



Drought and Health

A Messaging Framework for
Public Health Professionals
& Healthcare Providers



How to Use this Document

This framework was designed to 1) provide a background on drought and its impacts on public health, and 2) help public health professionals and healthcare providers choose messaging and response strategies targeted towards current drought impacts within their individual communities.

The first section of this framework, "Drought and Health" will provide a brief overview of drought and its public health impacts. The second section, "Key Partnerships" provides an overview of partnerships that are necessary in a strong and effective drought response strategy. The third section of this framework, "Drought Messaging Guidelines"

includes message guidelines that public health and healthcare professionals can use to guide their messaging and response strategies around drought.

A glossary of common terms has been provided in this document as well as a list of key resources that may be of help to public health professionals responding to drought. This guide can be downloaded for an interactive experience or printed and used manually by following along to each outlined section. Throughout the document you will see [links](#) that you can click on to learn more.

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Key Tools

Throughout this document, we have included key tools to use along with this document to enhance your drought response and messaging strategies. All key tools have been marked with the symbol above in the margin and will include links to each suggested tool.



Drought and Health

What is Drought?

The National Weather Service defines **drought** as, “A deficiency of moisture that results in adverse impacts on people, animals, or vegetation over a sizable area.”¹

Widespread Impacts

The negative impacts of drought are multi-dimensional and can greatly impact a wide array of sectors:



How is drought monitored?

Drought is often described as a “creeping phenomenon” because rather than a tornado, hurricane, or fire, drought’s impacts can come slowly with a wide range of consequences to the environment, the economy, and public health. Because of this, drought can be difficult to predict and monitor. Drought monitoring includes measuring changes in precipitation, temperature, surface and **groundwater** supplies, and **snowpack**, among other factors, called **drought indicators**.²

Commonly-Used Drought Indicators

- 1 **Snowpack**
- 2 **Temperature**
- 3 **Precipitation**
- 4 **Streamflow**
- 5 **Lakes & Reservoirs**
- 6 **Soil Moisture & Groundwater**



1 National Weather Service. (n.d.) https://www.weather.gov/bmx/kidscorner_drought#:~:text=In%20easier%20to%20understand%20terms,size%20of%20the%20affected%20area.
2 National Integrated Drought Information System. (n.d.) <https://www.drought.gov/what-is-drought/drought-basics>

The Stages of Drought

Drought is categorized into five severity-based stages. While different geographic locations face conditions specific to their region during each drought stage, there are certain drought stage characteristics that apply to all locations. See the [Drought Impacts by State and U.S. Drought Monitor Category](#) tool for more detailed information about drought stages specific to your location.

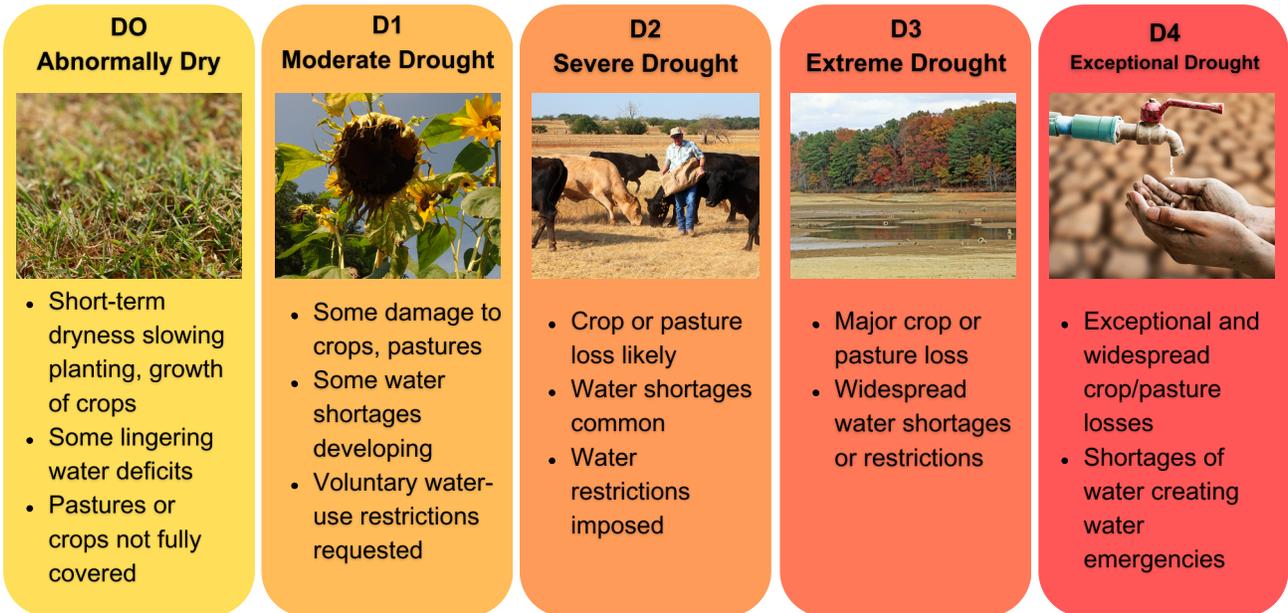


Figure 2: The Stages of Drought, adapted from NIDIS Drought Impacts, www.drought.gov/impacts#impacts-table

How do I know what stage of drought my area is experiencing?

Knowing what stage of drought your area is experiencing will help you tailor your response and messaging to the public. You can determine this quickly using the following sources:

1) The [County Drought Information](#) tool from the National Integrated Drought Information System (NIDIS), which will give a county-level summary of drought conditions in your area.

