2022 Emory Morningside Global Health Case Competition

Taking on Environmental Health Disparities: Developing Health Action Plans to Improve the Health of Indigenous Peoples

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All characters described within the case are *fictional* and bear no direct reflection on existing individuals. The case background and history, however, are meant to portray an accurate representation of the current health challenges and environmental health disparities that the four Indigenous populations described in the case currently face. The case challenge scenario is complex and does not necessarily have a correct or perfect solution, and thus encourages a judicious balance of creative yet perceptive approaches. The case writers have provided informative facts and figures within the case and references to help teams. The data provided are derived from independent sources, may have been adapted for use in this case, and are clearly cited such that teams can verify or contest the findings within their recommendations if it is pertinent to do so. Teams are responsible for justifying the accuracy and validity of all data and calculations that they use in their presentations, as well as defending their assertions in front of a panel of knowledgeable judges who represent the fictional Bridges Foundation.

Introduction

In November 2021, the Bridges Foundation, a private funding organization, traveled to Glasgow, Scotland, for the United Nations' 26th Climate Change Conference (COP26). For almost three decades, the United Nations has brought together countries for global climate summits, called the Conference of the Parties (COPs), which serve to recognize climate change as a worldwide priority.[1] While these summits provide a platform for people around the globe to discuss shared issues caused or exacerbated by climate change, there has historically been a lack of representation of Indigenous peoples. It has taken years of hard work for Indigenous peoples to successfully establish a space for themselves at these COPs.

At COP26, global leaders heard from young Indigenous activists such as Txai Suruí from the Amazon and Elizabeth Wathuti from Kenya. Here are excerpts from their impassioned messages:

> *"I need to tell you what is happening in my home country. Right now as we sit comfortably here in this conference center in Glasgow, over two million of my fellow Kenyans are facing climate-related starvation. In this past year both of our rainy seasons have failed and scientists say that it may be another 12 months before the waters return again. Meanwhile our rivers are running dry. Our harvests are failing. Our storehouses stand empty. Our animals and people are dying."* - Elizabeth Wathuti (full video of speech: https://www.youtube.com/watch?v=8YPZgAbryr8)

> *"Let us stop emitting lies and fake promises. Let us end the pollution of hollow words, and let us fight for a liveable future and present. It's always necessary to believe the dream is possible. May our utopia be a future on Earth."* -Txai Suruí (full video of speech: https://www.youtube.com/watch?v=TP5Nbc5P0GM)

In response to activists like Suruí and Wathuti's call to action, the Bridges Foundation has decided to prioritize and integrate Indigenous health and well-being in their portfolio of work.

Case Prompt

The Bridges Foundation has pledged to provide funding opportunities to address Indigenous people's health issues, focusing on environmental health disparities. Case competition teams will serve as representatives of an organization that advocates for the rights of Indigenous peoples. As such, your organization has identified this opportunity for collaboration with the Bridges

Foundation through their foundation grant awards as an innovative way to make a difference in your local community. Your organization has decided to pursue this Bridges Foundation funding opportunity and has one week to develop a proposal presentation.

According to the Bridges Foundation, your grant proposal presentation should be written in the form of a **Health Action Plan**. Your team should develop **2-3 goals addressing Indigenous peoples' environmental health disparities in your selected Indigenous population.** Your Health Action Plan should include **strategies necessary to achieve each goal**; these goals should be feasible, appropriate, and once achieved; they should be sustainable over time.

As representatives of an advocacy organization, case competition teams must select **one** Indigenous population from the following four to focus their case solution: French Polynesia; Diné (Navajo); Rohingya; or Inuit. **Teams will have until 12:00 pm EDT on Sunday, March 13th to select their population via this link.** There will be a cap to the number of teams that can work on each population. Therefore, the selection of the four Indigenous populations will be available on a first-come, first-chosen basis, meaning the earlier you make your decision, the more likely your team will be able to work on its preferred population.

Your Health Action plan must:

1. Address sustainability and stakeholder engagement/community involvement,
2. Contain a budget of estimated costs. The funding amount is $1.5 million USD per year over four years for a total of $6 million USD,
3. Provide a monitoring and evaluation plan that addresses any anticipated challenges and how you might overcome them,
4. Relate to **at least one** of the population-specific priority areas for your selected Indigenous population. The priority areas for each population are detailed in this document's individual Indigenous population case studies.

A summary of the population-specific priority areas is below:

French Polynesia
Priority A - Language Recognition
Priority B - Climate Change
Priority C - Nuclear Testing

Diné (Navajo)
Priority A - Uranium Mining
Priority B - COVID-19

Rohingya
Priority A - Women's Health
Priority B - Children's health

Inuit
Priority A - Climate Change
Priority B - Food Security
Priority C - Mental health

There are thousands of different Indigenous groups across the globe, all with unique health issues. This document provides detailed case studies from four different groups of Indigenous peoples (French Polynesia, Diné (Navajo), Rohingya, or Inuit). As a team, your job is to select **one** of these four Indigenous populations. As mentioned above, your case solution **should address at least one of the priority areas** described for your selected Indigenous population. These priority areas are population specific and are described in detail in the case studies. It should be clear which Indigenous population you have chosen and whether you have added additional parameters. This could look like a National Health Action Plan focusing on a sub-group within the broader Indigenous population (i.e., women), or one that focuses on a specific geographical boundary (i.e., the U.S. state of Arizona).

Case competition judges will play the role of representatives from the Bridges Foundation.

Background

Although Indigenous peoples protect over 80% of biodiversity on this planet, they are routinely excluded from conversations about climate change. Furthermore, national governments and private industry continually threaten Indigenous peoples and their practices due to unjust land rights, modernization, and commercial development. Preserving the planet's biodiversity, including forests, deserts, grasslands, and marine environments where Indigenous peoples have lived for centuries, is crucial to safeguarding ecosystem health. Successfully doing so requires improving the health issues Indigenous peoples have suffered from and continue to suffer from due to their unequal treatment and exploitation. The UN COP26 and the Indigenous activists who spoke there have highlighted the pressing issues related to Indigenous well-being. A non-exhaustive list of these issues includes food insecurity, exposure to environmental toxins, unethical nuclear testing, the COVID-19 pandemic, Indigenous language recognition, displacement, genocide, and changing ecosystems.

