Michigan

Jurisdictional Risk Assessment and Data Elements Report

BP1-2025

MDHHS
Michigan Department of Health & Human Services

Bureau of Emergency Preparedness, EMS and Systems of Care

Introduction

Michigan's local public health preparedness system is comprised of 45 county, city, and multi-county health departments (LHDs) that serve 83 counties across the upper and lower peninsulas. This includes seven Cities Readiness Initiative (CRI) jurisdictions. All Michigan LHD preparedness programs are supported by Public Health Emergency Preparedness (PHEP) funding and have conducted or participated in jurisdictional risk assessments or equivalent processes.

Historical, current, and future risk assessments conducted by state and local public health in Michigan are described in this report as is a summary of statewide risk assessment outcomes for the 2019-2024 period.

Historical Risk Assessments (2019-2024)

At the state level, the Michigan Department of Health and Human Services (MDHHS) participates in the Threat and Hazard Identification and Risk Assessment (THIRA) process with the Michigan State Police (MSP), Emergency Management and Homeland Security Division (EMHSD) every three years. Most recently the THIRA was conducted in 2019, 2022 and is planned for 2025. Additionally, the Michigan PHEP program has utilized the CDC's Capabilities Planning Guide (CPG) assessment required by the PHEP cooperative agreement to provide ground-truth on gaps and priorities of focus for public health preparedness planning.

For the 2019 budget period, the CPG requirement was extended to LHDs as part of their BP1-2019 workplan. For 14 of the 15 Public Health Emergency Preparedness and Response Capabilities, LHDs were asked to evaluate each Function and identify the Resource Elements and Tasks that had gaps. Additionally, they were asked to indicate the relative importance of the Capability to their health department's overall preparedness mission and current ability to perform the associated functions. The local CPG did not address Capability 12: Public Health Laboratory Testing as most LHDs do not have laboratory capacity within their departments and instead utilize the state Bureau of Laboratories (MDHHS/BOL).

The local CPG results were collected in December 2019, just prior to the COVID pandemic. Then in January 2024, we re-deployed the same CPG tool, which LHDs completed without having seen the results of their 2019 assessment. This provided a unique look at how preparedness gaps and priorities have shifted over time considering the COVID response.

At-risk populations were also assessed during the 2019-2024 PHEP project period as part of a Whole Community Inclusion (WCI) initiative. The initiative required LHDs to select one of two approaches. Option A provided a guided project work plan that outlined specific, sequenced activities and associated deliverables designed to meet WCI strategic objectives while Option B was an individualized strategic 5-year plan determined by local jurisdictions that had established, on-going, and forward leaning efforts related to vulnerable/at-risk populations. Both options incorporated at risk population assessments at the foundation of the work.

Emergency management conducts THIRAs every three years, while regional healthcare coalitions (HCCs) conduct annual Hazard Vulnerability Assessments (HVAs). LHDs often have opportunity to

participate in these assessments and/or have access to the results to use for preparedness planning.

Future Jurisdictional Risk Assessment (JRA) Plans (2027 and beyond)

The Michigan PHEP program will develop and implement a comprehensive public health risk assessment for CRI and non-CRI LHDs in budget period 3 (2027). The Michigan Public Health Risk Assessment Tool (MI-PHRAT) will be a Capability-based tool developed collaboratively with local public health, the Hospital Preparedness Program (HPP), and emergency management. The aim is to avoid duplication, maximize assessment efficiency, and ensure inclusion of at-risk/access and functional needs population needs within a public health assessment framework. Michigan will update its risk assessment data elements and provide CDC with a copy of the completed JRA at that time.

Current JRA Approach (2025)

In lieu of our BP3 plans to implement a comprehensive, Michigan-specific JRA, we collected specific risk assessment data elements (RADE) from all 45 LHDs to complete the BP1-2025 JRA and RADE requirement. This process involved all CRI and non-CRI jurisdictions.

