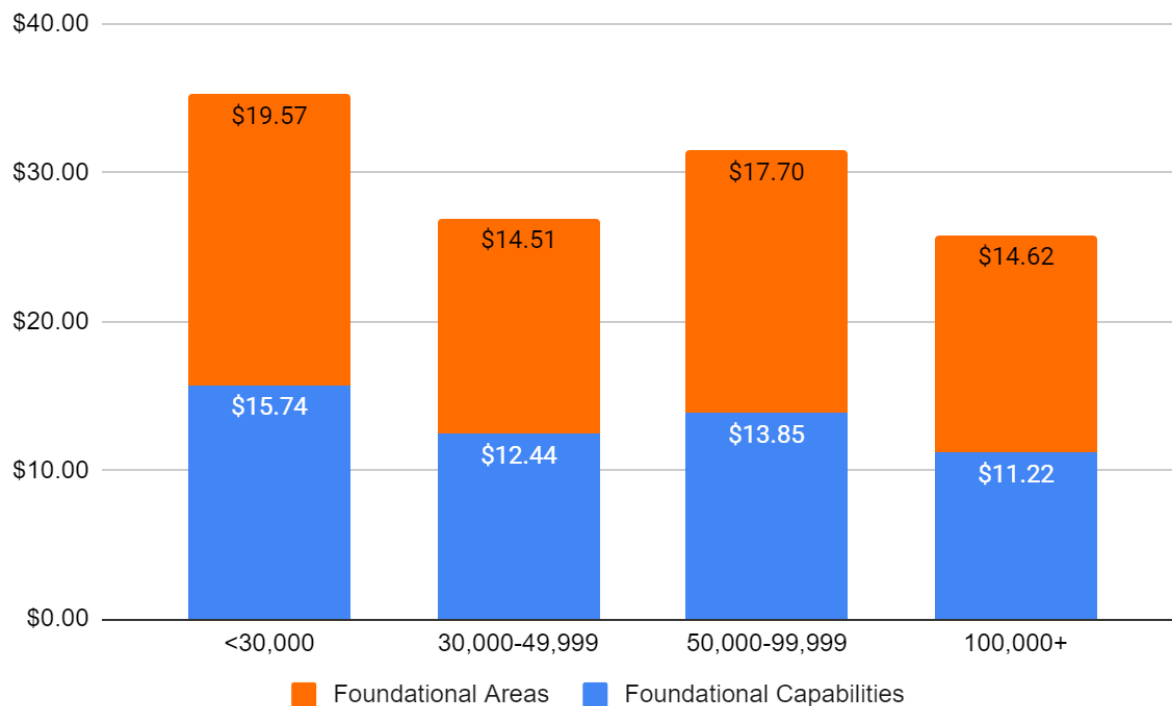


Table 6: Average per capita spending on the FPHS, by foundational service and population quartiles

	<30,000	30,000 – 49,999	50,000 – 99,999	100,000+
<i>Foundational Capabilities</i>				
Assessment	2.67	1.99	2.91	1.98
Emergency Preparedness*	2.27	1.79	1.78	1.05
Communication*	1.80	0.58	1.69	0.92
Policy Development*	1.10	0.75	1.04	0.43
Community Partnerships*	1.90	1.55	1.41	1.12
Organizational Competencies	6.00	5.78	5.03	5.73
Total	15.74	12.44	13.85	11.22
<i>Foundational Areas</i>				
Communicable Disease	5.92	4.43	4.39	3.71
Chronic Disease	1.90	0.90	1.30	2.19
Environmental Health	7.16	6.18	6.20	7.02
Maternal, Child, and Family Health	3.28	1.69	2.01	1.09
Access to Care	1.30	1.30	3.80	0.61
Total	19.57	14.51	17.70	14.62
FPHS Total	35.31	26.95	31.55	25.85

Note: * indicates that the difference in average per capita spending across population quartiles was statistically significant at the 5 percent confidence level.

Average gaps in attainment of the FPHS by LHDs did not vary significantly across LHDs serving populations of various sizes. Table 7 shows that, across population size served, foundational services with the largest attainment gaps included Policy Development, Chronic Disease, and Access to Care. On the other hand, services with the smallest attainment gaps included Emergency Preparedness, Environmental Health, and Communicable Disease.

Table 7: Average gaps in attainment of the FPHS, by foundational service and population quartile

	<30,000	30,000 – 49,999	50,000 – 99,999	100,000+
<i>Foundational Capabilities</i>				
Assessment	19%	13%	19%	15%
Emergency Preparedness	19%	11%	19%	14%
Communication	26%	18%	22%	19%
Policy Development	35%	28%	42%	32%
Community Partnerships	20%	14%	28%	22%
Organizational Competencies	14%	15%	29%	18%
<i>Foundational Areas</i>				
Communicable Disease	13%	21%	17%	16%
Chronic Disease	25%	31%	32%	29%
Environmental Health	13%	13%	18%	15%
Maternal, Child, and Family Health	21%	16%	28%	24%
Access to Care	32%	32%	39%	27%

Note: None of the difference in average attainment gaps across population quartiles was statistically significant at the 5 percent confidence level.

As shown in Figure 9, across population quartiles, the average additional investment need was largest among LHDs serving fewer than 30,000 residents (\$16.98 per capita). As population size increased, the average additional investment needed per capita decreased. LHDs serving 30,000 to 50,000 residents required an additional \$11.55 per capita, while LHDs serving between 50,000 and 100,000 residents required an additional \$10.14 per capita. For LHDs serving 100,000 and more residents, the additional resource need dropped further to \$6.36 per capita.

Figure 9: Average additional investment (in dollars per capita) needed to fully implement the FPHS, by population quartile

