

Master of Public Health
Applied Practice Experience

***THE DEVELOPMENT OF PUBLIC HEALTH CONTENT FOR
MICHIGAN RESIDENTS: HARMFUL ALGAL BLOOMS,
CANINE BRUCELLOSIS, AND RABIES***

by

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submitted in partial fulfillment of the requirements for the degree

MASTER OF PUBLIC HEALTH

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Chapter 1 - Portfolio Products

I completed my Applied Practice Experience at the Michigan Department of Health and Human Services (MDHHS), Bureau of Infectious Disease Prevention, Emerging and Zoonotic Disease Section. The Emerging and Zoonotic Disease Section (EZID) includes many infectious disease epidemiologists who focus on zoonotic, vector-borne, and emerging infectious diseases. The EZID Section has many responsibilities including reportable disease surveillance, outbreak response, educational outreach, interagency collaborations, and response planning. The EZID Section works with local public health departments, state partners such as the Michigan Department of Agriculture and Rural Development (MDARD) and the Michigan Department of Natural Resources (MDNR), and Federal partners including the Centers for Disease Control and Prevention (CDC), the United States Department of Agriculture (USDA), and the Food and Drug Administration (FDA).

During my Applied Practice Experience at MDHHS I completed five products. Three products are about harmful algal blooms, one product is about canine brucellosis, and one product is about rabies. Four products are new documents that I created, and one product is an updated section summary. Three products are data summaries, one product is a brochure, and one product is a standard precautions procedural document. Four products were created for the general public, and one product was created for animal care professionals.

My three data summary documents are on harmful algal blooms (HABs). I created a new two-page template that will be used annually to summarize the year's harmful algal bloom data in Michigan. From the template I created, I produced the 2021 and 2022 Harmful Algal Bloom Data Summary documents. These summaries were created for the general public using data collected from various groups including, but not limited to, the Michigan Department of Environment, Great Lakes, and Energy (EGLE), the Michigan Department of Agriculture and Rural Development (MDARD), and MDHHS. In addition, I updated the harmful algal bloom section summary for the 2022 annual Michigan Emerging and Zoonotic Disease Surveillance Summary. This summary is intended for the general public, health providers, and veterinarians. The harmful algal bloom section that I updated includes information about HABs, HAB data presented in graphs and tables, and a page about what people can do to help keep themselves and their community safe from HABs.

Another product that I created is a brochure that provides information to the general public on what the next steps are if their dog tests positive for canine brucellosis. This is a two-page brochure that is intended for the general public and includes information such as what

canine brucellosis is, if it can be cured, what the treatment options are, what the health risks are to humans and animals, what the requirements are for life-long quarantine, how to minimize risk of transmission, and what to do if a human is exposed to *Brucella canis*. This brochure was created due to the increase in people who do not want to euthanize their canine brucellosis positive dogs.

The last product I created is a rabies exposure and control plan. This document is intended to provide control measures that can be used to prevent exposure and minimize the risk of infection of the rabies virus to personnel who examine suspect rabid animals or their laboratory specimens in animal care facilities such as veterinary clinics, animal shelters, animal control, and wildlife laboratories. This is an eight-page in-depth document that is intended for animal care professionals. The idea for its creation came from a veterinary clinic in Michigan that called MDARD because it did not know what precautions to take when evaluating a suspect rabid animal. They did not know what personal protective equipment (PPE) to use, how they should transport the animal through the clinic, or what disinfectant agents to use; I addressed all of these topics and more in the document I created.

Table 1.1 Summary of Portfolio Products

Portfolio Product		Description
1.	Harmful Algal Bloom 2021 Data Summary	A new two-page document that summarizes 2021 Michigan harmful algal bloom data for the general public
2.	Harmful Algal Bloom 2022 Data Summary	A new two-page document that summarizes 2022 Michigan harmful algal bloom data for the general public
3.	Harmful Algal Blooms Annual Section Summary	An updated harmful algal bloom section summary for the annual (2022) Michigan Emerging and Zoonotic Disease Surveillance Summary that is intended for the public and health professionals
4.	Canine Brucellosis: Next Steps for Positive Dogs Brochure	A new brochure that provides information to the general public on what the next steps are if their dog tests positive for canine brucellosis
5.	Rabies Exposure and Control Plan for Animal Care Facilities	A new rabies exposure and control plan intended to provide control measures that can be used to prevent exposure to the rabies virus and minimize the risk of infection of personnel who examine suspect rabid animals or their laboratory specimens in animal care facilities such as

		veterinary clinics, animal shelters, animal control, and wildlife laboratories
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Table 1.2 Portfolio Products and Competency Addressed

