

Competency Map: Data Information Literacy, EBPH, Fairbanks School, and CLAPHP Domains

Academic & professional public health competencies mapped to Data Information Literacy Competencies

Understanding Data	Finding and/or Obtaining Data	Reading, Interpreting, & Evaluating Data	Managing Data	Using Data
<p><i>FSPH MPH Core Competencies</i></p> <ul style="list-style-type: none"> -Use epidemiological methods to collect, study, analyze, and report the patterns of disease in human populations for diverse audiences. -Identify social and behavioral factors, theories, and models and develop, implement, and evaluation interventions designed to positively affect health behaviors in populations. -Explain how human biology influences health and public health practice. 	<p><i>Brownson et al, 2009, EBPH</i></p> <ul style="list-style-type: none"> -conducting sound evaluation <p><i>FSPH MPH Core Competencies</i></p> <ul style="list-style-type: none"> -Use epidemiological methods to collect, study, analyze, and report the patterns of disease in human populations for diverse audiences. -Identify social and behavioral factors, theories, and models and develop, implement, and evaluation interventions designed to positively affect health behaviors in populations. -Collect and disseminate public health data through the use of technology and media. 	<p><i>Brownson et al, 2009, EBPH</i></p> <ul style="list-style-type: none"> -analytic tools like systematic reviews, economic evaluation can be useful in accelerating the uptake of EBPH (or TRIP) <p><i>FSPH MPH Core Competencies</i></p> <ul style="list-style-type: none"> -Use epidemiological methods to collect, study, analyze, and report the patterns of disease in human populations for diverse audiences. -Identify social and behavioral factors, theories, and models and develop, implement, and evaluation interventions designed to positively affect health behaviors in populations 	<p><i>FSPH MPH Core Competencies</i></p> <p>[none]</p> <p>Note: data management and analysis are addressed in the epidemiology concentration competencies and within specific course learning goals</p>	<p><i>Brownson et al, 2009, EBPH</i></p> <ul style="list-style-type: none"> -making decisions on the basis of the best available scientific evidence -using data and information systems systematically -disseminating what is learned <p><i>FSPH MPH Core Competencies</i></p> <ul style="list-style-type: none"> -Use biostatistical methods to analyze and report public health data. -Apply policy process, development, and analysis methods to address current national, state, and local public health issues. -Identify social and behavioral factors, theories, and models and develop, implement, and evaluation interventions designed to positively affect health behaviors in populations. -Collect and disseminate public health data through the use of technology and media. -Use systems methods to analyze the effects of political, social, and economic influences on public health systems at the individual, community, state, national, and international levels.
<p><i>CLAPHP Core Competencies</i></p> <p><i>Analytical/ Assessment Skills</i> (Tier 1)</p> <p>1A1: describes factors affecting the health of a community (e.g., equity, income, education, environment)</p> <p>1A2: identifies quantitative and qualitative data and information (e.g., vital statistics,</p>	<p><i>CLAPHP Core Competencies</i></p> <p><i>Analytical/ Assessment Skills</i> (Tier 1)</p> <p>1A3: applies ethical principles in accessing, collecting, analyzing, using, maintaining, and disseminating data and information</p>	<p><i>CLAPHP Core Competencies</i></p> <p><i>Analytical/ Assessment Skills</i> (Tier 1)</p> <p>1A3: applies ethical principles in accessing, collecting, analyzing, using, maintaining, and disseminating data and information</p> <p>1A4: uses information technology in accessing, collecting, analyzing, using,</p>	<p><i>CLAPHP Core Competencies</i></p> <p><i>Analytical/ Assessment Skills</i> (Tier 1)</p> <p>1A3: applies ethical principles in accessing, collecting, analyzing, using, maintaining, and disseminating data and information</p>	<p><i>CLAPHP Core Competencies</i></p> <p><i>Analytical/ Assessment Skills</i> (Tier 1)</p> <p>1A3: applies ethical principles in accessing, collecting, analyzing, using, maintaining, and disseminating data and information</p>