Andrea Carmen, a citizen of the Yaqui Nation, is the former co-chair of the UN Facilitative Working Group of the Local Communities and Indigenous Peoples Platform and executive director of the International Indian Treaty Council. She has outlined some important recommendations of the Working Group:[2]

- Although pollution and emissions didn't come from us, our responsibility as Indigenous peoples is to provide governments with direction for a new way of living that respects and protects the natural world.
- Survival of Indigenous peoples cannot be separated from ancestral homelands and the health and well-being of the natural world as a whole. We have always been adaptable people, but now the climate changes are coming very quickly.
- Only when the rights and land tenure of Indigenous peoples to lands, forests, and waters are recognized and respected will we be able to protect our territories and pass along our traditions to new generations.
- Our knowledge, values, ways, and world views are collective and inter-generational, based on respect, listening, responsibilities, and oral traditions. This knowledge is time-tested; its value cannot be encompassed or reflected in books or "peer-reviewed" studies by non-Indigenous scientists. Our knowledge should be respected and have equal standing with other researchers and scientists.
- Indigenous cultures and ways of knowing are the foundation for producing traditional goods, but exploiting these systems undermines our ability to depend on them.
- Protecting and restoring Indigenous languages is essential to maintaining our ways of knowing, identities, and responsibilities with the natural world and passing them along to a younger generation.
- Indigenous women are at the forefront of experiencing impacts of climate change but also lead the way in protecting our survival and adapting to climate change.
- Indigenous peoples and knowledge holders should participate directly with our own voices in the UN process. Our rights, cultures, lands, and ways of life are directly affected and should be respected.
- We demand an end to allowing Indigenous rights defenders to face criminal actions, persecution, and assassination.
- Loss and damage from climate change is economic and non-economic; direct financial resources to Indigenous peoples would help protect and strengthen our resiliency.
- Indigenous youth must be provided an ongoing seat at the table. They will inherit the results and impacts of our decisions today and judge us accordingly.

Definitions of Indigenous and Aboriginal Peoples

Searching the term "Indigenous" defines it simply as "originating or occurring naturally in a particular place; native."[3] However, the word "Indigenous" encompasses more than this when referring to individuals. The United Nations defines "Indigenous" using the following criteria: [4-5]

- Occupying ancestral lands, or at least part of them
- Common ancestry with original occupants of the land who were displaced as new arrivals became dominant through conquest, occupation, settlement, etc.
- Strong link to their territory and its surrounding natural resources
- Form the non-dominant groups of society
- Distinct culture, language, and beliefs from those who are part of the dominant society in which they live
- Self-identification as Indigenous peoples and acceptance and recognition from the rest of their community
- Other relevant factors

Indigenous is a generic term for people meeting these criteria, and in many regions of the world, there are preferences for other self-identifying labels. In Australia, the Indigenous groups commonly use the terms Aboriginal and Torres Strait Islander. Alternatively, those in Canada and the United States use names such as First Nations to describe the Indian, Métis, and Inuit populations. Other groups prefer to use their languages to describe themselves, including the Maori of New Zealand, who prefer Tangata Whenua, meaning "people of the land."

A critical emphasis in the above definition is to look specifically at the shared worldviews of Indigenous people. Te Ahukaramu Charles Royal, a Maori recipient of the Churchill fellowship for overseas study, defined Indigenous as cultures whose worldviews find the unification of human beings with the natural world paramount. Distinct from both Western and Eastern worldviews at large, the Indigenous view concludes that humans have a symbiotic relationship with nature, including both abiotic and biotic factors such as plants, animals, oceans, land, and air. Royal's definition of Indigenous clarifies the central importance of the relationship between land and people, underscoring the impact on health and wellbeing resulting from the displacement of Indigenous people.

Overview of UN Declaration of Indigenous People's Rights

The UN Declaration on the Rights of Indigenous Peoples (UNDRIP), adopted by the General Assembly in 2007, addresses the human rights and freedoms of Indigenous peoples. The UNDRIP prohibits discrimination against Indigenous peoples and promotes their participation in all matters concerning them, allowing them to pursue their own economic and social development to

maintain and strengthen their institutions, cultures, and traditions alongside their needs and aspirations.

Some topics outlined by the UNDRIP include Indigenous cultural rights and identity and rights to education, health, employment, and their language. However, most articles in the Declaration address Indigenous rights regarding freedom, autonomy, land ownership, and protection against violence and discrimination. Specifically, the Articles mentioning Indigenous health are:

- Article 22: Describes the rights of more vulnerable groups such as elders, women, children, and persons with disabilities.
- Article 23: States that Indigenous peoples have the right to determine and develop economic programmes that address concerns such as housing and health.
- Article 25: Covers traditional medicines and environmental conservation and the states' responsibility toward Indigenous health.
- Article 29: Covers environmental conservation and health.
- Other articles cover subjects concerning legislation, which can be applied to health, and states' responsibility toward the promotion of Indigenous health.

(The following link leads to a copy of the Declaration: United Nations Declaration on the Rights of Indigenous Peoples).

The Declaration does not create new rights and is not legally binding. Instead, it reflects government commitments to advocate for, respect, and fulfill Indigenous peoples' rights worldwide and combat discrimination, marginalization, and human rights violations against Indigenous peoples. The Declaration's articles call for new approaches to solve global issues and secure Indigenous peoples' rights.

Population-Specific Case Studies

Case Study 1: Indigenous Peoples of French Polynesia

History and Demographics

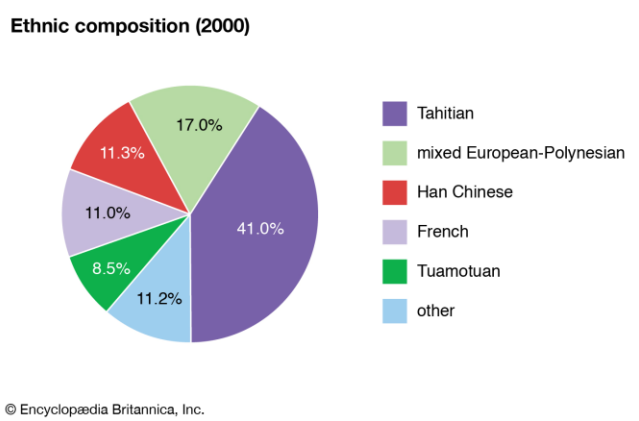
The archipelagos of French Polynesia are comprised of 118 geographically dispersed islands and atolls, 67 of which are inhabited.[6] French Polynesia is divided into five groups: the Society Islands, Tuamotu Archipelago, Gambier Islands, Marquesas Islands, and Tubuai Islands, with Tahiti being the largest island in French Polynesia and the location of the capital, Papeete.[6]