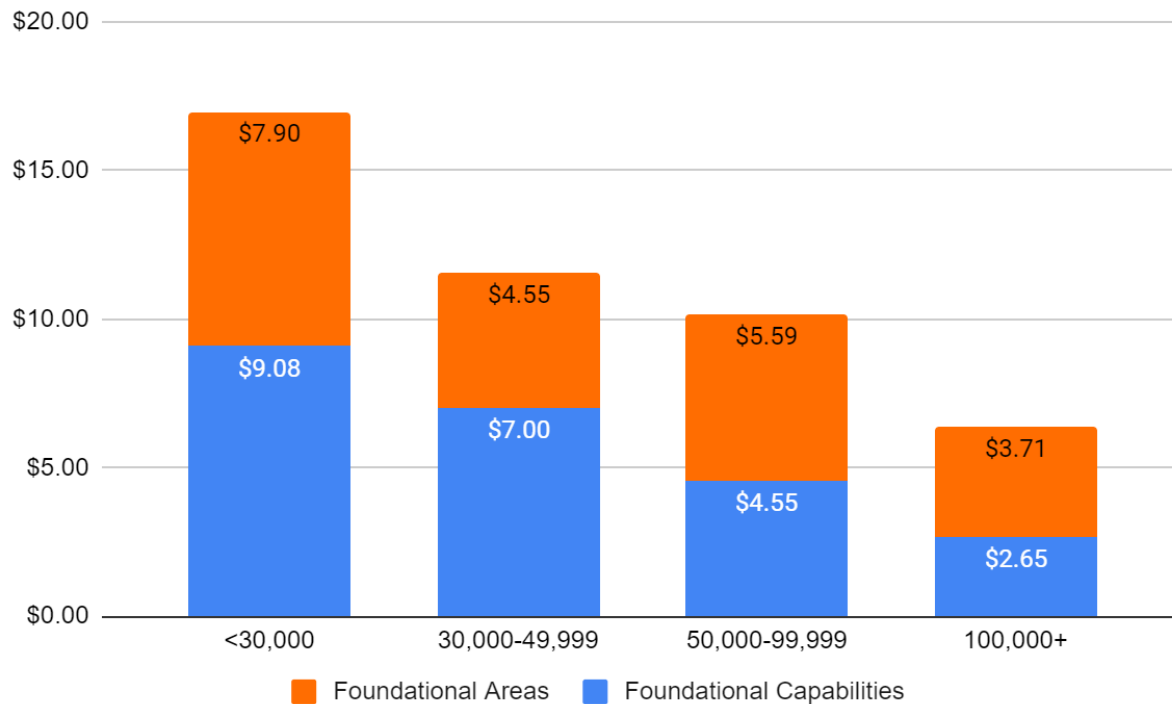


Figure 10 shows the further decomposition of the additional investments needs to fully attain the Foundational Capabilities. Across population quartiles, there was wide variation in the services with the largest investment need. For LHDs serving 50,000 and more residents, the greatest additional investment need was in the area of the Organizational Competencies. For LHDs serving fewer than 30,000 residents, on the other hand, the greatest additional need was in the area of Policy Development, while LHDs serving between 30,000 and 50,000 residents had the greatest need in the area of Community Partnerships.

Figure 10: Average additional investment (in dollars per capita) needed to fully implement the Foundational Capabilities, by foundational service and population quartile

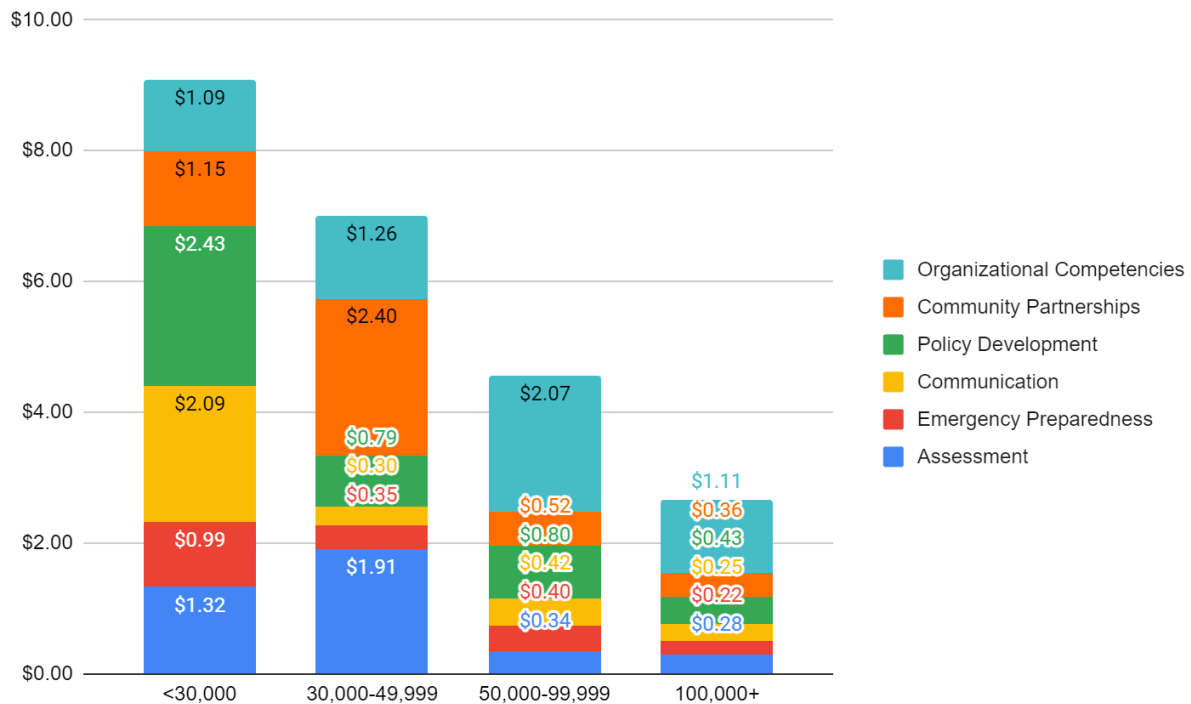
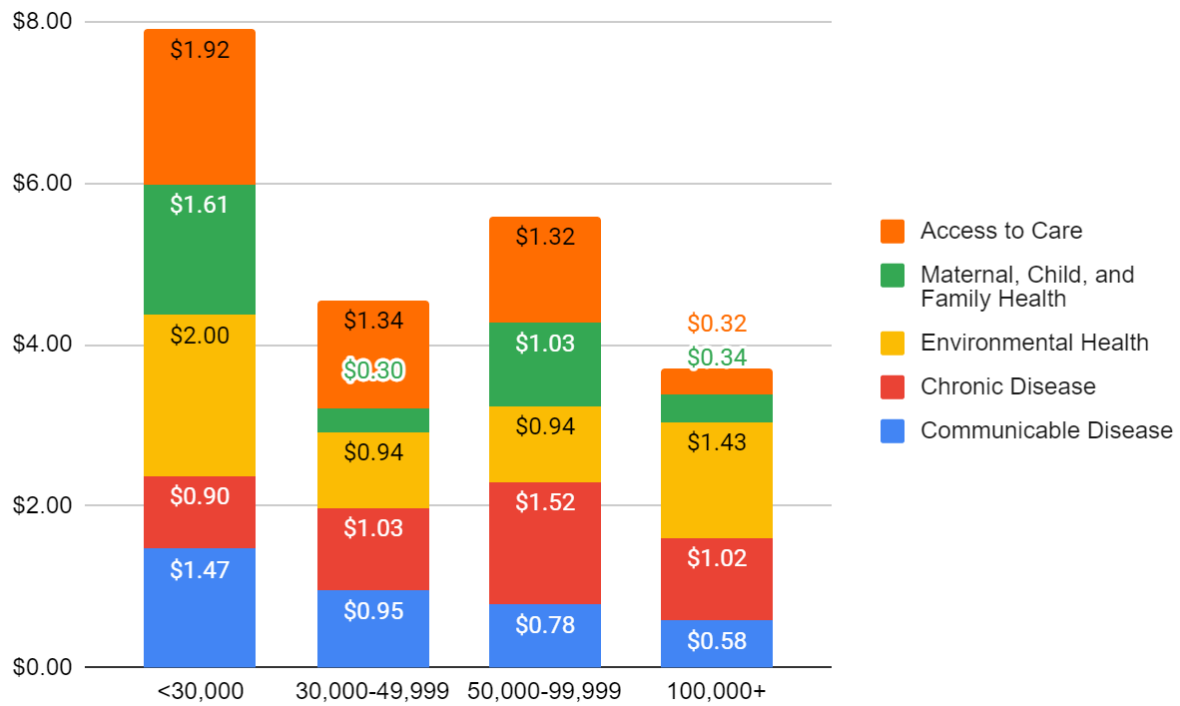


Figure 11 shows the decomposition of the additional investments needed to fully attain the Foundational Areas. Similar to the findings for the Foundational Capabilities, the services with the greatest additional investment need varied across population quartile. LHDs serving fewer than 30,000 residents or more than 100,000 residents had the greatest additional need in the area of Environmental Health. LHDs serving between 30,000 and 50,000 residents indicated the greatest need in the area of Access to Care while LHDs serving between 50,000 and 100,000 residents had the greatest need in the area of Chronic Disease.

Figure 11: Average additional investment (in dollars per capita) needed to fully implement the Foundational Areas, by foundational service and population quartile



Part 4: Additional investment needed to fully attain the FPHS, by revenue composition

Figure 12 compares the additional investment needs of Ohio LHDs with above vs. below median unrestricted (non-fee-based) local revenues as a percentage of an LHD's total revenues. The additional investment needed to fully attain the FPHS varied to some extent based on the level of LHDs' unrestricted local revenues, yet none of the differences in means shown in Figure 12 were statistically significant.