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<p>electronic health records, transportation patterns, unemployment rates, community input, health equity impact assessments) that can be used for assessing the health of a community</p> <p>1A11: describes assets and resources that can be used for improving the health of a community (e.g., Boys & Girls Clubs, public libraries, hospitals, faith based organizations, academic institutions, federal grants, fellowship programs)</p>	<p>1A4: uses information technology in accessing, collecting, analyzing, using, maintaining, and disseminating data and information</p> <p>1A5: selects valid and reliable data</p> <p>1A6: selects comparable data (e.g., data being age-adjusted to the same year, data variables across datasets having similar definitions)</p> <p>1A8: collects valid and reliable quantitative and qualitative data</p> <p>1A11: describes assets and resources that can be used for improving the health of a community (e.g., Boys & Girls Clubs, public libraries, hospitals, faith based organizations, academic institutions, federal grants, fellowship programs)</p> <p>1A12: contributes to assessments of community health status and factors influencing health in a community (e.g., quality, accessibility, and use of health services; access to affordable housing)</p>	<p>maintaining, and disseminating data and information</p> <p>1A6: selects comparable data (e.g., data being age-adjusted to the same year, data variables across datasets having similar definitions)</p> <p>1A7: identifies gaps in data</p> <p>1A9: describes public health applications of quantitative and qualitative data</p> <p>1A11: describes assets and resources that can be used for improving the health of a community (e.g., Boys & Girls Clubs, public libraries, hospitals, faith based organizations, academic institutions, federal grants, fellowship programs)</p> <p>1A12: contributes to assessments of community health status and factors influencing health in a community (e.g., quality, accessibility, and use of health services; access to affordable housing)</p>	<p>1A4: uses information technology in accessing, collecting, analyzing, using, maintaining, and disseminating data and information</p>	<p>1A4: uses information technology in accessing, collecting, analyzing, using, maintaining, and disseminating data and information</p> <p>1A6: selects comparable data (e.g., data being age-adjusted to the same year, data variables across datasets having similar definitions)</p> <p>1A7: identifies gaps in data</p> <p>1A9: describes public health applications of quantitative and qualitative data</p> <p>1A10: uses quantitative and qualitative data</p> <p>1A11: describes assets and resources that can be used for improving the health of a community (e.g., Boys & Girls Clubs, public libraries, hospitals, faith based organizations, academic institutions, federal grants, fellowship programs)</p> <p>1A12: contributes to assessments of community health status and factors influencing health in a community (e.g., quality, accessibility, and use of health services; access to affordable housing)</p> <p>1A13: explains how community health assessments use information about health status, factors influencing health, and assets and resources</p> <p>1A14: Describes how evidence (e.g., data, findings reported in peer-reviewed literature) is used in decision making</p>
<p><i>CLAPHP Core Competencies Policy Development/Program Planning Skills (Tier 1)</i></p> <p>2A1: contributes to state/Tribal/community health improvement planning (e.g., providing data to supplement community health assessments, communicating observations from work in the field)</p> <p>2A2: contributes to development of program goals and objectives</p> <p>2A3: describes organizational strategic plan (e.g., includes measurable objectives and</p>	<p><i>CLAPHP Core Competencies Policy Development/Program Planning Skills (Tier 1)</i></p> <p>2A1: contributes to state/Tribal/community health improvement planning (e.g., providing data to supplement community health assessments, communicating observations from work in the field)</p> <p>2A2: contributes to development of program goals and objectives</p> <p>2A3: describes organizational strategic plan (e.g., includes measurable objectives and</p>	<p><i>CLAPHP Core Competencies Policy Development/Program Planning Skills (Tier 1)</i></p> <p>2A1: contributes to state/Tribal/community health improvement planning (e.g., providing data to supplement community health assessments, communicating observations from work in the field)</p> <p>2A2: contributes to development of program goals and objectives</p>	<p><i>CLAPHP Core Competencies Policy Development/Program Planning Skills (Tier 1)</i></p> <p>NONE</p>	<p><i>CLAPHP Core Competencies Policy Development/Program Planning Skills (Tier 1)</i></p> <p>2A1: contributes to state/Tribal/community health improvement planning (e.g., providing data to supplement community health assessments, communicating observations from work in the field)</p> <p>2A2: contributes to development of program goals and objectives</p> <p>2A3: describes organizational strategic plan (e.g., includes measurable objectives and</p>