We built a Local RADE 2025 Data Collection Tool (see Appendix A) based off the PHEP Recipient Work Plan Reporting Tool (RWPRT), specifically, the elements included in the RADE tabs. Additionally, we created a companion Risk-Hazards List (see Appendix B) that mirrors the risks and hazards listed in the RWPRT.

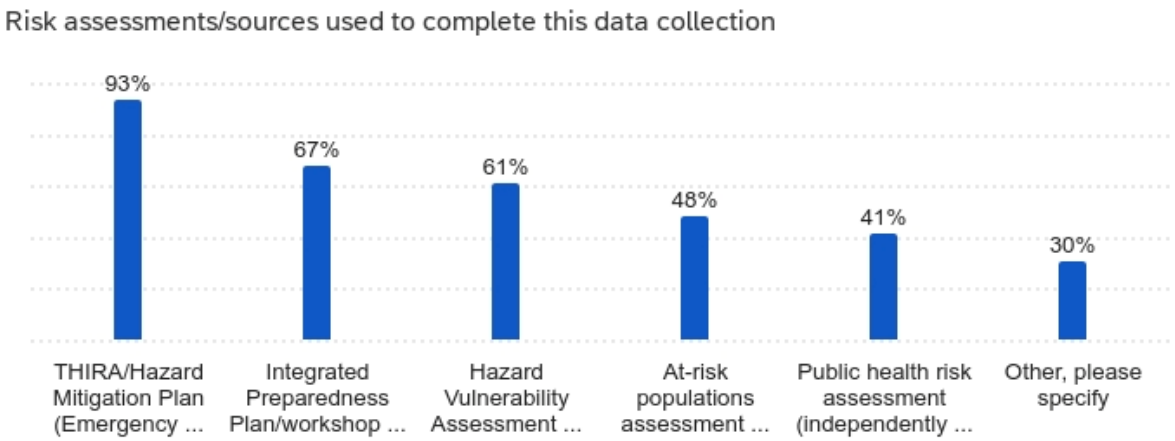
LHDs were instructed to refer to previous risk assessments that they either conducted or participated in, such as THIRAs, hazard mitigation plans, regional HVAs, at-risk population assessments, Integrated Preparedness Plans (IPP)/Integrated Preparedness Planning Workshop (IPPW), and any other assessment they may have conducted/participated in within the last five years, to complete the provided data collection tool.

The survey tool was built and deployed to all 45 LHDs using Qualtrics between December 20, 2024, and January 10, 2025. LHDs were instructed to begin to compile their data using the provided Word document and then transfer their responses to the Qualtrics tool.

Local RADE 2025 Results Summary

The summary data presented in this section represents responses from all of Michigan's 45 local health departments.

Risk Assessment Sources:



Thirty-two percent of LHDs reported also using other types of assessments to complete the survey, including ASPR's RISC 2.0 Toolkit and independently conducted community health needs assessments.

Ninety-three percent (42) LHDs reported all the assessments they used were completed within the last five years (2019-2024). Seven percent (3) indicated that at least some of the assessments they used were conducted prior to 2019.

Public health participated in **all** assessment(s) used for this survey:	69% (31)
Public health participated in **some** assessment(s) used for this survey:	29% (13)
Public health **did not** participate in the assessment(s) used:	2% (1)

Access and Functional Needs (AFN) Populations

LHDs were asked to indicate the AFN populations that were addressed/included in the risk assessments they used to complete this survey, and then rank the top three priority populations identified by those assessments. **Table 1** shows the percentage of local health departments that indicated the given population was considered in their risk assessment(s) while **Table 2** shows how LHDs ranked the top three populations based on the results of their jurisdictional risk assessments. The results indicate that age, geographically underserved (rural) and socio-economic factors were most often ranked highest priority in local jurisdictional risk assessments.[1]

[1] *Three local jurisdictions indicated that access and functional needs populations were not addressed in the risk assessments they used to respond to this survey. Those jurisdictions were not used to calculate the percentages in the priority population tables below.*

Table 1.