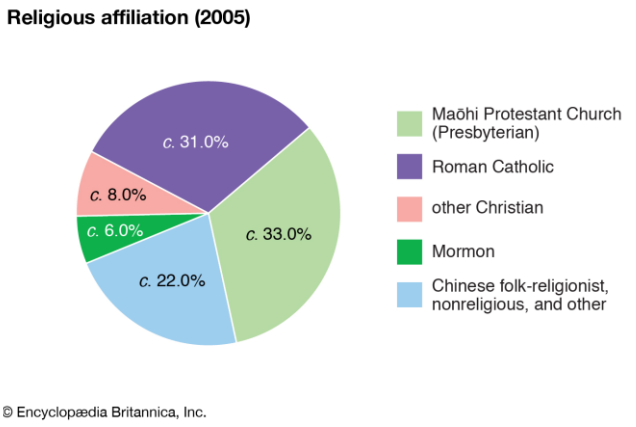
Around 4000 BC, the Great Polynesian Migration originated in Southeast Asia with extraordinary seafarers traveling across the open ocean without any charts or navigating instruments to explore the Pacific Islands.[7] Migrating Polynesians first settled the Marquesas Islands around 200 BC, later discovering the Society Islands around 300 AD.[8] European encounters began in the 16th century, continued throughout the 17th and 18th centuries, and France claimed Tahiti as a colony in 1880.[8]

Today, French Polynesia is considered an overseas collectivity of France and its sole overseas country. It holds greater autonomy and independence than that of a territory, but the government of France provides and administers services in university education, security, defense, and justice.[8] The local government controls services in primary and secondary education, city/town planning, health and the environment.[8] In May 2013, French Polynesia was included on the UN's list of Non-Self-Governing Territories (NSGT), defined as "territories whose people have not yet attained a full measure of self-government."[9]

The population of French Polynesia today is around 280,000, and most people living in French Polynesia are considered Polynesian (approximately 80% of the population), some with partial European or Asian heritage.[10] About two-fifths of the population is Protestant, affiliated with the Maòhi Protestant Church, and another one-third is Roman Catholic.[8]

French Polynesia has abundant biodiversity where many species living in the French Polynesian ecosystems are found nowhere else in the world. Early Polynesians placed a great emphasis on establishing a culture and society linked to the ecosystem.[11] They recognized their dependence on the environment, aware that nurturing the land would provide for them in return.[11] Many aspects of traditional Polynesian culture, such as dance, music, tattooing, language, and religion, were lost under the oppression of missionaries in the 18th century, who suppressed the traditional culture of French Polynesia's Indigenous people.[8] The legacy of colonial oppression persists in present-day French political and cultural rule, threatening Polynesian culture.[8] Although France adopted the UN Declaration on the Rights of Indigenous Peoples, the Indigenous population of French Polynesia continues to struggle with Polynesian language recognition, vulnerability to climate change, and compensation for the consequences of France's nuclear testing in French Polynesia.[12]





Priority A: Language Recognition

Today, French is the only official language of government, business, and education. However, Reo Māʻohi, the Tahitian language, is still widely used in daily communication and a majority of individuals with native ancestry proudly hold it as a marker of Indigenous identity.[13] A map of languages spoken in French Polynesia can be found here.[14] The UN's Department of Economic and Social Affairs has acknowledged the importance of preserving the world's Indigenous languages, organizing the International Expert Group Meeting on Indigenous Languages in 2016. The UN states, "Indigenous languages are key to ensure the continuation and transmission of culture, customs and history as part of the heritage and identity of Indigenous peoples."[15] A 2017 census found that over 23% of individuals 15 and older spoke an Indigenous language at home.[16]

Priority B: Climate Change

The effects of climate change have become increasingly more apparent in French Polynesia, with its small size, low elevation, and limited resources, making the islands more vulnerable to climate change.[17] The islands have endured sea level rise, increased extreme weather events, erosion, droughts, and climate vulnerability, which in turn have had a significant impact on the populations of French Polynesia.[18] Freshwater scarcity, food security, and public health issues threaten these populations, forcing some to flee their homes and lands as climate refugees.[17] The Pacific Islands Framework for Action on Climate Change (PIFACC) maintains the vision of "Pacific Island people, their livelihoods and the environment resilient to the risks and impacts of climate change." Leaders in the Pacific Islands have endorsed the PIFACC, which states:

> *"The adverse effects of climate change and sea level rise present significant risks to the sustainable development of Pacific Island Countries and Territories and the long-term effects of climate change may threaten the very existence of some of them."* - Pacific Islands Framework for Action on Climate Change[19]

Priority C: Nuclear Testing

On July 2, 1966, the French army detonated a bomb called Aldéraban from a barge anchored close to the atoll of Moruroa.[20] Aldéraban marked the first of 193 nuclear tests fired in French Polynesia, including 46 open-air tests that were some of the most contaminating nuclear tests in the French nuclear program history, until 1996.[20] Using new information from recently declassified French defense ministry documents regarding these nuclear tests, researchers from INTERPRT and journalists from Disclose found that the total population exposed to nuclear radiation above the compensation threshold may be more than 110,000 individuals.[21] Even more sobering, 110,000 was about 90% of the total population in French Polynesia at the time of the tests.[21] In this context, compensation is a way for victims of atomic testing to obtain repayment for health issues

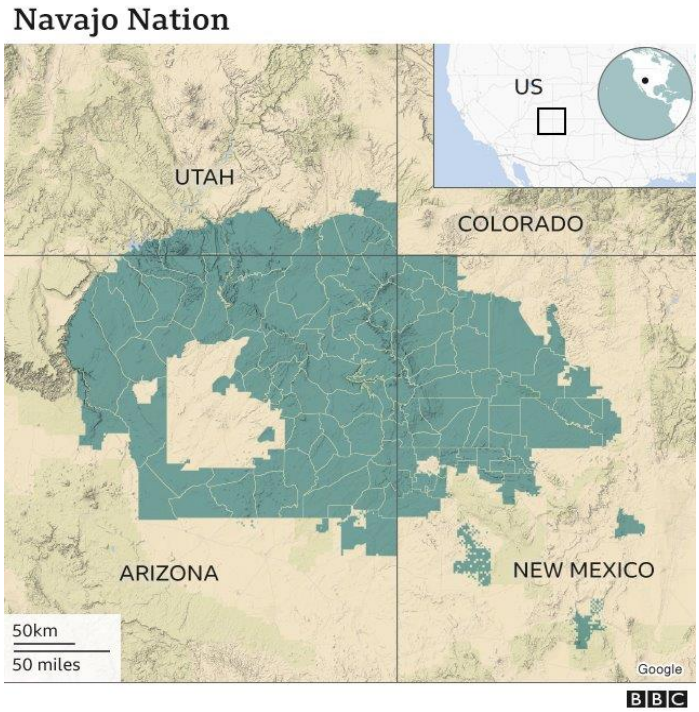
resulting from nuclear fallout.[21] People seeking recognition as a victim must prove that they were living in French Polynesia at the time of the nuclear tests and have subsequently developed one of 23 illnesses caused by exposure to radiation.[20]