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<p>targets; relationship to community health improvement plan, workforce development plan, quality improvement plan, and other plans)</p> <p>2A4: contributes to implementation of organizational strategic plan</p> <p>2A5: Identifies current trends (e.g., health, fiscal, social, political, environmental) affecting the health of a community</p> <p>2A6: gathers information that can inform options for policies, programs, and services (e.g., secondhand smoking policies, data use policies, HR policies, immunization programs, food safety programs)</p> <p>2A7: describes implications of policies, programs, and services</p>	<p>targets; relationship to community health improvement plan, workforce development plan, quality improvement plan, and other plans)</p> <p>2A6: gathers information that can inform options for policies, programs, and services (e.g., secondhand smoking policies, data use policies, HR policies, immunization programs, food safety programs)</p> <p>2A10: gathers information for evaluating policies, programs, and services (e.g., outputs, outcomes, processes, procedures, return on investment)</p>	<p>2A3: describes organizational strategic plan (e.g., includes measurable objectives and targets; relationship to community health improvement plan, workforce development plan, quality improvement plan, and other plans)</p> <p>2A5: identifies current trends (e.g., health, fiscal, social, political, environmental) affecting the health of a community</p> <p>2A7: describes implications of policies, programs, and services</p> <p>2A11: applies strategies for continuous quality improvement</p>		<p>targets; relationship to community health improvement plan, workforce development plan, quality improvement plan, and other plans)</p> <p>2A4: contributes to implementation of organizational strategic plan</p> <p>2A5: identifies current trends (e.g., health, fiscal, social, political, environmental) affecting the health of a community</p> <p>2A8: implements policies, programs, and services</p> <p>2A9: explains the importance of evaluations for improving policies, programs, and services</p> <p>2A11: applies strategies for continuous quality improvement</p> <p>2A12: describes how public health informatics is used in developing, implementing, evaluating, and improving policies, programs, and services (e.g., integrated data systems, electronic reporting, knowledge management systems, geographic information systems)</p>
<p><i>CLAPHP Core Competencies Public Health Sciences Skills (Tier 1)</i></p> <p>6A1: describes the scientific foundation of the field of public health</p> <p>6A2: identifies prominent events in the history of public health (e.g., smallpox eradication, development of vaccinations, infectious disease control, safe drinking water, emphasis on hygiene and hand washing, access to health care for people with disabilities)</p> <p>6A3: describes how public health sciences (e.g., biostatistics, epidemiology, environmental health sciences, health services administration, social and behavioral sciences, and public health informatics) are used in the</p>	<p><i>CLAPHP Core Competencies Public Health Sciences Skills (Tier 1)</i></p> <p>6A4: retrieves evidence (e.g., research findings, case reports, community surveys) from print and electronic sources to support decision making</p> <p>6A7: describes the laws, regulations, policies, and procedures, for the ethical conduct of research (e.g., patient confidentiality, protection of human subjects, Americans with Disabilities Act)</p> <p>6A8: contributes to the public health evidence base (e.g., participating in Public Health Practice-Base Research Networks, community-based participatory research, and</p>	<p><i>CLAPHP Core Competencies Public Health Sciences Skills (Tier 1)</i></p> <p>6A5: recognizes limitations of evidence (e.g., validity, reliability, sample size, bias, generalizability)</p> <p>6A6: describes evidence used in developing, implementing, evaluating, and improving policies, programs, and services</p> <p>6A7: describes the laws, regulations, policies, and procedures, for the ethical conduct of research (e.g., patient confidentiality, protection of human subjects, Americans with Disabilities Act)</p>	<p><i>CLAPHP Core Competencies Public Health Sciences Skills (Tier 1)</i></p> <p>6A7: describes the laws, regulations, policies, and procedures, for the ethical conduct of research (e.g., patient confidentiality, protection of human subjects, Americans with Disabilities Act)</p>	<p><i>CLAPHP Core Competencies Public Health Sciences Skills (Tier 1)</i></p> <p>6A3: describes how public health sciences (e.g., biostatistics, epidemiology, environmental health sciences, health services administration, social and behavioral sciences, and public health informatics) are used in the delivery of the 10 Essential Public Health Services</p> <p>6A7: describes the laws, regulations, policies, and procedures, for the ethical conduct of research (e.g., patient confidentiality, protection of human subjects, Americans with Disabilities Act)</p> <p>6A8: contributes to the public health evidence base (e.g., participating in Public</p>