Access & Functional Needs Populations Addressed in Risk Assessments Used for local RADE survey			
Older populations	91%	LEP/language barriers	60%
Children and youth	84%	Hospitalized people	58%
Underserved (rural, insurance)	73%	Hearing impaired	58%
Transportation instability	73%	Visual impairment	56%
Low socio-economic status	73%	Marginalized (socio, political)	53%
Mental/behavioral health	69%	Cognitive impairment	53%
Developmental disability	69%	Incarcerated	40%
Mobility impairment	64%	Other	20%
Homeless/housing instability	62%	Did not address AFN in assessment	4%
Pregnant women	60%		

Some local jurisdictions used terminology in their risk assessments to identify AFN populations that differ from the categories provided in the RWPRT. For the purposes of alignment with the RADE, the following category adjustments were made to the local survey responses and are reflected in the prioritization tables (Table 2).

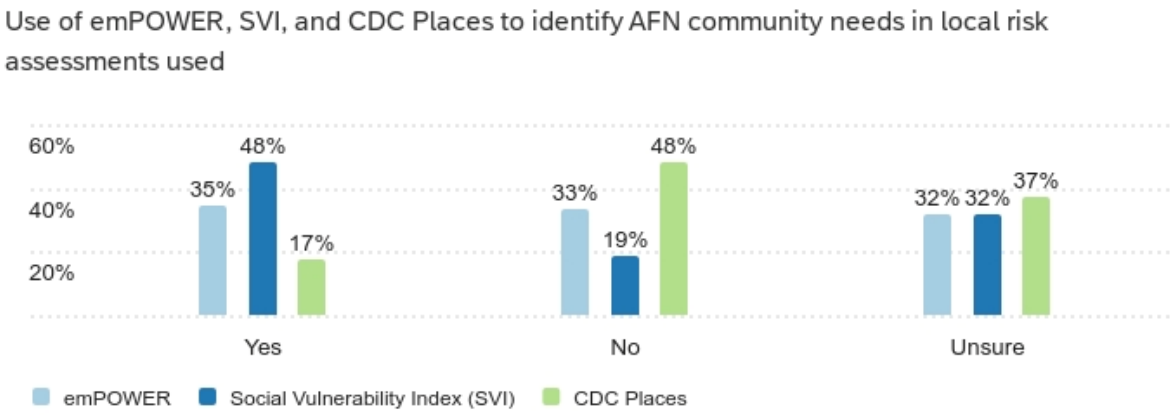
- Isolated for cultural, geographic or social reasons was categorized as 'marginalized'
- Economically disadvantaged was categorized as 'low socio-economic'
- Age was applied to both 'youth' and 'older populations' categories.

Additionally, for the purposes of this report, cognitive impairment, hearing impairment, visual impairment, mobility impairment, developmental disability, and any alternate related terminology used by local jurisdictions were combined into a single 'Disability' category in the prioritization table below, which represents the percentage of LHDs that identified the given population as prioritized level 1, 2, and 3.

Table 2.

Priority AFN Population #1		Priority AFN Population #2		Priority AFN Population #3	
Older populations	35%	Older populations	37%	Low socio-economic status	16%
Low socio-economic status	21%	Children and youth	14%	LEP/language barriers	14%
Underserved (rural, insurance)	19%	Disabilities (all combined)	12%	Older populations	12%
Children and youth	16%	Low socio-economic status	9%	Underserved (rural, insurance)	12%
Marginalized (socio, polical)	5%	Underserved (rural, insurance)	9%	Disabilities (all combined)	12%
Hospitalized people	2%	Hospitalized people	5%	Children and youth	9%
Mental/behavioral health	2%	LEP/language barriers	5%	Transportation instability	9%
		Homeless/housing insecurity	2%	Pregnant people	5%
		Transportation instability	2%	Hospitalized people	5%
		Food/nutrition insecurity	2%	Mental/behavioral health	5%
		College/University	2%	Marginalized	2%

LHDs were asked to indicate if emPOWER, Social Vulnerability Index (SVI) or CDC Places were used in any of their JRAs. SVI was most utilized (48% of LHDs), followed by emPOWER data (35% of LHDs), and CDC Places (17% of LHDs). Roughly one-third of health departments were unsure whether these resources were utilized as part of their local risk assessment process.