While the French military and the country's Atomic Energy Commission (CEA) officially made plans for preventing nuclear fallout from reaching inhabited places of French Polynesia, this new research demonstrates otherwise. Cases of various forms of cancer, including thyroid, throat, and lung cancers, cases of leukemia, lymphoma, and other bone and muscle conditions remain prevalent across the islands of French Polynesia.[20] Furthermore, a confidential email exchange within the French army exposed their acknowledgment, supposedly for the first time, that about 2,000 of the 6,000 French military personnel stationed in French Polynesia and involved in the nuclear testing from 1966-1974 have developed at least one type of cancer.[20] The issue of compensation for the impacts of the French military nuclear tests remains highly controversial. CIVEN, the commission that compensates victims of the nuclear tests, has rejected more than 80% of applicants for compensation. Reasons for these rejections are not provided because its decisions are not public. This lack of transparency and limited reparations has created insurmountable barriers to those impacted by the nuclear tests in French Polynesia, discouraging many from applying for compensation as a result. The French Polynesia ministry of health has estimated that about 10,000 individuals are victims of these nuclear tests. By contrast, researchers state that all the inhabitants of Tahiti and neighboring islands were exposed to a dose of radiation above 1mSv, the threshold amount required for compensation. Thus, over 110,000 people are eligible for compensation if they have developed one of the 23 illnesses. The number of Polynesians from the civilian population who have received compensation to date is just 63.

Case Study 2: Diné/Navajo

History and Demographics

The Navajo Nation is the most populous Native American tribe in America, with 399,494 enrolled members and over 170,000 living on the reservation.[22-23] Membership requires at least one-fourth Navajo blood quantum.[24] The first Navajo peoples lived in western Canada and migrated southward, eventually arriving in the American southwest around the year 1300. In 1400, the Navajo were in contact with the Pueblo Indians, from whom they learned farming techniques.[25] By 1700, the Navajo people lived in northern Arizona, New Mexico, southern Colorado, and Utah. Contact with Spaniards, who had already colonized New Mexico, grew at this time.[25] Throughout the 1800s, wars broke out between the Navajo, Americans, Pueblos, New Mexicans, Mexicans, and Spaniards. Today, the Navajo Nation is the largest Indian reservation, spanning over 27,000 square miles across Arizona, Utah, and New Mexico.[26] The Navajo Reservation is also notable because it is one of the few reservations created by the U.S. government permitting the tribe to re-establish itself on its previous land. Present-day Navajos primarily live in the Four Corners region, including Arizona, Utah, Colorado, and New Mexico.[27]



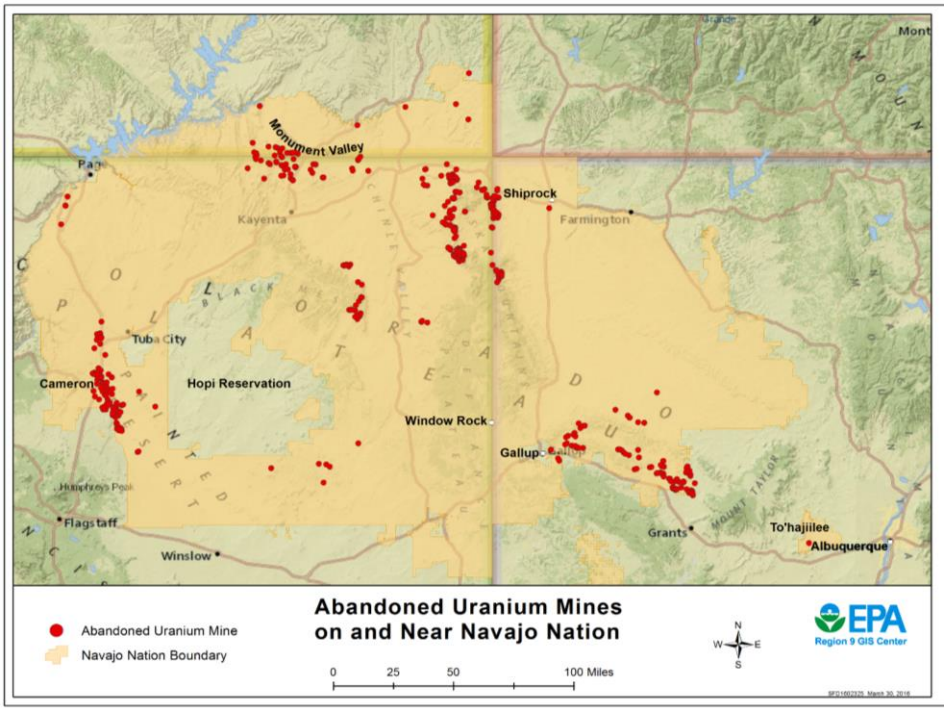
The Navajo refer to themselves as Diné in their mother tongue, which translates to "The People."[28] The Navajo continue to speak the Navajo language, practice the religion, and observe traditional rites, mainly for curing physical and mental illness.[27] These customs reflect a difference between Navajo and Western conceptions of illness. Significantly, the Navajo believe that a spiritual imbalance is the cause of an illness.[29] This cultural difference in etiology also reflects a different conception of disease, exemplified in the Navajo perspective on mental illness. Mental illness can result from failure to conform to Navajo cultural expectations, which prioritizes the individual's ability to 'love and work.'[29] Research has indicated that an individual's strong connection to their Navajo cultural identity may protect against developing depression and anxiety.[29]