LHDs with below median levels of unrestricted local revenues had some of the highest additional investment needs in the areas of Environmental Health (\$1.35 per capita) and Organizational Competencies (\$1.05)

LHDs with above median levels of unrestricted local revenues had some of the highest additional investment needs in the areas of Organizational Competencies (\$1.41 per capita), Chronic Disease (\$1.33), and Assessment (\$0.97).

Figure 12: Average additional investment (in dollars per capita) needed to fully implement the FPHS, by foundational service and level of unrestricted (non-fee-based) local revenues

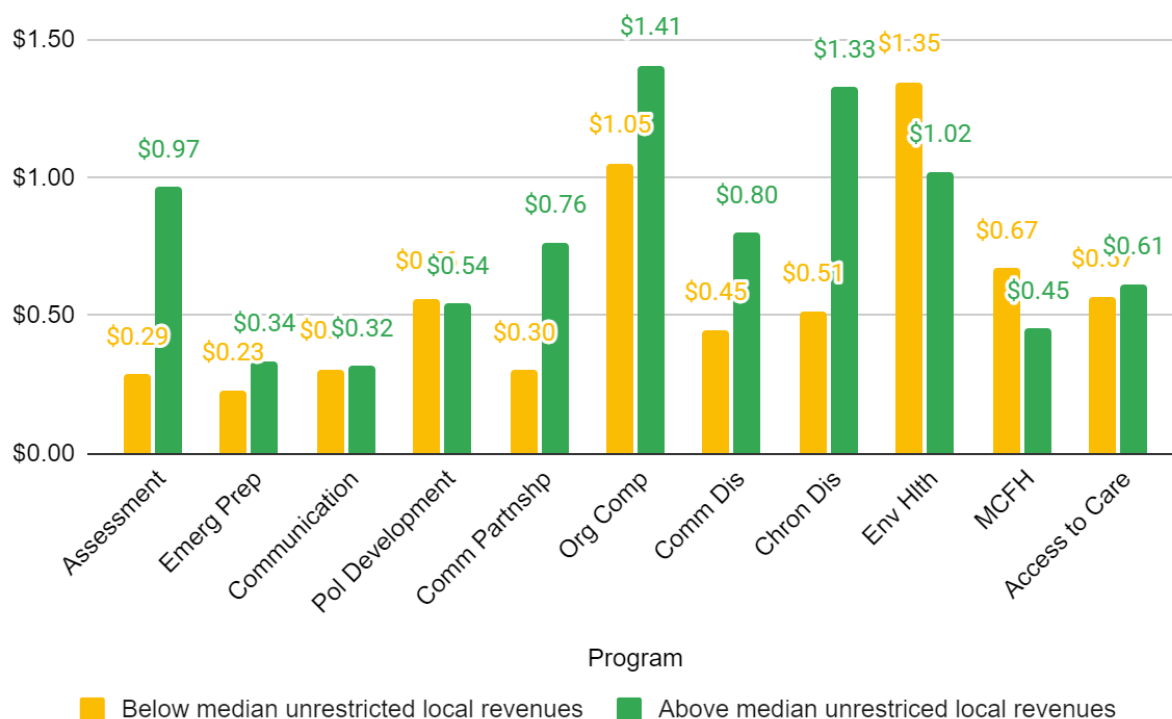
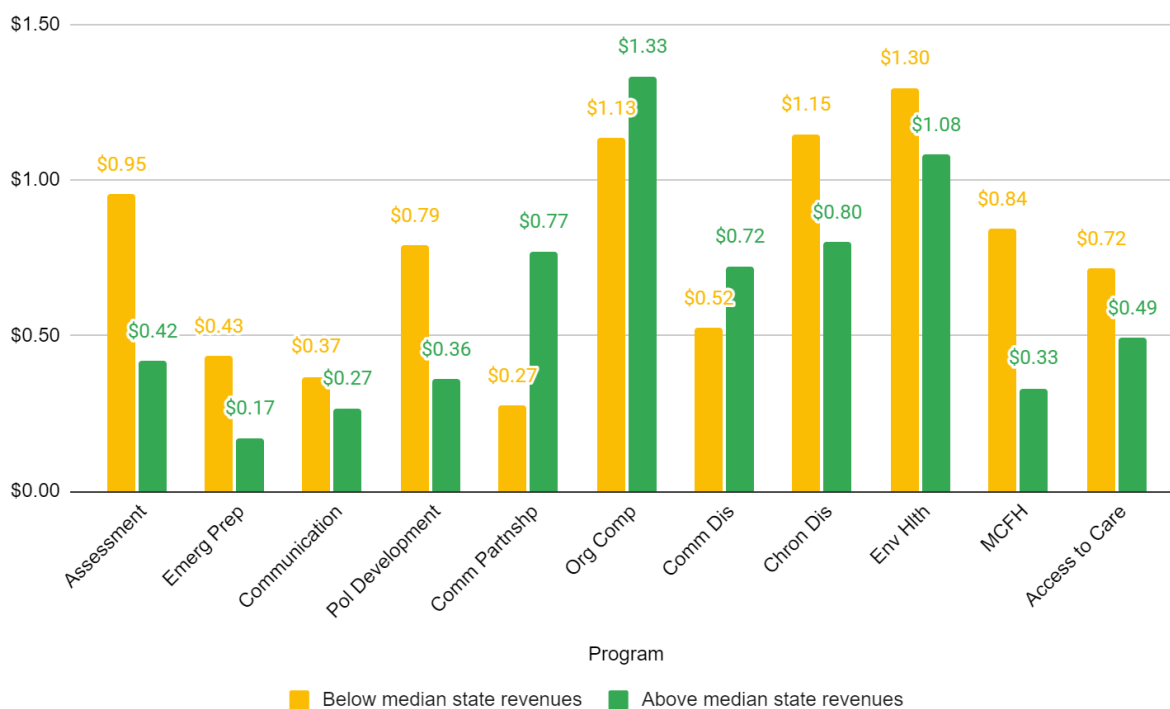


Figure 13 compares the additional investment needs of Ohio LHDs with above vs. below median state revenues as a percentage of an LHD's total revenues. The additional investment needed to fully attain the FPHS varied to some extent based on the share of total revenues that LHDs received from state sources, yet none of the differences in means shown in Figure 13 were statistically significant.

LHDs with below median state revenues had some of the greatest additional investment needs in the areas of Environmental Health (\$1.30 per capita), Chronic Disease (\$1.15), Organizational Competencies (\$1.13), and Assessment (\$0.95).

LHDs with above median state revenues had some of the greatest additional investment needs in the areas of Organizational Competencies (\$1.33 per capita) and Environmental Health (\$1.08).

Figure 13: Average additional investment (in dollars per capita) needed to fully implement the FPHS, by foundational service and level of state revenues



Discussion

State of FPHS funding in Ohio in 2019

Based on current levels of spending on and attainment of the FPHS as reported by 72 Ohio LHDs for FY 2019, additional spending of \$10.35 per capita will be needed to close the existing resource gap and ensure more adequate provision of the FPHS in communities across Ohio. Of this amount, \$4.54 per capita is needed to fully implement the Foundational Capabilities and \$5.81 per capita is needed to fully implement the Foundational Areas.

These per capita estimates translate into an annual total dollar investment of approximately \$121 million needed to close the attainment gaps in the FPHS for all LHDs in Ohio. A total of \$53 million is needed to fully implement the Foundational Capabilities and a total of \$68 million is needed to fully implement the Foundational Areas.