Top 5 Jurisdictional Hazards/Risks

The final section of the local RADE collection survey gathered information from LHDs as to the top five hazards identified for their jurisdiction based on the previously conducted risk assessments available to them. LHDs were asked to identify the hazard category, the risk, and the risk reason describing the public health (PH) vulnerability associated with the risk.

To determine the top five ranked risks state-wide, each risk included in the survey responses was tallied and assigned points based on the ranking given by the LHDs as indicated below.

Risk Ranking	Point Value Assigned
1	5
2	4
3	3
4	2
5	1

Total points for each risk were then tabulated and sorted highest to lowest. The top five weighted risks as identified by Michigan's local health departments are as follows:

#1: Natural Disasters – Snowstorms/blizzards
#2: Community Resource/Utility – Electrical outage
#3: Natural Disaster – Floods
#4: Natural Disaster – Tornadoes
#5: Technology – Cyberattack

Of note, infectious disease and Pandemic Influenza ranked seventh and eighth, respectively. If these data points were to be combined, that risk would then rank second on the above list. It is worthwhile to consider this combined risk due to the nature of the identified hazards in planning, training, and exercise moving forward. Table 3 below shows results for the top 10 weighted risks.

Table 3.

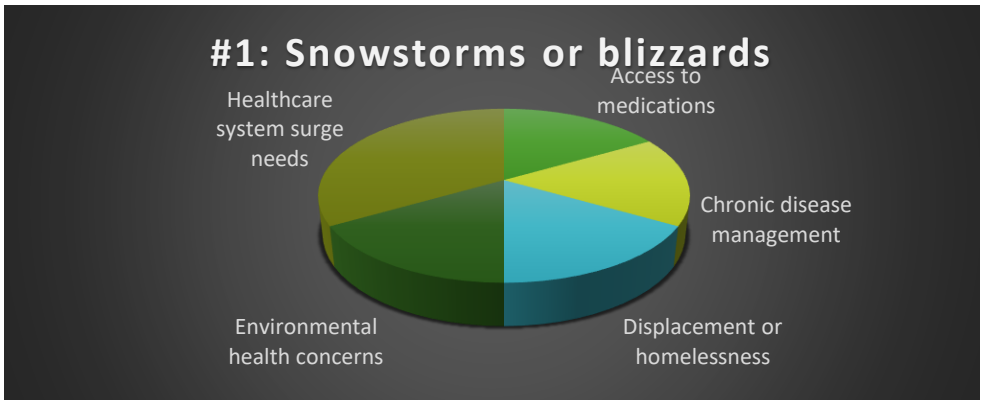
Weighted Ranking of the Top Hazards/Risks as Identified by Michigan's 45 Local Health Jurisdictions											
		Top #1		Top #2		Top #3		Top #4		Top #5	
Category	Risk	Count	Points (5)	Count	Points (4)	Count	Points (3)	Count	Points (2)	Count	Points (1)	TOTAL POINTS
Natural disasters	Snowstorms/blizzards	10	50	4	16	2	6	2	4	0	0	76
Community resource/Utility	Electrical outage	5	25	7	28	4	12	1	2	1	1	68
Natural disasters	Floods	4	20	6	24	3	9	4	8	3	3	64
Natural disasters	Tornadoes	6	30	2	8	4	12	1	2	2	2	54
Technology	Cyberattack	2	10	5	20	0	0	4	8	7	7	45
Environmental	Hazardous materials	1	5	3	12	6	18	3	6	0	0	41
Biological	Infectious disease	1	5	2	8	4	12	6	12	2	2	39
Biological	Pandemic Influenza	2	10	3	12	2	6	1	2	0	0	30
Natural disasters	Extreme cold	3	15	0	0	1	3	2	4	0	0	22
Community resource/Utility	Utility disruption	1	5	2	8	1	3	1	2	2	2	20