Across the United States, there are 574 federally recognized tribes.[30] The federal government requires a formal acknowledgment by an office housed within the Department of the Interior.[31] Formal recognition as an Indian Tribe is a prerequisite to receiving support and establishing a "government-to-government relationship."[31] A 1975 law, the Indian Self-Determination and Education Assistance Act, afforded Indian tribes' increased autonomy as acknowledged sovereign powers. Thus, the Indian Self-Determination Act empowered tribes to "assume the responsibility for programs and services administered to them" by the Federal government.[32] This 1975 Act crystallized similar principles noted in previous tribal treaties, including the Navajo. In the Navajo Nation Treaty of 1868, also known as *Naal Tsoos Sani*, meaning "Old Paper," the Navajo Nation secured vital promises such as retaining its tribal sovereignty and returning to its ancestral lands.[33] In exchange, the Navajo tribe agreed to the compulsory education of Navajo children and not to interfere with the construction of railroads or military posts.[34]

Internationally, the United States was one of four countries that voted against the UNDRIP. Under the Obama administration, the United States reversed its position, announcing its support for the UNDRIP in 2011. This announcement cited support from "many tribes," who called for the federal government to recognize their fundamental rights as the Indigenous peoples of America.[35] The statement did not disclose the specific number or names of tribes advocating for this policy reversal.

Priority A: Uranium Mining

From 1944 to 1986, mining companies extracted almost 30 million tons of uranium ore from Navajo land, fueled by the U.S. federal government's purchase orders for manufacturing atomic weapons from World War II until the Cold War.[36] Once the threat of the Cold War diminished, the mining companies abandoned more than 500 mines, equivalent to about 96% of the abandoned defense-related uranium mines on tribal lands.[37]



Although decades have passed since the mining, detrimental health outcomes linked to uranium exposure adversely affect the Navajo. Many Navajo men worked in the uranium mines due to their proximity and had limited opportunities to seek employment elsewhere.[38] Among Navajo miners, a contemporaneous study reported the death rate from nonmalignant respiratory disease was nearly as high as the death rate from lung cancer.[39] These respiratory diseases include silicosis, tuberculosis, pneumonia, and emphysema, collectively accepted as inherent health hazards in uranium mining. Furthermore, the Navajo miners reported that they were not informed of these health risks, not provided protective equipment, and worked in a noxious environment without proper ventilation.[40]

Additional conditions affecting the Navajo who were not former miners are the "increased likelihood of hypertension and of developing one or more chronic diseases including hypertension, diabetes, and kidney disease."[41] Another survey study of the Navajo found that 26% of women had "concentrations of uranium that exceeded levels found in the highest 5% of the U.S. population."[42] The study noted a troubling observation that similarly toxic levels of uranium were also found in Navajo newborns. According to researchers, an estimated "85% of all Navajo homes are currently contaminated with uranium."[43] Researchers also detected additional contaminants, including arsenic, lead, and manganese.[44] Presently, the Navajo have been and continue to be exposed to uranium contamination through airborne dust, contaminated drinking water, and radioactive construction materials in residents' homes and tribal buildings.[45]

Several federal agencies respond to the uranium contamination affecting the Navajo people. The 2020-2029 Ten-Year Plan continues previous work assessing and cleaning up the human health and environmental consequences from the abandoned uranium mines.[46] Multiple agencies like the Environmental Protection Agency (EPA), Bureau of Indian Affairs, Department of Energy, Nuclear Regulatory Commission, Navajo Area Indian Health Service, and the Agency for Toxic Substances and Disease Registry collaborated on the Ten-Year Plan. The EPA and the Navajo Nation Environmental Protection Agency's assessment and cleanup efforts are funded by settlements negotiated by the U.S. Department of Justice against companies, generally the subsidiaries responsible for the abandoned mines.[47] To date, there is over $1.7 billion available, an amount that the EPA estimates will cover the expenses to remediate 219 mines, only 40% of mines on the Navajo Nation.[48]

Priority B: COVID-19

To date, the Navajo Department of Health has documented 43,541 confirmed cases of COVID-19 and 1,594 confirmed deaths.[49] By the middle of 2020, the Navajo Nation suffered from the highest per-capita rate of COVID-19 infection in the U.S.[50] Initially, the Navajo were a vulnerable target for COVID-19 due to poor living conditions, including contaminated water sources, water shortages, and 30% to 40% of all Navajo Nation residents without access to indoor plumbing.[51] All of these factors presented a significant obstacle to practicing good hygiene. Additionally, the Navajo had other compounding factors contributing to their high disease burden, including multigenerational households, high rates of smoking, and diabetes, with the latter affecting almost 10% of the population.

During the early days of the pandemic, a traditional Diné storyteller recounted the community's anguish and grief as the local radio station read the death notices.[52] In response, the Navajo Department of Health swiftly imposed a lockdown and, later, a strict curfew enforced by the Navajo Police Department.[53] Through extensive public health measures, including mass vaccine

campaigns, dispatched through mobile hospital units, and mitigation efforts, the Navajo were able to turn the corner on high COVID-19 infection and mortality rates.

The Navajo Department of Health reports that among the eligible Navajo Nation population–those 12 and older–72.5% are fully vaccinated.[49] Compared to the eligible population among Americans, the CDC reports that 71.6% are fully vaccinated.[54] The Indian Health Services hospitals across Navajo Nation cite the success of vaccination programs to their advertising strategy, placing posters about vaccination events at prominent locations across the reservation, mass text blasts, and social media posts.[50]

In addition to the proactive efforts to promote vaccination, the Navajo Nation remained committed to mitigation, like mask mandates, business occupancy limits, and physical distancing. In contrast, other cities outside the reservation concurrently relaxed such measures. Furthermore, the government-funded contract tracing program through the Indian Health Services allows local officials to manage current cases better and stay abreast of concerning variants.[55] The Navajo Nation's sovereignty allowed its health agencies, run by the tribe, to operate independently of the Indian Health Services as a 638 facility.[56] During the pandemic, notable 638 facilities on the Navajo Nation applied funds from grants and third-party insurance to establish the mobile health units.[50] Lastly, Navajo members have shown a willingness to get tested following symptoms or exposures, transparent reporting of results, and adequate testing. During the pandemic, local health officials have credited the community's diligence to the Navajo's cultural reverence for and desire to protect its elders, who safeguard tribal history and traditions.[55]

Case Study 3: Rohingya (Myanmar)