Similar to the findings for FY 2018, resource gaps and additional investment needs varied widely across LHDs located in different parts of the state and LHDs serving various population sizes. LHDs located in the Southeast District had by far the greatest additional investment need (\$15.95 per capita) while LHDs in the remaining four districts had much lower average resource gaps, ranging from \$6.31 to \$8.83 per capita. One explanation for these findings is that LHDs in the Southeast District serve many communities in Appalachian Ohio, where health needs tend to be greater than in many other parts of the state.

In addition to variation in the overall levels of additional investment needed across health districts, there was modest variation in the specific foundational services with the greatest resource gaps. Among the Foundational Capabilities, for instance, LHDs in all health districts reported the greatest resource gaps in Organizational Competencies. Among the Foundational Areas, on the other hand, LHDs in three districts (Northeast, Northwest, and Southeast) reported the largest additional need in the area of Environmental Health. LHDs in the Central district had the largest investment need in Chronic Disease, while LHDs in the Southwest district had the largest investment need in Communicable Disease.

LHDs serving the smallest communities had some of the largest additional investment needs. LHDs serving fewer than 30,000 residents required an estimated additional \$16.98 per capita. As the population size served by an LHD increased, the average additional investment needed per capita decreased. LHDs serving between 30,000 and 50,000 residents required an additional \$11.55 per capita, while LHDs serving between 50,000 and 100,000 residents required an additional \$10.14 per capita. For LHDs serving 100,000 and more residents, the additional resource need was only \$6.36 per capita. Given that LHDs incur substantial fixed costs in the provision of the FPHS these findings show that, in many cases, economies of scale might be achieved by providing public health services across jurisdictions. In addition to variation in the overall levels of additional investment needed across population size, there was substantial variation in the specific foundational services with the greatest additional investment need.

Additional investment needs also varied across the composition of LHDs' revenue sources, yet none of the differences in investment need was statistically significant. Neither the level of unrestricted local revenues nor the level of state revenues mattered when determining additional investment needs.

Implementation of FPHS in Ohio, Colorado, Oregon, and Washington

Ohio has been working on strategies to modernize its public health system since 2012, when the Association of Ohio Health Commissioners Board of Directors appointed an ad hoc steering committee to consider and make recommendations on the functions, fiscal requirements, and organization of LHDs in Ohio. That work culminated in a report, *Public Health Futures: Considerations for a New Framework for Local public Health in Ohio*, which was leveraged by Governor John Kasich and the Ohio Legislature through the aptly named 2012 Legislative Committee on Public Health Futures Report. The committee has since published two reports, the *2012 and 2017 Legislative Committee on Public Health Futures* reports, which have documented recommendations for modernizing public health in Ohio.

In service to that work, in 2016, the Ohio governmental public health system pursued competitive funding distributed by Public Health National Center for Innovation (PHNCI) at the Public Health Accreditation Board (PHAB), and funded by the Robert Wood Johnson Foundation, to participate 21st Century (21C) Learning Community focused on modernizing their governmental public health systems funded by Robert Wood Johnson Foundation (RWJF). Ohio was one of three states (the others being Oregon and Washington) who received approximately \$250,000 grants to participate in the 21C Learning Community.

At the time the learning community was formed, there was not clear definition around what "modernizing [a state] public health system" might look like, except that it should be grounded in adoption and implementation of FPHS. Now, over six years later, each of these three states, as well as an additional "early adopter" of the FPHS, Colorado, have made significant progress in this work, defining it for the broader governmental public health practice in the process. This progress makes Colorado, Oregon, and Washington useful examples for Ohio's governmental public health system to look to as it considers its next steps related to adoption and implementation of FPHS after completion of their cost analysis exercises.

PHNCI at PHAB has documented the progress of these 21C states across seven key topic areas: setting the stage, state-specific FPHS framework, FPHS delivery model, public health system assessment, financial and implementation strategies, accountability, and legislation and impact. These categories are useful in comparing the progress that each state has made toward adopting and implementing FPHS and categorizing the next steps Ohio might consider.

Due to the diversity among governmental public health systems and LHDs, it is often been said that "if you know one health department, you know one health department." For that reason, it is important to understand the relative comparability of Ohio to Colorado, Oregon, and

Washington, based on their governmental public health systems and progress toward adopting and implementing FPHS, before considering whether their next steps might be appropriate for Ohio to consider. Like Ohio, Colorado, Oregon, and Washington have adopted an FPHS-framework and completed public health system assessments, like the cost analysis exercise¹ documented in this Report, to understand current attainment of and spending on FPHS and the additional investment needed to fully attain FPHS at the state-level. Appendix Figure 1 compares the four states' governmental public health systems, FPHS frameworks, and public health system assessments.

As shown in Appendix Figure 1, each state's public health system assessment revealed a significant deficit in "attainment" of FPHS and the resources needed to fully implement the FPHS. As such, all four states are currently in the process of designing and/or implementing strategies for adopting and implementing the FPHS and modernizing their governmental public health systems. While obtaining the additional resources needed to fully implement the FPHS is a key strategy, the governmental public health systems in each of these states has realized that additional funding alone is not sufficient to fully attain the FPHS, both because there are non-financial barriers to implementation of FPHS and because, as both history and their modernization work has demonstrated, state legislatures are unwilling to provide these resources carte blanche.

Both strategies for obtaining the resources needed to attain the FPHS, as well as the non-financial strategies governmental public health systems are considering to attain the FPHS, are described in the following, organized into the key topic areas (listed above) that PHNCI at PHAB has organized 21C state progress against. There are additional strategies these governmental public health systems are considering to modernize their public health systems that do not directly related to attaining the FPHS, and so have not been documented here.

It is important to remember that, while state governmental public health systems have agency in designing these strategies (at least within the confines of existing laws and regulations) implementing them might be outside of their control. For that reason, we documented the strategies that 21C states have considered, regardless of whether they have been implemented or their perceived "success." In all cases, we documented key implementation considerations for these strategies, as well as any known barriers to implementing them.

Given that Ohio has been pursuing public health system modernization since 2012, it is also important to understand how these strategies fit within Ohio's broader modernization efforts, including the system and legislature's existing recommendations. For that reason, we provided additional context around how the strategies documented herein align to Ohio's ongoing modernization work.

¹ Colorado, Oregon, and Washington's cost analysis exercises were completed as part of broader needs assessments that in each case included significant additional analysis on topics like current implementation of FPHS, existing governmental public health revenue, governance and service delivery of FPHS, and non-financial barriers to implementation of FPHS.

FPHS delivery model

While obtaining revenue is one tool for achieving financial sustainability, governmental public health has historically been and, as other 21C states have shown us, may continue to be extremely financially constrained. As such, it is important to consider other tools for achieving financial sustainability – in particular, reducing costs. While reducing level of service is a key cost-reduction tool (and one that state legislatures have historically liberally employed when it comes to governmental public health) Ohio’s governmental public health system’s modernization work is around attaining a set level of service – comprehensive provision of the FPHS throughout the state. The greatest opportunity for governmental public health to reduce costs lies in increasing the efficiency of the governance and service delivery system.

Ohio’s governmental public health system is decentralized and bifurcated such that the Ohio Department of Health, the state public health agency, delivers a subset of public health services centrally to all Ohioans while LHDs deliver other services locally (decentralized, at the city and/or county level) within their services areas. In 2012, at the time of the *Public Health Futures* report Ohio had 125 LHDs across its 88 counties, with 58% serving fewer than 50,000 residents. As of 2021, Ohio has 113 LHDs with approximately half serving fewer than 50,000 residents.