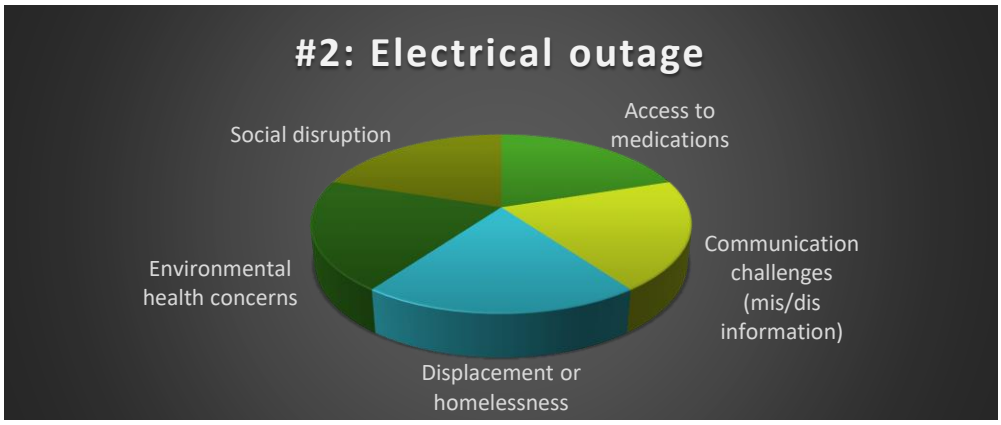
Risk Reason

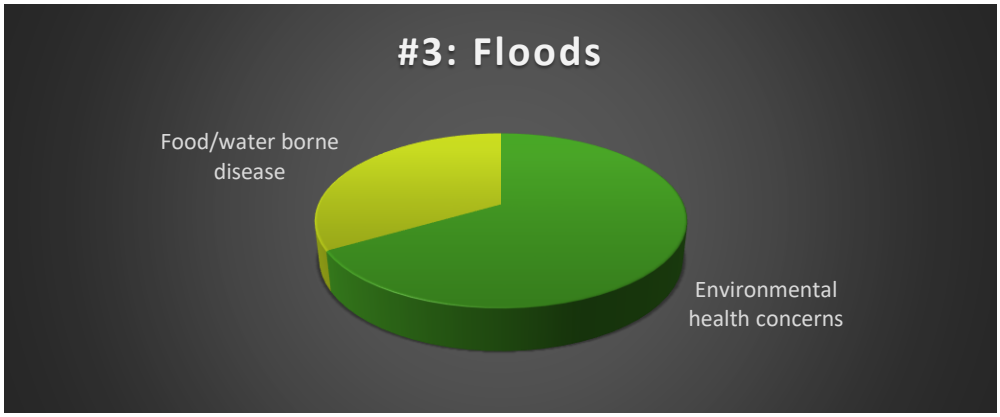
LHDs were asked to select the risk reason that describes the public health vulnerability associated with their top chosen risks. Responses were tallied for each of the top five. The highest reported Risk Reason for each Top Risk are as follows:

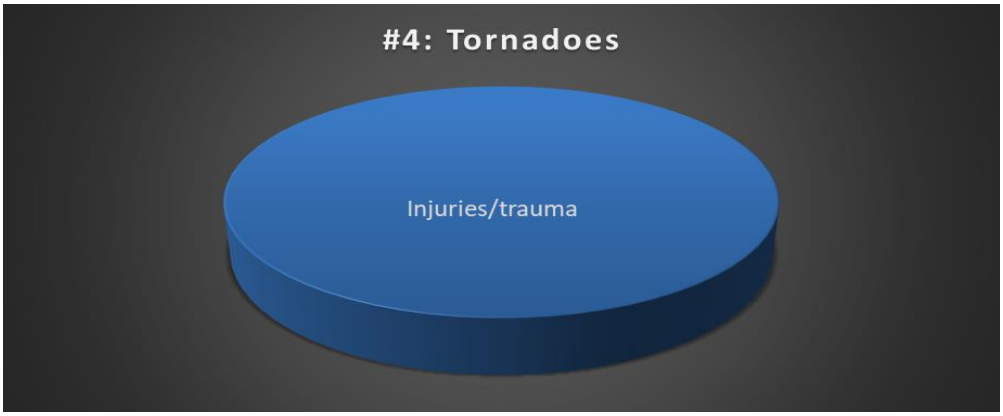
#1: Snowstorms or blizzards – Healthcare system surge needs
#2: Electrical outage – Environmental health concerns
#3: Floods – Environmental health concerns
#4: Tornadoes – Injuries/trauma
#5: Cyberattack – Social disruption