*Trigger warning: violence, sexual assault

History and Demographics

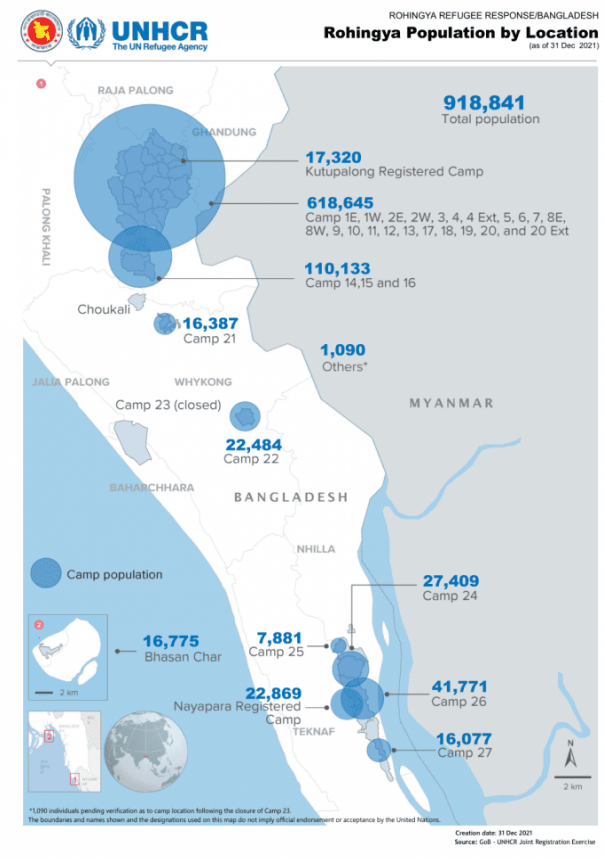
The Rohingya are an ethnic group from Myanmar and are one of the most persecuted minority groups in the world.[57] The Rohingya are primarily Muslim, while Myanmar is a majority Buddhist state. Although state officials deny the ongoing genocide, the Rohingya have been subject to decades of violence, forced relocation, rape, and destruction of homes and villages.[58] The United Nations has called this an ethnic cleansing, defined as "*a purposeful policy designed by one ethnic or religious group to remove by violent and terror-inspiring means the civilian population of another ethnic or religious group from certain geographic areas."*[59]

The root of the discrimination against the Rohingya lies in Myanmar's British colonization history. While the Rohingya consider themselves Indigenous, the state believes they are not.[60] Many Muslims entered the country, then known as Burma, as migrant workers. Although Britain had promised Muslims in Burma their own state, it failed to follow through after WWII, leaving them vulnerable after Burma gained independence in 1948. In 1962, Myanmar became a military state

unified through Buddhist nationalism, which led to the state-sponsored persecution of the Rohingya people.[58] Buddhist nationalism helped unify the state, and the Rohingya were then targeted for the state to feel further unified by having a common "enemy."[60] Operation King Dragon began in 1977, with the government falsely accusing the Rohingya of human rights violations to justify using the military to target them. In 1982, Myanmar passed laws denying Rohingya people citizenship, excluding them from all state resources, including healthcare.[61]

The most recent wave of the Rohingya genocide occurred in 2017. While many have fled to neighboring countries such as Indonesia, Malaysia, and Thailand, most have fled to Bangladesh. Currently, there are about 900,000 Rohingya refugees in Bangladesh.[62] The environmental disparities of those living in overcrowded refugee camps in Bangladesh have led to numerous health issues affecting the Rohingya people. Most of these health issues stem from lack of access to healthcare and poor living conditions, including insufficient water, sanitation, and hygiene.[62] The leading causes of death in the Rohingya population are diarrheal diseases and respiratory infections.[63] It is difficult to improve conditions in these refugee camps due to their haphazard construction, overcrowding, and the language barrier between aid workers and refugees. Significantly, refugees are reliant on help from assistance programs supported by countries including Bangladesh and international organizations for their livelihoods.[64]

There have been some international efforts to help the Rohingya and hold Myanmar accountable for its actions. In 2020, three military officers were convicted for the 2017 massacre that led to the mass exodus of Rohingya people from the Rakhine state. This happened through a closed hearing and little information was released about the officers, the crimes that they were convicted for, or the sentence they were given[65]. This reveals how Myanmar officials continue to defer accountability for the atrocities committed by their military. Many international organizations have called for Myanmar to open up to international investigators, but to no avail. International organizations have also come to the aid of the Rohingya people. The UN signed a deal with Bangladesh to relocate the refugees to better living conditions on an island in the Bay of Bengal.[66] The World bank has offered a $590 million grant to fund the development of health, education, and infrastructure within the refugee camps in Bangladesh.[67] These assistance programs have helped refugees in Bangladesh greatly, but they still face a multitude of health problems. Women and children are especially vulnerable populations within the refugee camps.



86

Priority A: Women's Health

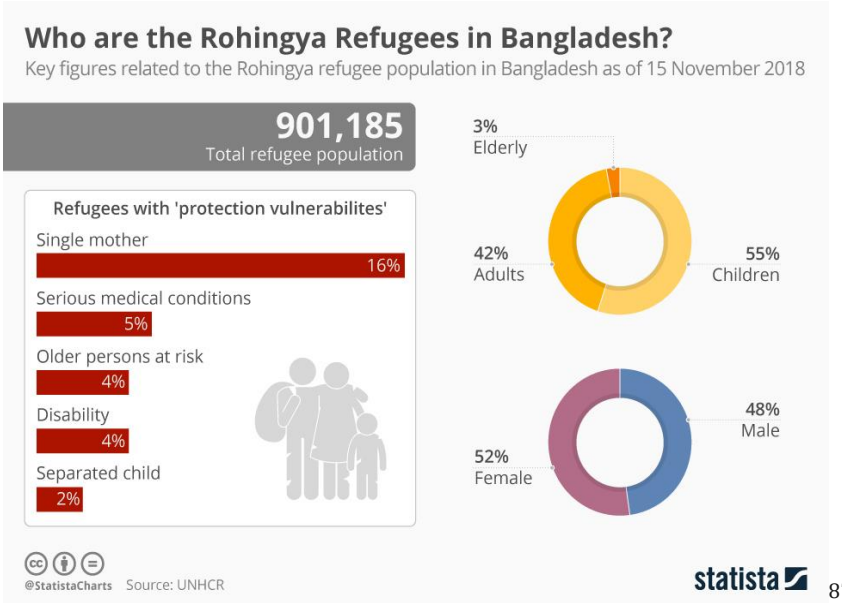
Women face gender-based violence inside and outside their homes in the refugee camps.[64] There is a high prevalence of domestic and sexual violence, which leaves women at risk for many adverse physical and mental health outcomes. Women also have difficulty accessing the necessary healthcare for their physical and mental health needs. A significant health concern for women is pregnancy and childbirth. In 2018, about 5% of the refugees were pregnant women, and about 9% were lactating mothers. Only 22% of births happened in a medical facility, while the rest occurred at home.[63] Women also face lack of nutrition and limited access to healthcare during pregnancy. In addition to fleeing their homes and the varying conditions of the refugee camps, they must navigate pregnancy and then take care of an infant with little access to reproductive health services. Conservative views and the stigma surrounding sex and reproductive health further deter women from seeking help.[68] Women also face unique mental health concerns from sexual assault and mass rape due to the ethnic cleansing in Myanmar. In addition to the physical health problems that arise from sexual violence, sexual assault victims are also stigmatized and denied social and health care support, leading to feelings of isolation, among other mental health issues.[69]