While the governmental public health practice has not suggested a “rational service unit size,” that is, a LHD size (based on population served) at which delivery of FPHS or individual foundational capabilities or areas optimizes efficiency and effectiveness in deliver, cost analysis suggests that there are economies of scale in providing FPHS, and governmental public health services in general. However, it is important to consider the agency (by virtue of home rule or local control) of individual LHDs and the effectiveness of delivering these services as well – given that Ohio’s policy work has already led to some consolidation of LHDs, it may be that it has already made progress toward optimizing its governance structure.

Washington’s governmental public health system is the only one that has considered significant regionalization of services to a “rational service unit size.” In 2021, the Washington State Legislature introduced house bill 1152 (senate bill 5173) which, among other provisions, would have created nine comprehensive health service districts made up of existing LHDs based on their geographic proximity. While no “rational service unit size” for these districts was given, the smallest comprehensive service district suggested would have served over 270,000 people (the median comprehensive health service district would have served approximately 540,000 people). These comprehensive public health districts would have provided a mechanism for systemic sharing of resources and some functions among member LHDs. There was significant pushback from LHDs around establishing these comprehensive health service districts and the final, passed bill did not include provisions for implementing them.

While few states have revised, or even considered revising, their governance structures, almost all are interested in opportunities to improve the efficiency of service delivery for individual public health functions. In fact, all three states considered in this inquiry, Colorado, Oregon, and

Washington have done significant analysis of their public health system assessment data to better understand their existing service delivery systems and opportunities to increase cross-jurisdictional service delivery. This analysis is described by state in the following.

Colorado. In addition to providing data on the current implementation and spending on and the full implementation cost of the FPHS, Colorado health departments provided information on their current governance and service delivery paradigm (and, in particular, existing cross jurisdictional delivery relationships) and their willingness to share services at the function- and activity-level. This data was used to generate several useful observations to support future optimization of service delivery.

- **Existing Cross Jurisdictional Delivery Arrangements.** This summary was useful in identifying what activities might be most appropriate for cross jurisdictional delivery, identifying existing partners, and identifying existing models for cross jurisdictional delivery of services.
- **Natural Sharing Partners.** The Center for Public Health Sharing asserts that cross jurisdictional sharing works best when health departments form their own sharing relationships, however, LHDs don't always know who might be their best partner. This summary identified existing sharing partners (based on existing cross jurisdictional delivery relationships as well as formal relationships like emergency preparedness regions) and others LHDs might partner based on geographic proximity.
- **Activities Most Appropriate for Cross Jurisdictional Delivery.** The Center for Public Health Sharing also asserts that cross jurisdictional sharing works best when health departments decide what services to share. Given that Colorado's work is focused on fully implementing the FPHS (that is, addressing gaps in implementation of FPHS) it made sense to identify activities where there was overlap between health departments' willingness to share and gaps in implementation.

While no systemic effort to increase cross jurisdictional delivery in Colorado has occurred, Colorado's LHDs can use the observations above to consider new service delivery arrangements as a strategy for implementing FPHS.

Oregon. In 2017, the Oregon Health Authority issued a request for proposals to establish regional communicable disease control programs designed to provide some regionalized communicable disease control, with an emphasis on eliminating communicable disease-related health disparities, and building sustainable regional infrastructure through implementation of public health service delivery models. LHDs identified their preferred partners and designed their cross jurisdictional delivery projects themselves². The projects are highly individualized and no generalizable models have been developed based on them, however, the request for proposals process OHA undertook is an example of a method the Ohio governmental public health system could take to incentivize cross jurisdictional delivery.

Washington. Like Colorado, Washington has evaluated opportunities for sharing based on their Assessment data, identifying those activities most appropriate for cross-jurisdictional delivery

² <https://www.oregon.gov/oha/PH/ABOUT/TASKFORCE/Documents/regionalpartnershipgranteeproject.pdf>

based on degree to which services are implemented and LHDs' willingness to share those services. Services where there was low implementation and high willingness to share were identified as most appropriate for cross jurisdictional delivery.

Like Oregon, Washington has also incentivized cross jurisdictional delivery through voluntary, LHD-designed service delivery demonstration projects. These projects were focused on tuberculosis prevention and control, communicable disease control and prevention and assessment, and provider resources website. In evaluating these projects, Washington identified four key factors underlying successful service delivery models, including:

- Set-aside time and resources to support the project;
- Trust among participating LHDs;
- Specialization related to the FPHS service; and
- Maintaining local presence in the community.

Financial and implementation strategies

Financial Strategies for Implementation

Funding for governmental public health was the perennial problem that motivated the Institute of Medicine (now the National Academy of Medicine [NAM]) to write "For the Public's Health: Investing in a Healthier Future" the report that recommended development of what is now the FPHS – the minimum package of public health services Ohio, Colorado, Oregon, and Washington are trying to fully attain. The report posited that one of the primary challenges to sustainably funding the governmental public health system was the inability to determine the resources needed to do so. As of the writing of this Report, each of the four states - Ohio, Colorado, Oregon, and Washington - has now determined the resources needed for full attainment of the FPHS.

This Report documents the resources Ohio's governmental public health system needs to attain FPHS as of FY 2019, estimating that an additional \$121 million per year is needed to do so. Adjusting for inflation (assumed at 3 percent), the Ohio governmental public health system would need approximately \$253 million to attain FPHS in the FY 2022 – 2023 biennium (approximately \$125 million in FY 2022 and \$128 million in FY 2023), not including the additional FPHS resources that might be needed to address the COVID-19 pandemic and the additional resources that would be needed to implement these dollars or address any related capital needs.

Ohio's 2022 to 2023 biennial operating budget is \$171,658 million (\$85,847 million in FY 2022 and \$85,811 million in FY 2023). The general revenue fund for the same biennium is \$73,658

million (\$34,386 million in FY 2022 and \$39,272 million in FY 2023)³. As these values demonstrate, the resources needed to fully attain the FPHS in Ohio are negligible within Ohio's operating budget and even its general revenue fund. This same fact is true in the other three states – the resources needed to fully implement the FPHS are negligible compared to each state's operations and general fund. Yet, while progress has been made toward attaining the FPHS, no state has fully funded the FPHS.

This may be due, in part, to disagreement or at least lack of explicit agreement around responsibility for funding the FPHS. Because decentralized governmental public health systems are governed by both state and local health departments, state legislators may feel that local governments have some responsibility for funding them. Further, the federal government has historically provided significant funding for state and local governmental public health activities, so some states may be looking toward the federal government to fund some FPHS (in particular, the Foundational Capabilities). This may be further reinforced by ongoing policy work to develop the Public Health Infrastructure Fund, first suggested by the Public Health Leadership Forum, facilitated by RESOLVE, in their paper, *Developing a Financing System to Support public Health Infrastructure*⁴ and currently being considered by the US legislature as the Public Health Infrastructure Saves Lives Act (PHISLA). The Public Health Infrastructure Fund would provide \$4.5 billion a year to fund Foundational Capabilities in all public health departments across the US, through a suggested per capita investment of \$13 per person. This cost analysis suggests that only \$10.35 is needed to fully implement FPHS (both Foundational Capabilities and Foundational Areas) throughout Ohio, so the federal investment suggested by the Public Health Leadership Forum would fully fund Ohio's total FPHS activities.

While progress is being made toward implementing federal funding for the FPHS, it is likely that additional state and local resources will still be needed to attain the FPHS. Each state's work toward fully funding the FPHS is described in the following.

