Module 2: Lecture 3

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Slide 1: Welcome to lecture three of the Statewide Health Assessment module on environmental health. This lecture will specifically focus on the nature section of the assessment.

Slide 2: This lecture will introduce the topics of environmental justice, climate, air, water, food, recreation, and the tree canopy policy. By the end of this lecture you will understand how nature impacts environmental health.

Slide 3: The SHA shares the following: "Our health is shaped by our connection to and interactions with the natural environment." Research shows that human health and well-being affect our relationship with nature through how we impact the natural world by designing cities, homes, and workplaces. When people and groups decide the location and size of roads, buildings, and industries, they determine who can access a healthy natural environment and who cannot. We are in charge of how we use land and water and what we put into the air, ultimately impacting our environment. Being mindful of our actions and interactions with nature—whether they remove us from the natural environment, create inequities in access to water and land, or threaten the quality of our surroundings—is essential to our health.

Slide 4: Environmental justice is a state of being where all people benefit from equal levels of environmental protections and have opportunities to participate in decisions that may affect their environment or health regardless of race, color, national origin, or income. Policies, practices, and structures based on racism and discrimination have disproportionately exposed some populations to environmental dangers, creating unjust conditions for these communities.

The concept of environmental justice grew out of research on racial inequities to toxic waste exposure by people like Robert D. Bullard and Benjamin Chavis; scholars who found that communities of color and American Indians were more likely to be concentrated in areas close to hazardous waste facilities than predominantly white communities. Additionally, these inequities are related to systemic racism in fields like zoning, housing policy, and corporate practice.

Minnesota's State legislature created "environmental justice areas," in 2023 that are now a part of Minnesota state law. An environmental justice area is one or more census tracts meeting any of the following criteria: 40% or more of the population is nonwhite, 35% or more of the households have an income at or below 200% of the federal poverty guidelines, 40% or more of the population over the age of 5 has limited English proficiency, or are within federally recognized Indian tribal areas. The areas were created to address health problems that disproportionately hurt American Indians, black or African Americans, and people of color.

Looking at the map of Minnesota Environmental Justice Areas by criteria, what do you notice? important to look at where these areas overlap. In the Twin Cities, about half of the seven-county metro area is in or within one mile of an environmental justice area.244 This covers about 1.6 million people, or just over half of Twin Cities residents. In Greater Minnesota, approximately 55% of census tracts are in environmental justice areas, including 1.3 million people (51% of all Greater Minnesota residents).

Community Members of Environmental Justice (CMEJ) is an organization in North Minneapolis – one of the Minnesota Environmental Justice Areas due to low-income and highly populated by people of color. CMEJ is in a low-income neighborhood experiencing environmental injustice due to the multiple industrial pollution sources in their neighborhood. is committed to fighting environmental injustice. One polyc they recommended and are fighting at the city level is to enact environmental justice ordinance

requiring a cumulative health impacts assessment and land use reviews to ensure community say on land developments and to hold all jurisdictional development in adherence like freeway project. The work of CMEJ is a powerful example of how impacted community members can work together to address structures and systems which are negatively impacting them.

Slide 5: Minnesota has monitored climate change for decades and has observed many changes. Increased extreme rainstorms and increasing temperatures during the winter, with the average daily low rising more than 15 times the average daily summer high. As you can see from the graphic on the slide Minnesota has been warmed 3 degrees from 1985 to 2020, and precipitation increased by 3.4 inches.

These climate changes have significant impacts on health, such as heat-related illness which 75 people died from in MN from 2000 to 2022, and 613 were in the emergency department from heat-related illness, showing the significant impact these changes have on health. It's affecting vulnerable populations more than others, such as people in poverty or unhoused, older adults, young children, and people with chronic health conditions such as asthma.

Slide 6: Climate change has impacts on mental health and well-being, which may be sudden due to experiencing a weather disaster or gradual and cumulative. Everyone reacts to climate change differently based on a variety of factors such as where they live, occupation, and previous significant interactions with disasters and their environment. Stress, anxiety, and other mental health issues can come from losing different things due to weather disasters. Common losses that cause mental health crises during these times are water shortages, loss of habitat for native plants and wildlife, loss of career opportunities for those who depend on stable and expected climate conditions, loss of property/pets/possessions, or loss of place due to forced migration or displacement. All of these things can lead to negative mental health outcomes like anxiety or post-traumatic stress disorder, and some populations are at higher risk for those outcomes. Those populations are youth, women, elderly, communities of color, homeless, occupational exposure, and LGBTQ+.

Slide 7: Air quality changes can lead to negative health outcomes such as asthma attacks, pneumonia, bronchitis, and even contribute to heart attacks, making it challenging to spend time outdoors for vulnerable people (like children, older adults, and people with respiratory conditions) with poor air quality.

While all people in Minnesota are susceptible to the health impacts of air pollution, these impacts do not affect all people in Minnesota equally. Structural inequities formed through institutional systems like city planning, transportation infrastructure, and policies have led to disparities in local pollution. In addition, air pollution is more likely to affect populations with higher rates of heart and lung disease, which includes BIPOC and American Indians, older adults, children with asthma, and people living in poverty.