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delivery of the 10 Essential Public Health Services	academic health departments; authoring articles; making data available to researchers)			Health Practice-Base Research Networks, community-based participatory research, and academic health departments; authoring articles; making data available to researchers) 6A9: suggests partnerships that may increase use of evidence in public health practice (e.g., between practice and academic organizations with health sciences libraries)

Sources:

FSPH MPH core competencies: <http://pbhealth.iupui.edu/index.php/prospective-students/master/mph/competencies/>

Brownson, RC, Gurney, JG, Land, GH (1999) Evidence-based decision making in public health. *Journal of Public Health Management* 5: 86–97.

CLAPHP Core Competencies for Public Health Professionals: http://www.phf.org/resourcestools/Pages/Core_Public_Health_Competencies.aspx

Professional competencies mapped to Data Information Literacy Competencies

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<p><i>FSPH Core Competencies</i></p> <ul style="list-style-type: none"> -Exhibit high standards of personal and organizational integrity, compassion, honesty, and respect for all people. -Demonstrate the impact of diversity and culture on public health across discipline areas. 	<p><i>FSPH Core Competencies</i></p> <ul style="list-style-type: none"> -Identify and analyze the components and issues of leadership, including financing and delivery of public health services and systems. -Exhibit high standards of personal and organizational integrity, compassion, honesty, and respect for all people. -Demonstrate the impact of diversity and culture on public health across discipline areas. 	<p><i>FSPH Core Competencies</i></p> <ul style="list-style-type: none"> -Identify and analyze the components and issues of leadership, including financing and delivery of public health services and systems. -Exhibit high standards of personal and organizational integrity, compassion, honesty, and respect for all people. -Demonstrate the impact of diversity and culture on public health across discipline areas. 	<p><i>FSPH Core Competencies</i></p> <ul style="list-style-type: none"> -Exhibit high standards of personal and organizational integrity, compassion, honesty, and respect for all people. 	<p><i>FSPH Core Competencies</i></p> <ul style="list-style-type: none"> -Identify and analyze the components and issues of leadership, including financing and delivery of public health services and systems. -Exhibit high standards of personal and organizational integrity, compassion, honesty, and respect for all people. -Demonstrate the impact of diversity and culture on public health across discipline areas. <p><i>CLAPHP Core Competencies Communication Skills (Tier 1)</i></p> <ul style="list-style-type: none"> 3A1: Identifies the literacy of populations served (e.g., ability to obtain, interpret, and use health and other information; social media literacy) 3A2: communicates in writing and orally with linguistic and cultural proficiency (e.g., using age-appropriate materials, incorporating images) 3A3: solicits input from individuals and organizations (e.g., chambers of commerce, religious organizations, schools, social service organizations, hospitals, government, community-based organizations, various populations served) for improving the health of a community 3A4: suggests approaches for disseminating public health data and information (e.g., social media, newspapers, newsletters, journals, town hall meetings, libraries, neighborhood gatherings) 3A5: conveys data and information to professionals and the public using a variety of approaches (e.g., reports, presentations, email, letters) 3A6: communicates information to influence behavior and improve health (e.g., uses social marketing methods, considers behavioral theories such as the Health Belief Model or Stages of Change Model) 3A7: facilitates communication among individuals, groups, and organizations 3A8: describes the roles of governmental public health, health care, and other partners in improving the health of a community