Another primary health concern for women is HIV. There is insufficient educational material available for women on HIV and only a few facilities that offer contraceptives. There have also

been limited efforts to prevent mother-to-child transmission of HIV. While there have been attempts to distribute antiretroviral drugs to treat HIV in these refugee camps, adherence to the medications has been low due to the uncertainty of the refugee's living situation. There has also been limited research on non-communicable diseases in the refugee population. Conducting a long-term study on the Rohingya population has been difficult due to the constant movement of people.[63]

Priority B: Children's Health

Over 55% of the population in the refugee camps in Bangladesh are children.[70] Like the women, children have little to no access to health-related resources. A significant health concern for children is malnutrition, leading to health issues such as anemia and growth stunting. Around 60% of children under the age of 5 have some degree of anemia.[63] There is also a lack of vaccinations and hygiene infrastructures, leading to outbreaks of infectious diseases. In 2018, there was an outbreak of Diphtheria, which resulted in thousands of cases.[64] Similarly, 81% of the cases in the measles outbreak from 2016 to 2018 were in children under 5-years-old.[63] Due to overcrowding, children have been susceptible to respiratory problems and outbreaks of other waterborne, infectious diseases.[64] Children also suffer from mental health issues that can lead to many long-term effects. These children have faced constant fear and stress throughout their lives, and some are orphans who arrived unaccompanied to the refugee camps.[71] As of 2017, almost 6,000 families were headed by children under the age of 18.[72] A study conducted in 2017 also found that 4.8% children under 2 years old and 7.3% children 2-16 years old screened positive for neurodevelopmental disorders. 52% of children were also in the abnormal range for emotional symptoms on the Developmental Screening Questionnaire.[73] In addition to their physical health needs, children are also in need of psychological counseling to help them cope with fear, loss, and stress.

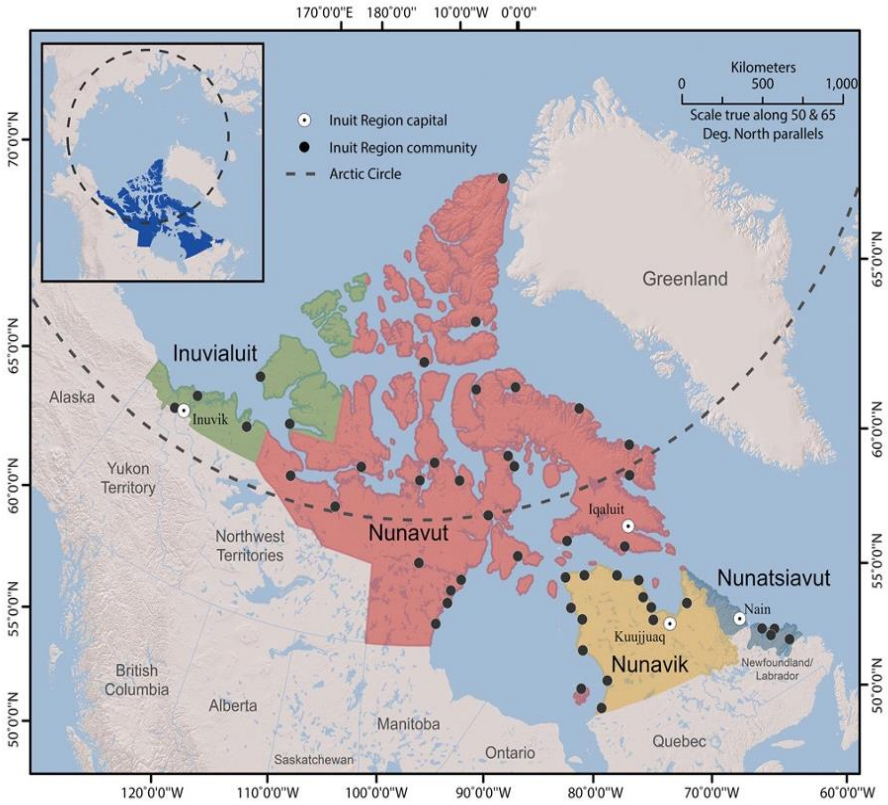


87

Case Study 4: Inuit

History and Demographics

The Inuit are an Indigenous group that lives in a region that spans from the easternmost tip of Russia to Greenland. Within this region, the Inuit live primarily in Greenland, Denmark, Alaska, Canada, and Russia. In Inuktitut, the language these communities speak, Inuit means "people." For generations, these communities have lived in the harsh environments of the Arctic north, surviving on fish and sea mammals, including seals, whales, and caribou.[74] Current research focuses on regions in which most of the population is Inuit, including the Inuit Nunangat (Inuit homeland) in Canada.[75]



In the modern world, the government of Canada states its commitment to achieving "reconciliation with Indigenous peoples" through an Inuit-crown relationship based on the recognition of rights, respect, and partnership. In section 35 of the Constitution Act (1982), the Canadian government recognized the presence and inherent rights of Indigenous peoples to self-govern.[76] Current government programs partner with Indigenous peoples and the private sector to continue to address land claims, and build social well-being, economic prosperity, and healthy communities for the Inuit through housing policies, etc. [77]

Due to the close and lasting relationship that the Inuit have with the environment (land, sea, and air environments) and their continued reliance on it to sustain their lifestyle, the health of the land

directly affects the health of the people.[78] Inuit culture relies on the intergenerational transmission of traditional knowledge and oral history, which simultaneously improves their ability to adapt to climate change and strengthens cultural bonds. Rapid lifestyle changes and assimilation threatens the transmission of traditional knowledge, leading to vulnerabilities affecting overall health.