Let's take a look at the map. What does it show? Twin Cities metro asthma emergency department visits rates by zip code between 2016-2020. What do you notice when you take a closer look? Most visits to the emergency department for Asthma are in the metropolitan area. When the SHA was released, 19 air alerts were issued in 2023, breaking the previous record of 13 air alerts in 2021. Those air alert days can severely impact people living with asthma and they are more impacted the closer they live to busy roads.

Slide 8: Access to clean water is important to the quality of life for humans and wildlife. MN has thousands of lakes, rivers, streams, etc. This water is important for systems to stay healthy and for us to have access to drinking water and recreation without concern for contamination, which is a large threat especially for those living in rural MN. As you can see in the image, 1.1 million people rely on private

wells and they are responsible for testing and maintaining them, meaning their water quality is in their own hands. In 1974 the MN Well Code was developed by the MN department of Health to establish standards for well construction, location, repair, and sealing. When people find issues with their wells it can be difficult to detect the problem and expensive to reach a solution. Even though this policy helps to protect MN residents' water it can impact their health by taking away access to water at times and forcing expense by making sure the wells are up to code. Some specific threats to water quality such as nitrogen, lead, per-and polufluoalkyl substances, and arsenic have negative health outcomes for humans and wildlife

Slide 9: any people in Minnesota experience food insecurity. The SHA shares that food insecurity has surged as high as 40% since the pandemic, and Black and Latine people are more than twice as likely to report food insecurity than white people.

Let's take a closer look at this graph from a 2022 food access survey at Hamline and Augsburg. What do you notice about the number of visits to food shelves? Food shelf visits have significantly increased, which corresponds to higher rates of food insecurity.

In March of 2023, Minnesota Governor Walz signed the Free School Meals bill into law. According to recent state data, over 1 million additional school lunches and breakfast were served each month this past fall compared to fall 2022. This policy solution removed the need to provide proof of household income and removed barriers to access food for children while at school. This is an example of a policy and system intended to address food insecurity among children using an equity-based approach.

How do you think college students are impacted by food insecurity? College students are often overlooked as a vulnerable population when it comes to food insecurity. A few years ago, the Cross Campus Food Access Coalition's Food Access Research Team, composed of students, faculty, staff, and administrators from Augsburg, Hamline, and St. Kate's/Sister of St. Joseph found that 69% of undergraduate students who were surveyed reported being food insecure. Additionally, students with marginalized identities are at higher risk for food insecurity. These findings led to expanded food pantries on each campus. These findings are like those presented in the SHA for the general population. People who face food insecurity often cannot access the more nutrient-dense foods that our bodies need because they are more expensive and less accessible, leading to disproportionate health outcomes due to socio-economic status concerning food access.

Slide 10: MN offers many recreational strengths, such as the availability of parks and trails. In the image you can see that 90.3% of MN adults lived within half a mile of a park compared to 77.5% in 2015. Having close availability to walking paths, biking trails, etc., in the environment can positively influence people's perspective to get outside for physical activity. Getting outside for physical activity benefits people's bodies, minds, and spirit. Some physical advantages to doing physical activities outside are reducing the risk of adverse health outcomes like heart disease, stroke, many kinds of cancer, diabetes, obesity, hypertension, depression, anxiety, declined cognitive function, and increased longevity. The strengths of recreation in MN make it even easier to get outside and benefit from participating in physical activity.

The 2040 Regional Parks Policy Plan commits the Met Council to work to "strengthen equitable usage of regional parks and trails by all our region's residents." To this end, Met Council research must identify to what extent visitation patterns reflect the region's population. Additionally, understanding how underserved populations enjoy the regional system can help inform future investment decisions.

Slide 11: This map shows the percentage of tree cover in Minneapolis, a metro area, compared to Rochester, a more rural area. When looking at these two maps what do you notice between the two locations? As you can see, the yellow on each map represents the lowest amount of tree coverage.

Generally, the areas that have the lowest tree coverage are lower-income areas that are largely BIPOC and American Indian residents. This is significant because when you look at the map and see the yellow portions, you will see that they experience higher temperatures that lead to heat-related illness, as described before. The Rochester map displayed large portions of low tree coverage. Yet, it's due to the outer portions of Rochester being farmland, showing that there can be other reasons for the low tree coverage percentage. MN recognizes the need for tree cover through the new Climate Action Framework to take action steps involving trees throughout the state, communities, and individuals.

Exploring visitation patterns reveals that not all population groups equally experience the benefits of public investment in parks and trails. Young people and BIPOC visitors visited in lower proportion than would be expected given their proportion in the regional population. Men and women visited parks in expected proportion for the population, but a gender gap existed for trail use. The survey asked additional demographic questions including nonbinary and transgender identities, disability status, household income, and languages spoken at home. These survey findings show linguistic, ability, and gender identity diversity in all 10 park agencies. Disparities in park and trail visitation by age, race, ethnicity, income, and gender persist in the Twin Cities.

Slide 12: Many things described throughout this lecture in our natural environment impact our health physically and mentally. After reading and learning about the tree canopy cover policies, how can it contribute to structural change to improve health, especially in lower-income neighborhoods?

For any additional questions ask:
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