Ethical competencies mapped to Data Information Literacy Competencies

Understanding Data	Finding and/or Obtaining Data	Reading, Interpreting, & Evaluating Data	Managing Data	Using Data
<p><i>FSPH Core Competencies</i> -Demonstrate an understanding of the basic ethical and legal principles pertaining to the collection, maintenance, use, and dissemination of public health data.</p> <p><i>APHA PH Code of Ethics</i> Key belief: interdependence of people</p> <p><i>CLAPHP Core Competencies</i> <i>Public Health Sciences Skills</i> (Tier 1) 6A7: describes the laws, regulations, policies, and procedures, for the ethical conduct of research (e.g., patient confidentiality, protection of human subjects, Americans with Disabilities Act)</p>	<p><i>FSPH Core Competencies</i> -Demonstrate an understanding of the basic ethical and legal principles pertaining to the collection, maintenance, use, and dissemination of public health data.</p> <p><i>CLAPHP Core Competencies</i> <i>Public Health Sciences Skills</i> (Tier 1) 6A7: describes the laws, regulations, policies, and procedures, for the ethical conduct of research (e.g., patient confidentiality, protection of human subjects, Americans with Disabilities Act)</p>	<p><i>FSPH Core Competencies</i> -Demonstrate an understanding of the basic ethical and legal principles pertaining to the collection, maintenance, use, and dissemination of public health data.</p> <p><i>CLAPHP Core Competencies</i> <i>Public Health Sciences Skills</i> (Tier 1) 6A7: describes the laws, regulations, policies, and procedures, for the ethical conduct of research (e.g., patient confidentiality, protection of human subjects, Americans with Disabilities Act)</p>	<p><i>FSPH Core Competencies</i> -Demonstrate an understanding of the basic ethical and legal principles pertaining to the collection, maintenance, use, and dissemination of public health data.</p> <p><i>CLAPHP Core Competencies</i> <i>Public Health Sciences Skills</i> (Tier 1) 6A7: describes the laws, regulations, policies, and procedures, for the ethical conduct of research (e.g., patient confidentiality, protection of human subjects, Americans with Disabilities Act)</p>	<p><i>FSPH Core Competencies</i> -Demonstrate an understanding of the basic ethical and legal principles pertaining to the collection, maintenance, use, and dissemination of public health data.</p> <p><i>APHA PH Code of Ethics</i> Key belief: interdependence of people</p> <p><i>CLAPHP Core Competencies</i> <i>Public Health Sciences Skills</i> (Tier 1) 6A7: describes the laws, regulations, policies, and procedures, for the ethical conduct of research (e.g., patient confidentiality, protection of human subjects, Americans with Disabilities Act)</p>

Calzada-Prado & Marzal DIL Competencies

Calzada Prado, J and Marzal, MÁ (2013) Incorporating data literacy into information literacy programs: core competencies and contents. *Libri: International Journal of Libraries & Information Services* 63(2): 123–134.

1. Understanding data

1.1. What is data?

Competency: learners need to know what is meant by data and be aware of the various possible types of data

Contents: data definition, types of data (depending on origin, format, usage license, etc.)

1.2. Data in society

Competency: learners need to be aware of the role of data in society, how they are generated and by whom, and their possible applications, as well as the implications of their use

Contents: data producers and consumers; data lifecycle; data applications: their impact on science and society; copyright and licenses influencing data reuse

2. Finding and/or obtaining data

2.1. Data sources

Competency: learners need to be aware of the possible data sources, be able to evaluate them and select the ones most relevant to an informational need or a given problem

Contents: data sources; criteria for assessing data sources

2.2. Obtaining data

Competency: learners need to be able to detect when a given problem or need cannot be (totally or partially) solved with the existing data and, as appropriate, undertake research to obtain new data

Contents: main research methods for obtaining original data

3. Reading, interpreting, and evaluating data

3.1. Reading and interpreting data

Competency: learners need to be aware of the various forms in which data can be presented (written, numerical, or graphic), and their respective conventions, and be able to interpret them

3.2. Evaluating data

Competency: learners need to be able to evaluate data critically

Contents: data evaluation criteria (including authorship, method of obtaining and analyzing data, comparability, inference and data summaries)

4. Managing data

4.1. Data and metadata collection and management

Competency: learners need to be aware of the need to save data selected or generated and of descriptive or other data associated therewith, for due identification, management, and subsequent reuse