Portfolio Product		Number and Competency Addressed	
1.	Harmful Algal Bloom 2021 Data Summary	4.	Interpret results of data analysis for public health research, policy or practice
		18.	Select communication strategies for different audiences and sectors
		19.	Communicate audience-appropriate public health content, both in writing and through oral presentation
		21.	Integrate perspectives from other sectors and/or professionals to promote and advance population health
2.	Harmful Algal Bloom 2022 Data Summary	4.	Interpret results of data analysis for public health research, policy or practice
		18.	Select communication strategies for different audiences and sectors
		19.	Communicate audience-appropriate public health content, both in writing and through oral presentation
		21.	Integrate perspectives from other sectors and/or professionals to promote and advance population health
3.	Harmful Algal Blooms Annual Section Summary	4.	Interpret results of data analysis for public health research, policy or practice
		18.	Select communication strategies for different audiences and sectors
		19.	Communicate audience-appropriate public health content, both in writing and through oral presentation
4.	Canine Brucellosis: Next Steps for Positive Dogs Brochure	7.	Assess population needs, assets and capacities that affect communities' health
		18.	Select communication strategies for different audiences and sectors
		19.	Communicate audience-appropriate public health content, both in writing and through oral presentation
		21.	Integrate perspectives from other sectors and/or professionals to promote and advance population health

5.	Rabies Exposure and Control Plan for Animal Care Facilities	7.	Assess population needs, assets and capacities that affect communities' health
		18.	Select communication strategies for different audiences and sectors
		19.	Communicate audience-appropriate public health content, both in writing and through oral presentation
		21.	Integrate perspectives from other sectors and/or professionals to promote and advance population health

Chapter 2 - Competencies

Student Attainment of MPH Foundational Competencies

Competency #4: Interpret results of data analysis for public health research, policy or practice

Harmful algal bloom data was analyzed, interpreted, and presented in the form of graphs, tables, and maps for the public and health professionals. The presentation of the data through these graphs, tables, and maps was intended to be public-friendly and easy to read for any member of the public. This data analysis is currently being used to track trends, but it could be used for future research as well. The data analysis is currently used for public health practice; based on what counties have the most harmful algal blooms, more resources are put into those counties for education and surveillance. Additionally, the data analysis is being used for public health policy. The data analysis helped us determine that harmful algal blooms are increasing in frequency, duration, and geographic distribution across the state of Michigan. With this data, the EZID was able to get funding for a project to expand HAB surveillance through recruiting help from local county health departments.

Competency #7: Assess population needs, assets and capacities that affect communities' health

While listening in on interagency calls, I determined areas where there was a lack of informative resources for the population that could affect communities' health. During a two-hour Rabies Working Group that consisted of many stakeholders in Michigan, including members of MDHHS EZID, MDARD, CDC, and the Michigan Department of Natural Resources, MDARD brought up a case where a small animal veterinarian had called MDARD because they did not know what preventative actions to take when examining a suspect rabid animal. A veterinarian at MDARD indicated that there were not many resources for this topic. Because of this need, I decided to produce the Rabies Exposure and Control Plan for Animal Care Facilities. This process allowed me to assess population needs that affect the communities' health and produce a product that can fulfill that need.

Competency #18: Select communication strategies for different audiences and sectors

I selected different communication strategies for each of my products based on who the audiences were. Some of the products I made were for the general public, some were for health professionals, and some were for both. My products for the general public needed to be able to easily communicate data and information to any member of the public. The information needed to take scientific language and make it clear and relevant for members of the public that may not have a scientific background. My document for animal care professionals used some scientific language. However, medical jargon could not be used because not every animal care professional has a medical background. Although some topics within the document were solely for veterinarians, and in those instances, some medical jargon was used. The document that was for health professionals and the public was mostly written in a public-friendly, easy to read language. However, there were headers where certain health professionals could go to for information, and in those cases, language specific to those health professions was used. The reading levels will be assessed by my preceptor using Microsoft Word 14 software before she submits the documents to the Office of Communications at MDHHS for publication.