Colorado. Colorado's public health needs assessment, *Colorado Public Health System Transformation Core Public Health Services Needs Assessment Report, 2020*, estimated that \$189 million (in 2019 dollars) in additional resources were needed annually to fully attain the FPHS. Completion of the assessment was ill-timed, with it being published in January 2020 only a few weeks before the onset of the COVID-19 pandemic. Governmental public health approaches to addressing the pandemic have been highly contentious in Colorado. In addition, the state budget for very FY 2021-22 was highly constrained, so, unsurprisingly, little progress toward funding the FPHS has been made.

Colorado's assessment provided some high-level revenue analysis that yielded qualitative findings around the challenges of existing revenues in supporting the FPHS.

³ *Investing in Ohio's Future: Budget of the State of Ohio, Fiscal Years 2022 – 2023*.

https://archives.obm.ohio.gov/Files/Budget_and_Planning/Operating_Budget/Fiscal_Years_2022-2023/FY22-23%20Highlights%20Book-Final-02-09-2021.pdf

⁴ *Developing a Financing System to Support Public Health Infrastructure*, 2018,

https://www.resolve.ngo/docs/phlf_developingafinancingsystemtosupportpublichealth636869439688663025.pdf

Oregon. Oregon's public health needs assessment, *State of Oregon Public Health Modernization Assessment Report, 2016*, estimated that \$105 million (in 2016 dollars) in additional resources were needed annually to fully attain FPHS. During the first biennium following completion of the Assessment (the 2017-19 biennium) the Oregon legislature appropriated \$5 million to develop regional infrastructure (via eight regional partnerships panning 33 of Oregon's 36 counties) to address local communicable disease priorities, including through targeted approaches to eliminating health inequities. These regional partnerships also completed health equity assessments and began working on broader health equity strategies around workforce development and community engagement⁵.

During the 2019-21 biennium, the Oregon legislature appropriated \$15.6 million to Oregon's governmental public health system for public health system modernization. These dollars were distributed via a reviewed funding formula for flexible use for implementing the FPHS, with an initial focus on Communicable Disease Control and reducing health disparities.

Oregon's governmental public health system submitted a \$69.8 million general fund decision package for the 2021-23 biennium for funding to continue implementation of Communicable Disease Control, Health Equity and Cultural Responsiveness, and Assessment and Epidemiology and to expand the focus to include environmental health, Leadership and Organizational Competencies, and Emergency Preparedness and Response. This decision package included additional resources necessary to address the COVID-19 pandemic, as well as the racism epidemic. The 2021-23 biennium Governor's budget included an additional \$10 million in general fund revenues and 0.3 in federal funds expenditure allowance for public health modernization activities, significantly less than the \$69.8 million requested⁶.

Washington. Washington is the only state considered in this report whose governmental public health system has explicitly assigned responsibility for funding the FPHS to state government. In its 2016 report to the Washington state legislature, *A Plan to Rebuild and Modernize Washington's Public Health System, December 2016*⁷ the governmental public health system asserted, through three of its five guiding principles for public health system modernization, that:

"1. There should be a limited statewide set of core public health services that the government is responsible for providing. 2. "Core public health services should be funded through dedicated [state] revenues that are predictable, reliable, sustainable and responsive to changes in demand and cost over time. [...] Local revenue-generating options should be provided to address locally driven priorities that are targeted to specific community problems." (page 22)

⁵ *Public Health Modernization: funding Report to Legislative Fiscal Office, September 2020*
<https://www.oregon.gov/oha/PH/ABOUT/TASKFORCE/Documents/2020-Report-to-LFO.pdf>

⁶ Oregon Health Authority, *2021-23 Governor's Budget*.
<https://www.oregon.gov/oha/Budget/2021-2023-Governors-Budget.pdf>

⁷ *A Plan to Rebuild and Modernize Washington's Public Health System, December 2016*.
<https://wsalphi.app.box.com/s/i7kl672q1pv9ll7ql4xblacrqd8y76a1>.

What this means is that the FPHS are the role of government and should be the responsibility (and funded) by the state, while local government should have responsibility for funding local priorities and services (Expanded Services). The report does specify that existing funding should not be supplanted, so the state would be responsible for funding the existing share of the FPHS it already funds and the share that is unfunded, not the total cost of the FPHS; that is, the federal government and local governments would still be responsible for the existing share of the FPHS they already fund.

Washington was the first state to pursue a costing exercise to understand the cost of fully delivering the FPHS throughout the state. In 2013, that nascent assessment provided a planning level estimate that \$156 to \$177 million (in 2016 dollars) in additional resources were needed annually to fully attain the FPHS. In 2018, this planning level estimate was refined through a more comprehensive public health needs assessment, the *Washington State Public Health Transformation Assessment Report for State and Local Public Agencies, 2018*, which estimated that \$225 million (in 2018 dollars) in additional resources were needed annually to fully attain FPHS. Between these assessments, Washington's governmental public health system submitted a \$60 million decision package to the Washington legislature to fund FPHS. The legislature made only a one-time \$12 million (for the FY 2017-2019 biennium; \$6 million per year) additional investment toward attaining the FPHS; this investment provided \$2 million to state government for communicable disease, \$9 million to LHDs for communicable disease, and \$1 million to support service delivery demonstration projects testing new models for delivering the FPHS.

In parallel with the development of the second assessment (informed by an initial estimate of the dollars needed to fully implement FPHS based on that assessment), Washington's governmental public health system submitted a \$296 million decision package for funding the FPHS for the 2019-2021 biennium. This time, the Washington legislature invested \$28 million over the biennium to fund the FPHS. This investment was focused on infrastructure and reinforcing capacity for Assessment, Communicable Disease, and Environmental Public Health but also included additional policy work around governance and service delivery models and integrating Tribes into FPHS implementation work.⁸

The COVID-19 pandemic highlighted the critical role Washington's governmental public health system played in preventing disease and protecting the public's health. It also highlighted the success of the \$28 million appropriation made in the 2019-2021 biennium; without that investment in Assessment, Communicable Disease, and Environmental Public Health, Washington's governmental public health system would not have been as well-positioned as it was to respond to COVID-19 and Washingtonians would have fared worse. In response to the pandemic, Washington's governmental public health system's 2021-2023 biennium decision package requested \$285 million per biennium from the Washington state legislature (approximately the amount unfunded in the previous biennium's decision package, inflation

⁸ <https://wsalpho.app.box.com/s/cowjalvejauztbz7z8fkgrwrr44hfys9>

adjusted and adjusted to address the ongoing FPHS-related needs of managing the pandemic not covered by other pandemic-specific funding sources)⁹.

This time, the Washington legislature funded a significant share of the decision package, providing \$175 million in the 2021-2023 biennium and dedicating \$324 million in the 2023-2025 biennium. It's likely that the ongoing COVID-19 pandemic and Washingtonians' (or at least their policy-makers') demands for a strong public health approach to controlling the pandemic increased the legislature's willingness to fund the governmental public health system, and more specifically, the FPHS. Even so, it is worth noting that the Washington legislature has still not fully funded the FPHS – the \$324 per biennium available in 2023-2025 falls short of the \$450 million per biennium need estimated in Washington's 2018 Assessment.

While it is possible that the Washington legislature will fully fund the FPHS in the 2025-2027 biennium, it is equally possible that they won't; history demonstrates that governmental public health is susceptible to disinvestment, so it is even possible that the Washington legislature could reduce their investment in the FPHS moving forward. This is a particularly acute risk as much of the funding for the 2021-2023 and 2023-2025 biennium is from the state's general fund and is not dedicated revenue. Like in most states, general fund dollars are both constrained and highly competitive; policy makers could easily redirect these dollars to other activities as desired.

Phasing Strategies for Implementation

Obtaining the funding needed to fully implement the FPHS is only the first step to implementing the FPHS. Once funding is obtained, the Ohio governmental public health system will need to figure out what resources are needed to distribute those dollars and support implementation, how to distribute those dollars, and how to address potential non-financial barriers to implementation.