Contents: metadata; reference management tools; databases; data management repositories; policies and practices

5. Using data

5.1. Data handling

Competency: learners need to be able to prepare data for analysis, analyze them in keeping with the results sought and know how to use the necessary tools

Contents: data conversion; handling data analysis tools both locally (Excel, R, SPSS, Stata, etc.) and online

5.2. Producing elements for data synthesis

Competency: learners need to be able to synthesize and represent the results of data analysis in ways suited to the nature of the data, their purpose, and the audience targeted in the inquiry

Contents: choosing suitable data representation methods (tables, graphs, or similar); handling tools (built into analytical tools or stand-alone applications like Gapminder, Visual.ly, etc.)

5.3. Ethical use of data

Competency: learners need to make ethical use of data, acknowledging the source when obtained or formulated by others, and making sure that used methods are deployed and results interpreted transparently and honestly

Contents: what is the ethical use of data; how to cite data sources

APHA Code of Ethics

Thomas, J. C., Sage, M., Dillenberg, J., & Guillory, V. J. (2002). A code of ethics for public health. *American Journal of Public Health*, 92(7), 1057-1059.

Key Belief: interdependence of people

Values & Beliefs Underlying the Code

Health

1. Humans have a right to the resources necessary for health.

Community

2. Humans are inherently social and interdependent.
3. The effectiveness of institutions depends heavily on the public's trust.
4. Collaboration is a key element to public health.
5. People and their physical environment are interdependent.
6. Each person in a community should have an opportunity to contribute to public discourse.
7. Identifying and promoting the fundamental requirements for health in a community are of primary concern to public health.

Bases for Action

8. Knowledge is important and powerful.
9. Science is the basis for much of our public health knowledge.
10. People are responsible to act on the basis of what they know.
11. Action is not based on information alone.

Principles of the Ethical Practice of Public Health

https://www.apha.org/~media/files/pdf/membergroups/ethics_brochure.ashx

1. Public health should address principally the fundamental causes of disease and requirements for health, aiming to prevent adverse health outcomes.
2. Public health should achieve community health in a way that respects the rights of individuals in the community.
3. Public health policies, programs, and priorities should be developed and evaluated through processes that ensure an opportunity for input from community members.

10 Essential Public Health Services

<http://www.cdc.gov/nphpsp/essentialservices.html>

1. Monitor health status to identify and solve community health problems.
2. Diagnose and investigate health problems and health hazards in the community.
3. Inform, educate, and empower people about health issues.
4. Mobilize community partnerships and action to identify and solve health problems.
5. Develop policies and plans that support individual and community health efforts.
6. Enforce laws and regulations that protect health and ensure safety.
7. Link people to needed personal health services and assure the provision of health care when otherwise unavailable.
8. Assure competent public and personal health care workforce.
9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services.
10. Research for new insights and innovative solutions to health problems.

Richard M. Fairbanks School of Public Health Core Competencies for the MPH Program

<http://pbhealth.iupui.edu/index.php/prospective-students/master/mph/competencies/>

- Use biostatistical methods to analyze and report public health data.
- Specify approaches to assess, prevent, and control environmental and occupational hazards to human health and safety.
- Use epidemiological methods to collect, study, analyze, and report the patterns of disease in human populations for diverse audiences.
- Identify and analyze the components and issues of leadership, including financing and delivery of public health services and systems.
- Apply policy process, development, and analysis methods to address current national, state, and local public health issues.
- Identify social and behavioral factors, theories, and models and develop, implement, and evaluation interventions designed to positively affect health behaviors in populations.
- Collect and disseminate public health data through the use of technology and media.
- Explain how human biology influences health and public health practice.
- Exhibit high standards of personal and organizational integrity, compassion, honesty, and respect for all people.
- Use systems methods to analyze the effects of political, social, and economic influences on public health systems at the individual, community, state, national, and international levels.
- Demonstrate the impact of diversity and culture on public health across discipline areas.
- Demonstrate an understanding of the basic ethical and legal principles pertaining to the collection, maintenance, use, and dissemination of public health data.