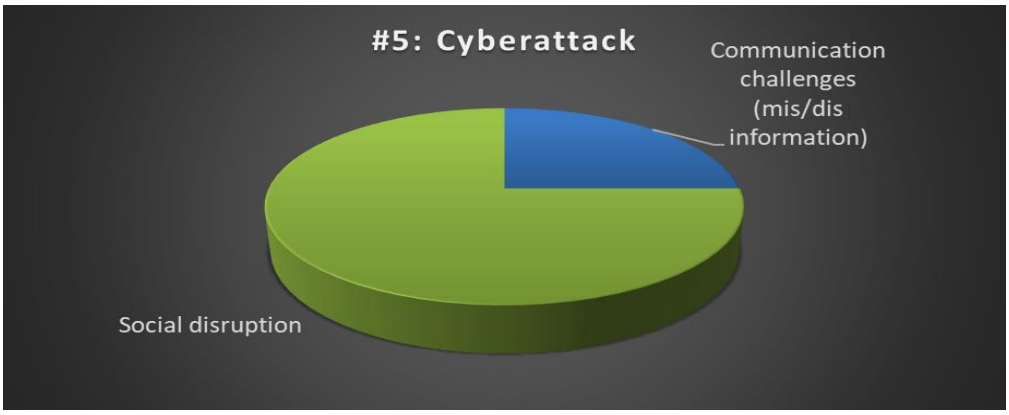
The following graphics show the proportion of risk reasons identified for each top hazard.




#2: Electrical outage
Access to medications
Communication challenges (mis/dis information)
Displacement or homelessness
Environmental health concerns
Social disruption


#3: Floods
Food/water borne disease
Environmental health concerns


#4: Tornadoes
Injuries/trauma



MI-RWPRT and Approach to Aggregating Local Data

Assessments Conducted (RADE Elements tab)

All 45 Michigan health departments conducted or participated in various risk assessments including in conjunction with local emergency management and the regional healthcare coalitions between 2019 and 2024. We surveyed the LHDs to collect and summarize those statewide risk assessment results to meet the PHEP AHA-A RADE requirement. As such, we indicated in the MI-RWPRT that Michigan conducted and will submit a single risk assessment in coordination with all CRI and non-CRI health departments. This report serves as that single risk assessment and is the source of the data submitted in the MI-RWPRT. We used the local RADE survey deadline (January 10, 2025) as the RA completion date recorded in the MI-RWPRT.

Prioritized AFN Populations (RADE Elements tab)

For the MI-RWPRT, we selected 'Older populations' as the one prioritized access and functional needs population considered in the risk assessment. Out of all listed groups, older populations was the highest reported of all the population groups listed – 91% of Michigan LHDs reported this group was considered in the risk assessments they conducted or participated in.

Some LHDs reported the use of emPOWER, SVI, and CDC Places data to assess AFN populations in the risk assessments they conducted or participated in, 35%, 48%, and 17%, respectively. Since each data source was used in some capacity, we reported 'Yes' to all three in the MI-RWPRT.

Top Five Risks (RADE Risks tab)

We asked each health department to identify the top five (5) Hazard Category and Risks for their jurisdiction using the risk assessments they conducted or participated in within the last five years. Using a weighted ranking method, we scored each selected hazard as described above. The five risks with the highest total scores were reported in the MI-RWPRT as the top five risks. To identify

the risk reason for each top risk, the risk reasons reported by LHDs were tallied and the ones with the highest number of responses were included in the MI-RWPRT.