This cost analysis estimated that an additional \$121 million (in 2019 dollars) is needed to fully implement the FPHS. Implementation of those dollars would increase Ohio's local governmental public health system spending from approximately \$480 million in 2019 to approximately \$600 million, an increase of about 25 percent. This is a substantial increase, and it is likely that both additional resources would be needed to support this implementation and that this funding could not be implemented over time, and instead would need to be phased in over several years. How this phasing occurs could be influenced by a number of sometimes competing governmental public health system priorities, including efficiency, effectiveness, speed, service equity, health equity, desire to fund the largest or most critical gaps in implementation, maintaining flexibility for health departments in implementation, and equitable funding for departments. It could also be influenced by policy makers priorities and the availability and timing of resources for implementation. No state has fully implemented the

⁹ <https://wsalpho.app.box.com/s/gfcbg5yuprzu79gnp0ibt7h9wimjfd0x>

FPHS, so while each has implemented phasing strategies, they are largely theoretical. These phasing strategies, and, where implemented, their outcomes are described by state, following.

Colorado. The onset of the COVID-19 pandemic and lack of new funding for the FPHS have stalled Colorado's policy work around implementation of the FPHS. As such, the state's governmental public health system has not developed a phasing strategy for attaining the FPHS. Their assessment recommends that the governmental public health system should "endeavor to develop a flexible approach to phasing that allows for governmental public health autonomy in decision making, while designed to support statewide coordination and provide incentives to encourage efficient and effective implementation. Further, phasing should prevent systemic barriers and consider where interdependencies among governmental public health agencies and services. Such a bottom up approach to phasing will require a structured accountability and performance management system to track statewide implementation and to demonstrate the value of implementation over time." (page 100)

Oregon. At the end of 2016, Oregon polished a statewide public health modernization plan informed by their assessment¹⁰. The plan included a roadmap for modernizing Oregon's public health system with a goal that, "by 2023 all people in Oregon will be protected by an efficient and effective state and local public health system that provides essential public health programs to all." It also included three key priorities, the first of which, "improve the public health system's capacity to provide foundational public health programs for every person in Oregon" had a strategy around ensuring LHDs submit a comprehensive modernization plan by 2023. As such, the state's overall phasing plan must be flexible around individual health departments implementation plans. Execution of this roadmap, including development of LHDs individual roadmaps has been dependent on legislative funding, as discussed previously.

Washington. As discussed previously, Washington is phasing in the FPHS based on the perceived priority of the service gap, with some flexibility for LHDs to further prioritize their dollars within these high-priority service gaps. At this time, Washington's focus has been on Assessment, Communicable Disease, and Environmental Public Health, although LHDs can use some of the funding to address gaps in the Foundational Capabilities that must be filled (due to interdependencies among the high priority service and foundational capability, discussed following) to effectively implement these high priority services.

Key themes from the phasing work done by all three states include the need to address non-financial barriers to implementation, which are things other than the need for additional resources that prevent implementation. These barriers may span many topics including administration, governance, personnel/workforce, social determinants of health, health equity, and intergovernmental and cross-sectoral cooperation, among many others.

¹⁰ <https://www.oregon.gov/oha/PH/ABOUT/TASKFORCE/Documents/statewidemodernizationplan.pdf>

One particular type of non-financial barrier to implementation are interdependencies between health departments and activities. In some cases, there may be interdependencies among health departments; for example, LHDs may not be able to do their immunization work if their state health department doesn't first provide an electronic immunization system. Similarly, many FPHS activities are interdependent; that is, some of the activities need to occur before others can be implemented; for example, health departments must first develop a community health assessment before they can develop their community health improvement plan. None of the three states have done a full network analysis to understand the potential interdependencies among health departments' activities.

Colorado has developed a broad framework for understanding the general interdependencies among activities, by classifying their FPHS elements into broad categories with generalizable relationships to one another; within this framework, Colorado assumes that generally, overhead services support infrastructure-building services, which in turn support population based services, which support enabling services and, ultimately, direct health care services.

Recommendations

Based on our findings, we have a number of recommendations for public health practitioners and policy makers in Ohio interested in furthering the provision of the FPHS in communities across the state.

Data collection and analysis

- Further improve the FPHS costing tool by locking the Excel spreadsheet used so respondents cannot add or delete columns or rows and as a result change the in-built links and formulas; this will help prevent incorrect or incomplete calculations of total and per capita FPHS spending as computed on worksheet 6.
- Encourage completion of the FPHS costing tool in a timely manner to ensure a large and diverse sample of LHDs for data analysis; in particular, encourage participation among LHDs that serve the largest communities in the state of Ohio.
- Reinforce the need for respondents to complete the attainment section (worksheet 5) as estimates of additional investment need cannot be computed without this information. Provide additional training as needed on how to best estimate attainment rates, e.g., by sharing rubrics and/or summary statistics from prior years by region and population size served.
- Encourage respondents to complete the revenue section (worksheet 7) to the extent possible.
- Continue data collection and analysis, especially during and after the COVID pandemic, to assess how spending and attainment have changed during the pandemic; additional analysis will provide insights into how LHDs re-allocated any of their existing resources during the pandemic and what spending and additional investment need look like in a post-COVID world.
- Incorporate into the cost tool ways for respondents to identify the share of current spending dedicated to reducing health disparities and improving health equity; this could be done, for instance, by adding a column after column O in worksheet 6 that asks respondents to estimate what percentage of per capita total costs are spent on health equity, by foundational service. Alternatively, a new worksheet could be added to the tool to collect this information similar to the way attainment data is collected on worksheet 5.

Implementation of findings

FPHS delivery model

- Develop a network analysis to understand Ohio's governance and service delivery paradigm, including natural sharing partners and existing models for cross jurisdictional delivery of services.
 - Generate a summary of natural sharing partners based on existing sharing relationships and geographic proximity.
 - Define existing models for cross jurisdictional delivery such that they are generalizable and find opportunities for new or novel cross jurisdictional delivery models.
- Identify activities most appropriate for cross jurisdictional delivery.
- As desired, develop opportunities for LHDs to develop their own cross jurisdictional delivery partnerships and incentivize these projects through demonstration projects.

Financial implementation strategies

- Establish responsibility for funding FPHS.
- Establish priorities for FPHS that should be funded first vs. at a later stage; this may include a closer analysis of state mandated services and current levels of state funding for these services.
- Request resources to implement FPHS based on total need and phasing and implementation strategies. This may include:
 - Advocating for funding for foundational capabilities from the federal government.
 - Submitting decision packages to the Ohio state legislature, and advocate for dedicated revenues rather than general fund revenues, where possible.
 - Codifying local funding mechanisms to fund local priorities and services.
- Develop funding distribution mechanisms, like flexible funding formulae.

Phasing implementation strategies

- Establish strategies for phasing FPHS based on priorities that might include efficiency, effectiveness, speed, service equity, health equity, desire to fund the largest or most critical gaps in implementation, maintaining flexibility for health departments in implementation, and equitable funding for departments.
- Identify non-financial barriers for implementing FPHS, including interdependencies among LHDs and services.