Competency #19: Communicate audience-appropriate public health content, both in writing and through oral presentation

I communicated audience-appropriate public health content in writing through all five of the products that I made. I presented some of the products that I made orally to the EZID team during a meeting. The products that I presented, which were the HAB products, were presented to the EZID team for their thoughts and input. As stated above in Competency #18, I used audience-appropriate communication when writing and presenting my products.

Competency #21: Integrate perspectives from other sectors and/or professionals to promote and advance population health.

Most of my products required collaboration from other state departments. My HAB products required collaboration from EGLE and from the Division of Environmental Health at MDHHS. Drafts of my products were sent back and forth to members of these departments until a final draft was created. My Canine Brucellosis brochure and Rabies Exposure and Control Plan were

both created in collaboration with MDARD. I had meetings with a veterinarian at MDARD about the focus and scope of these documents. I also emailed with the MDARD veterinarian about edits to these products. Within the EZID Section at MDHHS, I worked with the whole team. My preceptor worked closely with me on all of my projects. Additionally, I helped other members of the team with some of their smaller projects.

Table 2.1 Summary of MPH Foundational Competencies

Number and Competency		Description
4.	Interpret results of data analysis for public health research, policy or practice	Harmful algal bloom data was analyzed, interpreted, and presented in the form of graphs, tables, and maps for the public and health professionals.
7.	Assess population needs, assets and capacities that affect communities' health	While listening in on interagency calls, I determined areas where there was a lack of informative resources for the population that could affect communities' health.
18.	Select communication strategies for different audiences and sectors	Some products I made were for the general public, some were for health professionals, and some were for both. Therefore, I selected different communication strategies for each of my products based on who the audiences were.
19.	Communicate audience-appropriate public health content, both in writing and through oral presentation	I communicated audience-appropriate public health content through writing in the products that I made. I presented some of these products to the EZID team through oral presentation.
21.	Integrate perspectives from other sectors and/or professionals to promote and advance population health.	Most of my products required collaboration from other state departments. I had meetings with other departments and written communication through email about my products.

Table 2.2 MPH Foundational Competencies Course Mapping

22 Public Health Foundational Competencies Course Mapping	MPH 701	MPH 720	MPH 754	MPH 802	MPH 818
Evidence-based Approaches to Public Health					
1. Apply epidemiological methods to the breadth of settings and situations in public health practice	x		x		

22 Public Health Foundational Competencies Course Mapping	MPH 701	MPH 720	MPH 754	MPH 802	MPH 818
2. Select quantitative and qualitative data collection methods appropriate for a given public health context	x	x	x		
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	x	x	x		
4. Interpret results of data analysis for public health research, policy or practice	x		x		

Public Health and Health Care Systems					
5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings		x			
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels					x
Planning and Management to Promote Health					
7. Assess population needs, assets and capacities that affect communities' health		x		x	
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs					x
9. Design a population-based policy, program, project or intervention			x		
10. Explain basic principles and tools of budget and resource management		x	x		
11. Select methods to evaluate public health programs	x	x	x		
Policy in Public Health					
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence		x	x	x	
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes		x		x	x
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations		x			x
15. Evaluate policies for their impact on public health and health equity		x		x	
Leadership					
16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making		x			x
17. Apply negotiation and mediation skills to address organizational or community challenges		x			
Communication					
18. Select communication strategies for different audiences and sectors	DMP 815, FNDH 880 or KIN 796				
19. Communicate audience-appropriate public health content, both in writing and through oral presentation	DMP 815, FNDH 880 or KIN 796				
20. Describe the importance of cultural competence in communicating public health content		x			x
Interprofessional and/or Intersectional Practice					

21. Integrate perspectives from other sectors and/or professionals to promote and advance population health.		x			x
Systems Thinking					
22. Apply systems thinking tools to a public health issue			x	x	