Discussion

Local health departments were asked to report out based on findings in risk assessments that they in large part participated in, but did not lead. The public health perspective while shared during the assessment process, may not have had significant impact on the outcomes.

Therefore, in follow up to receiving these survey results, two additional questions were sent to respondents to find out to what degree they agreed with the top five risks they reported in the survey and what they believe is the top risk, if different. At the time of this writing 21 of the 45 LHDs responded to the supplemental questions. Fourteen agreed with their responses, six were neutral, and only one somewhat disagreed. What was most telling, however, were their responses to the second question – *what do you believe the top hazard is, if different?*

Some commented that biological/infectious disease was the biggest risk in their jurisdiction while others confirmed that severe weather is a significant public health hazard in their region as it affects health directly and indirectly (delays in care, power outage, etc.). Still yet, others commented that cybersecurity was a growing concern in their opinion as is the political climate and impact of mis/disinformation. Their comments were relatively consistent with the findings of the local RADE survey. As mentioned above, while infectious disease and pandemic did not show up in the top five, it is acknowledged that if added together the risk would be in the top five. For this reason, prioritized planning will continue to include these hazards/risks in Michigan.

Beyond the variance in the type of hazard/risk, was how respondents defined risk itself. For example, some described their top risk relative to their agency's ability to continue to provide public health services, while others spoke to risk in relation to the impact on the health of the public. Some referenced frequency of occurrence as being the factor that most determines the top risk, while others focused on severity of impact.

What can be taken from this information is that perspective and context can yield very different outcomes when conducting a risk assessment. Two adjacent or closely located jurisdictions with similar characteristics might assess their top hazards/risks differently based on how they define and determine risk. Similarly, two different agencies, such as public health and emergency management, can also assess top hazards/risks differently based on their different roles and responsibilities. For this reason, we have objectives written into the Michigan PHEP workplan to develop a Public Health Risk Assessment tool in BP2 and implement it in BP3. The aim is to coordinate, not duplicate, efforts with emergency management and HPP partners to specifically address public health priorities, Capabilities, and at-risk population needs based on a clear and shared definition of risk.

Appendix A: Local RADE Collection Tool

1. LHD Name _____ Region_____
2. Select assessments/sources that you are using to complete this data collection requirement. *Select all that apply.*
    - □ Threat and Hazard and Risk Identification Assessment (THIRA)/Hazard mitigation plan
    - □ Regional healthcare coalition Hazard Vulnerability Assessment (HVA)
    - □ At risk populations assessment
    - □ Public health risk assessment
    - □ Integrated preparedness plan (IPP)/integrated preparedness plan workshop (IPPW)
    - □ Other, please specify _____
3. Of the assessment types you selected in question #2, were **all** of them conducted within the last 5 years (2019-2024)? *If some were and some were not, select 'No' and provide details in the explanation field.*
    - □ Yes
    - □ No (explain)
    - □ Unsure (explain)
4. Of the assessment types you selected in question #2, how many of them did public health participate in?
    - □ All
    - □ Some (explain)
    - □ None
    - □ Unsure (explain)
5. Which access and functional needs (AFN) populations were considered/included in the risk assessments that you used to complete this data collection? *Select all that apply.*
    - □ Children and youth
    - □ Older populations
    - □ Pregnant people
    - □ Hospitalized people
    - □ Incarcerated
    - □ Marginalized (social, political, etc.)
    - □ Homeless
    - □ Mental/behavioral health needs
    - □ Cognitive impairment
    - □ Hearing impairment
    - □ Visual impairment
    - □ Mobility impairment
    - □ Developmental disabilities
    - □ Limited English proficiency (LEP) or language barriers
    - □ Low socio-economic status
    - □ Transportation instability
    - □ Underserved communities (rural, uninsured, etc.)
    - □ Other, please specify