Appendix

Table A: Ohio local health departments included in the report

1. Allen County	25. Fulton County	50. Morgan County
2. Alliance City	26. Galion City	51. Noble County
3. Ashtabula City	27. Gallia County	52. Ottawa County
4. Ashtabula County	28. Geauga County	53. Perry County
5. Athens City County	29. Greene County	54. Pickaway County
6. Auglaize County	30. Guernsey County	55. Pike County
7. Belmont County	31. Hamilton County	56. Portage County
8. Butler County	32. Holmes County	57. Preble County
9. Canton City	33. Jefferson County	58. Putnam County
10. Carroll County	34. Knox County	59. Richland County
11. Champaign County	35. Lake County	60. Ross County
12. Cleveland City	36. Licking County	61. Seneca County
13. Columbiana County	37. Logan County	62. Stark County
14. Columbus City	38. Lorain County	63. Summit County
15. Conneaut City	39. Lucas County	64. Trumbull County
16. Coshocton City	40. Madison County	65. Tuscarawas County
17. Cuyahoga County	41. Mahoning County	66. Union County
18. Darke County	42. Marion County	67. Van Wert County
19. Dayton Montgomery County	43. Massillon City	68. Vinton County
20. Defiance County	44. Medina County	69. Warren County
21. Delaware County	45. Meigs County	70. Williams County
22. Erie County	46. Mercer County	71. Wood County
23. Fairfield County	47. Miami County	72. Zanesville Muskingum County
24. Franklin County	48. Middletown City	
	49. Monroe County	

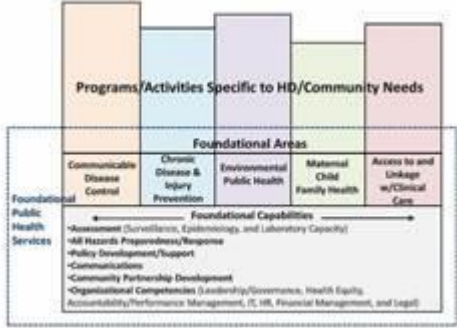


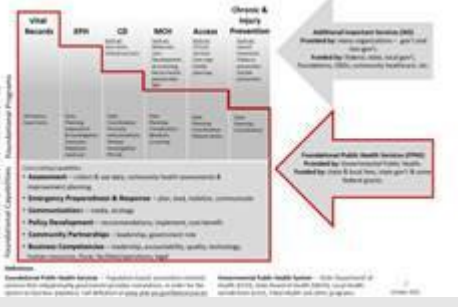
Table B: Ohio local health departments located in each health district

Central	Northeast	Northwest	Southeast	Southwest
Columbus City	Alliance City	Allen County	Athens City County	Butler County
Delaware County	Ashtabula City	Auglaize County	Belmont County	Champaign County
Fairfield County	Ashtabula County	Defiance County	Conneaut City	Darke County
Franklin County	Canton City	Fulton County	Coshocton City	Dayton Montgomery
Galion City	Carroll County	Lucas County	Gallia County	County
Knox County	Cleveland City	Mercer County	Guernsey County	Greene County
Licking County	Columbiana County	Ottawa County	Jefferson County	Hamilton County
Logan County	Cuyahoga County	Putnam County	Meigs County	Miami County
Madison County	Erie County	Seneca County	Monroe County	Middleton City
Marion County	Geauga County	Van Wert County	Morgan County	Preble County
Pickaway County	Holmes County	Williams County	Noble County	Warren County
Richland County	Lake County	Wood County	Perry County	
Union County	Lorain County		Pike County	
	Mahoning County		Ross County	
	Massillon City		Vinton County	
	Medina County		Zanesville Muskingum	
	Portage County		County	
	Stark County			
	Summit County			
	Trumbull County			
	Tuscarawas County			

Table C: Ohio local health departments located in each population quartile

<30,000	30,000-49,999	50,000-99,999	100,000 and more
Alliance City Ashtabula City Carrol County Conneaut City Coshocton City Galion City Gallia County Meigs County Monroe County Morgan County Noble County Pike County Van Wert County Vinton County	Auglaize County Champaign County Defiance County Fulton County Guernsey County Holmes County Logan County Madison County Massillon City Mercer County Middletown City Ottawa County Perry County Preble County Putnam County Williams County	Ashtabula County Athens City County Belmont County Canton City Columbiana County Darke County Erie County Geauga County Jefferson County Knox County Marion County Pickaway County Ross County Seneca County Tuscarawas County Union County Zanesville Muskingum County	Allen County Butler County Cleveland City Columbus City Cuyahoga County Dayton Montgomery County Delaware County Fairfield County Franklin County Greene County Hamilton County Lake County Licking County Lorain County Lucas County Mahoning County Medina County Miami County Portage County Richland County Stark County Summit County Trumbull County Warren County Wood County

Figure A: Overview of FPHS frameworks and assessments in Ohio, Colorado, Oregon, and Washington

	Ohio	Colorado	Oregon	Washington
Governmental Public Health System	Decentralized State Public Health Department: 1, Ohio Department of Health (ODH) LHDs: 113	Decentralized State Public Health Department: 1, Colorado Department of Public Health and Environment (CDPHE) LHDs: 53	Decentralized State Public Health Department: 1, Oregon Health Authority Public Health Division LHDs: 33	Decentralized State Public Health Department: 1, Washington Department of Health (DOH) LHDs: 35
FPHS Framework and Operational Definitions	 Articulation of Foundational Capabilities and Foundational Areas, v1 ¹¹	 Colorado Public Health System Transformation, Core Public Health Services Operational Definitions Manual, May 2019 ¹² Note: For consistency with Colorado's 2008 Public Health Reauthorization Act, Colorado has elected to refer to its FPHS framework as Core Public Health Services.	 Public Health Modernization Manual, Foundational capabilities and programs for public health in Oregon, September 2017	 Washington FPHS Definitions 1.4, March 2019
Public Health System Assessment	Costing the FPHS: Analysis for FY 2018, Final Report, 2019 <ul style="list-style-type: none">As of 2018, an additional \$93 million (2018 dollars) is needed annually to fully implement FPHS. and Costing the FPHS: Analysis for FY 2019, Final Report, 2021 [this report] <ul style="list-style-type: none">As of 2019, an additional \$121 million (2019 dollars) is needed annually to fully implement FPHS.	Colorado Public Health System Transformation Core Public Health Services Needs Assessment Report, 2020 n=54 (CDPHE and 53 LHDs) Key Findings: <ul style="list-style-type: none">Colorado's governmental public health system has not fully implemented FPHS.Every governmental health department has significant gaps in implementation of FPHS, but these gaps are not uniform and vary in size and across the foundational capabilities and areas, with no clear relationship between the health department's characteristics and the size and location of gaps.As of 2019, an additional \$189 million (2019 dollars) is needed annually to fully implement FPHS.	State of Oregon Public Health Modernization Assessment Report, 2016 n=35 (OHA and 34 LHDs) Key Findings: <ul style="list-style-type: none">Oregon's governmental public health system has not fully implemented FPHS.Every governmental health department has significant gaps in implementation of FPHS, but these gaps are not uniform and vary in size and across the foundational capabilities and areas, with no clear relationship between the health department's characteristics and the size and location of gaps.As of 2016, an additional \$105 million (2016 dollars) is needed annually to fully implement FPHS.	Washington State Public Health Transformation Assessment Report for State and Local Public Agencies, 2018 n=30 (DOH and 29 LHDs) Key Findings: <ul style="list-style-type: none">Washington's governmental public health system has not fully implemented FPHS.Every governmental health department has significant gaps in implementation of FPHS, but these gaps are not uniform and vary in size and across the foundational capabilities and areas, with no clear relationship between the health department's characteristics and the size and location of gaps.As of 2018, an additional \$225 million (2018 dollars) is needed annually to fully implement FPHS.

¹¹ <https://www.resolve.ngo/docs/v-1-foundational-capabilities-and-areas-and-addendum.pdf>
¹² http://www.calpho.org/uploads/6/8/7/2/68728279/co_cphs_definitions_manual_final_draft_clean_2019_0510.pdf