Priority A: Climate Change

The Arctic, which consists of parts of Alaska (United States), Canada, Finland, Greenland, Denmark, Iceland, Norway, Russia, and Sweden, is warming twice as fast as any other place on Earth, averaging a 6.3 Celsius (or 43.34 Fahrenheit) winter temperature increase over the past 50 years.[79] This increase has caused reductions in sea ice cover, snow cover, glaciers, and the Greenland ice sheet. Other disruptions include the rise of sea level and changes in the distribution and composition of permafrost.[78] In addition, global warming has led to lower precipitation rates, which has led to lower lake and river levels, preventing hunters from entering previously accessible areas in some tributaries.[80] Losing access to these tributaries has led to ever-increasing dependence on fossil fuels, namely gasoline and diesel fuel, to power snowmobiles and motorized boats.[80] These climate changes have significantly impacted the Inuit and their safety. Changing ice conditions increases the risk of accidental injury or death while hunting or traveling over the land. Travel is possible between many of these communities by boat, plane, or snowmobile, but unstable ice conditions inhibit movement.[81] Severe weather patterns and warming temperatures can also result in dangerous travel conditions by snowmobile or boat.[82] In addition, contaminants originating from industrial activities tend to accumulate in the circumpolar North. These groups of toxic chemicals, including methylmercury and polychlorinated biphenyls (PCBs), can travel vast distances through air and water currents before accumulating in large fatty fish and mammals, a significant portion of the Inuit diet.[83] Overall, high levels of these contaminants have critical implications and can cause significant health problems, including cancer, diabetes, cardiovascular disease, and low infant weight.[78]

Priority B: Food Security

According to the Inuit Health Survey, 68.8% of Inuit households in Inuit Nunavut are food insecure.[84] In contrast, only 9% of Canadian households reported moderate or severe food insecurity. Some factors contributing to this discrepancy include unemployment, low income, changing dietary habits, high cost of food, and a lack of awareness of healthy eating habits.[78]

Many Inuit communities only have one grocery store, so perishable foods must be shipped long distances and may arrive rotten or damaged. In addition, lack of education in preparing nutritious meals, budgeting expenses, or gathering and preparing traditional foods can exacerbate this crisis. The move away from traditional food has severe consequences in nutritional intakes and diet quality, decreasing the protein content of foods (from 22.7% in traditional foods to 13.9% in nontraditional foods) and increasing the carbohydrate content (from 37.2% to 50.8%).[78] The

effects of climate change also exacerbate existing deficits and determinants of food insecurity. Some outdated water and sanitation systems cannot survive extreme weather events, reducing water and food quality. In addition, warmer and wetter climates create opportunities for pathogens in food to thrive.[81] As a consequence of the changing climate, Inuit hunters must travel further or take unknown routes to acquire food, which threatens food security by increasing household expenditures and threatening hunter safety.[78]

Priority C: Mental Health

Inuit communities in Canada experience suicide at a rate 11 times higher than the rest of the Canadian population, a discrepancy notably observed in Inuit youth. A 2012 study found that there are 40 deaths from suicide per 100,000 individuals in females and 102 deaths per 100,000 males in Inuit teenagers and children. In contrast, the general population has 2 deaths per 100,000 in females and 4.2 per 100,000 in males. Current risk factors for suicide include high unemployment rates, exposure to violence and sexual abuse, substance abuse, and diagnosis of major depressive episodes.[85]

Collective trauma from cultural disruption experienced by the Inuit people due to colonization is one of the factors of these rates of mental illness. Past government policies have included systemic dispossession of land, disruption of social and political institutions, and discrimination. These policies have detrimental effects on the collective sense of identity and belonging in these communities, especially among youth. For example, residential school systems in Canada took 150,000 Indigenous children, leading to profound loss of culture and language, resulting in isolation from their communities and an inability to identify as fully Indigenous or mainstream.[85] Changing climatic and environmental conditions are also a driver of mental illness as the Inuit consider land a living entity and a place of healing. Practically, warmer temperatures cause reduced levels of land-based and community-based activities, including berry picking, fishing, hunting, or having a boil-up.[82] Reductions in these cultural community-based and bonding activities are detrimental for individual health by leading to a loss of cultural identity and further exacerbating mental trauma in Inuit youth.[81] Access to mental health care is also a challenge for many Inuit communities and further compounded by environmental changes like those mentioned above.[81]

Considerations When Creating a Health Action Plan

In developing interventions to address the issues that Indigenous communities face, your team should consider several key factors affecting the ability of the community to respond to health disparities. Although most of these groups represent populations highly vulnerable to the present environmental and socio-cultural changes, they are not unable to affect change. Therefore, it is

necessary to adopt a proactive approach in which Indigenous individuals, communities, and regions are active agents in planning and responding to health risks.[81] When preparing a health plan, it is essential to focus on community-based initiatives and consider the group's cultural background and lifestyle. Such initiatives should not solely focus on the effects but also on addressing root causes of vulnerability within these communities. Please keep this in mind as you and your team of representatives create a Health Action Plan to address Indigenous environmental health disparities.

Summary for National Health Action Plan:

a) 2-3 goals addressing Indigenous peoples' environmental health disparities
b) Strategies to achieve each goal
c) Address sustainability and stakeholder engagement/community involvement
d) Budget of estimated costs
e) Include a monitoring and evaluation plan that addresses the anticipated challenges and how to overcome them
f) Relate to at least one of the priority areas for your selected indigenous population

To help you begin brainstorming ideas for a Health Action Plan, you **could** consider including any of the following:

- Policy: a law, regulation, procedure, administrative action, incentive, or voluntary practice of governments and other institutions
- Program creation and implementation: the design and execution of a program addressing Indigenous health disparities and environmental injustice
- Infrastructure: a set of fundamental facilities and systems that support the sustainable functionality of households and firms, necessary for the economy to function. Examples include transportation systems, communication networks, sewage, water, and electric systems
- Research: a process of systematic inquiry that entails collection of data; documentation of critical information; and analysis and interpretation of that data/information
- Surveillance: the systematic collection and analysis of data that allows public health departments to protect their local communities. Can be of infectious diseases, noninfectious health conditions, and risk factors and exposures
- Traditional ecological knowledge: the evolving knowledge acquired by Indigenous and local peoples over hundreds or thousands of years through direct contact with the environment
- Education: helps individuals acquire functional knowledge and strengthens attitudes, beliefs, and practice skills needed to adopt and maintain healthy behaviors throughout their lives

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