6. Of the AFN populations you selected in question #5, rank the top three that were prioritized or identified as 'highest risk' in the assessments you used to complete this data collection.
    - #1:
    - #2:
    - #3:
7. Was emPOWER data used to assess community AFN population needs in any of the assessments/resources you used for this data collection?
    - □ Yes
    - □ No
    - □ Unsure (explain)
8. Was Social Vulnerability Index (SVI) data used to assess community AFN population needs in any of the assessments/resources you used to complete this data collection?
    - □ Yes
    - □ No
    - □ Unsure (explain)
9. Was CDC Places data used to assess community AFN population needs in any of the assessments/resources you used to complete this data collection?
    - □ Yes
    - □ No
    - □ Unsure (explain)
10. List any other data sources that were used to assess community AFN population needs in any of the assessments/resources you used to complete this data collection. If none, state so.
11. Based on the assessments/resources you used for this data collection, rank the top five (5) risks/hazards identified for your jurisdiction. Complete the table below using the RISK-HAZARD list provided.

Rank	Risk Category	Risk	Risk Reason*
Ex	*Natural disaster*	*40-Flood*	*6-environmental health concerns*
1			
2			
3			
4			
5			

Appendix B: Risks-Hazards Companion List

RISKS-HAZARDS LIST_2025 RADE

Biological

1. Agricultural disease outbreak
2. Anthrax
3. Foodborne disease
4. Food insecurity or famine
5. Infectious diseases
6. Non-infectious diseases (chronic)
7. Pandemic COVID
8. Pandemic Influenza
9. [Other] respiratory viruses (SARS, etc.)
10. Vector-borne diseases
11. Zoonotic diseases
12. Other, specify

Community Resources/Utility Failures

13. Electrical outage
14. Fuel shortage
15. Generator shortage
16. Sewer failure
17. Supply chain disruption (water, food, pharmaceuticals)
18. Utility disruption
19. Other, specify

Environmental

20. Chemical attack, spill, or release
21. Hazardous materials incident or release
22. Nuclear facility failure
23. Radiological dispersal
24. Water sanitation, supply contamination, or shortage
25. Other, specify

Mass gathering

26. Large public events
27. Mass care services
28. Mass sheltering
29. Medical resource shortages
30. Special or VIP events
31. Volunteer or staffing shortages
32. Other, specify

Natural Disasters

33. Asteroids or meteorites
34. Avalanches
35. Dust storms
36. Earthquakes
37. Expansive soils
38. Extreme cold
39. Extreme heat
40. Floods
41. Fogs
42. Hailstorms
43. Hurricanes, tropical storms, or cyclones
44. Ice storms
45. Landslides
46. Lightning
47. Mudflows
48. Sinkholes or subsidence
49. Snowstorms or blizzards
50. Soil erosion
51. Solar flare
52. Storm surge
53. Thunderstorms
54. Tornadoes
55. Tsunamis
56. Volcano
57. Wildfires
58. Windstorms
59. Other, specify

RISKS-HAZARDS LIST_2025 RADE

Occupational Industrial

60. Agricultural infestation
61. Arboviral response
62. Factory incident
63. Mining incident
64. Power plants
65. Refinery incident
66. Safety standard issues
67. Other, specify

Structural

68. Dam failure
69. Infrastructure Collapse
70. Levee failure
71. Other, specify

Technology

72. Communication network disruption or failure
73. Cyber attack
74. Information system disruption or failure
75. Other, specify

Terrorism

76. Agro-terrorism or food supply contamination
77. CBRNE attack (chemical, biological, radiological, nuclear, explosive)
78. Hate crimes
79. Hostage situations
80. Kidnapping
81. Mass shootings or active shooter
82. Riots
83. Weapons of mass destruction
84. Workplace violence
85. Other, specify

Transportation

86. Aviation
87. Highways
88. Maritime
89. Railroads
90. Other, specify

Risk Reason Describing Public Health Vulnerability

1. Access to medications
2. Chemical exposure
3. Chronic disease management
4. Communication challenges (mis/disinformation)
5. Displacement or homelessness
6. Environmental health concerns
7. First responder health
8. Food/waterborne disease
9. Healthcare system surge needs
10. Infectious disease
11. Injuries/trauma
12. Mental health/psychological distress
13. Radiation exposure
14. Respiratory problems
15. Social disruption
16. Other risk reason, specify