2) The U.S. Drought Monitor at www.droughtmonitor.unl.edu.

3) Your [state climatologist's](#) office.

How to Use the Online NIDIS Drought Tool

Select a county using the dropdown menu or map below

1) Go to www.drought.gov/county

2) Select your state

3) Select your county

Figure 3: Image from NIDIS County Drought Information, www.drought.gov/county

The Health Impacts of Drought

Drought can have multiple impacts on public health. As a drought event occurs, changes in the environment can cause secondary impacts to emerge. Secondary impacts of drought can include changes in mosquito and tick habitats, loss of agriculture and food stability, decreases in water quality and quantity, more frequent wildfires, more frequent and intense heatwaves, and increased dust and dust storms. These impacts can happen over both short and long periods of time.

The Secondary Impacts of Drought



Changes in mosquito and tick habitat and range



Loss of agriculture and food security



Decreases in water quality and quantity



More frequent wildfires



More frequent and more intense heatwaves



Increase in dust and dust storms

Each of these secondary impacts are associated with several negative health outcomes and one or more of these can increase the risk of 1) negative mental health outcomes (ex: depression, anxiety, and suicide), 2) infectious diseases (ex: West Nile virus & Lyme disease), 3) heat-related illnesses (ex: heat stroke and heat exhaustion), 4) respiratory illnesses (ex: exacerbation of asthma symptoms and hospitalizations), 5) gastrointestinal illness (ex: Vibrio vulnificus & E. coli), 6) injuries, 7) hunger or famine, and 8) allergy-related illnesses. It is important to note that environmental and socioeconomic factors can affect the severity and risk of each health outcome.

How Does Drought Impact Health?

1

Drought Event

2

Secondary Impacts



Mental Health Consequences



Infectious Disease



Heat Illnesses



Respiratory Issues



Gastrointestinal Illnesses



Injuries



Hunger or Famine



Allergy-Related Illnesses

3

Health Outcomes

A Closer Look: Selected Research on Drought and Health

Drought's Impact on Respiratory Mortality

A [2023 study](#) from Gwon et al. found that drought can impact respiratory mortality risk based on demographics and region in the United States.

The study found that older adults (both male and female, and White and Black populations) are more vulnerable to the effects of drought exposure. Additionally, residents in rural areas experiencing drought have a higher risk of respiratory death. U.S. regions that had a higher risk for respiratory mortality due to drought includes the Northern Rockies, the Great Plains, and the Ohio Valley.

Respiratory Mortalities in the U.S.

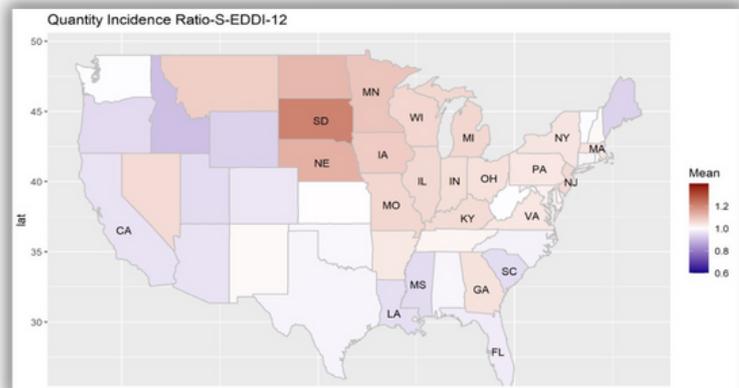


Figure 5: Gwon et al., 2023 <https://www.mdpi.com/1660-4601/20/12/6076>

Drought & Mental Health



Drought conditions can lead to greater mental health distress, particularly for individuals and communities sensitive to abnormally dry conditions. A [2021 study](#) from Berman et al. evaluated the association between drought and occupational psychosocial stress among a cohort of Midwestern U.S. farmers.

The authors found that drought conditions substantially increased the job strain ratio among farm owners and operators. As an occupational stressor, drought was found to have a substantial impact with effects 4-fold greater than other occupational concerns, such as pre-existing body pain. With a projected drier and hotter climate in central North America, we must give greater attention to the mental health of farming populations as drought conditions may increase their psychological job demands and leave them vulnerable to work-related stress.

3 Gwon, Yeongjin, Yuanyuan Ji, Jesse E. Bell, Azar M. Abadi, Jesse D. Berman, Austin Rau, Ronald D. Leeper, and Jared Rennie. 2023. "The Association between Drought Exposure and Respiratory-Related Mortality in the United States from 2000 to 2018" *International Journal of Environmental Research and Public Health* 20, no. 12: 6076. <https://doi.org/10.3390/ijerph20126076>

4 Berman JD, Ramirez MR, Bell JE, Bilotta R, Gerr F, Fethke NB. The association between drought conditions and increased occupational psychosocial stress among U.S. farmers: An occupational cohort study. *Sci Total Environ.* 2021 Dec 1;798:149245. doi: 10.1016/j.scitotenv.2021.149245. Epub 2021 Jul 24. PMID: 34320456; PMCID: PMC9940133.

Key Partnerships

Effective collaboration with partners in your area is a key component of responding to drought conditions. Drought messaging can not only be spread to and by key partners, but can also be informed by their expertise and available resources.

As drought has widespread impacts that can affect public health through a number of secondary impacts, public health departments should maintain key partnerships with a variety of organizations in their area or jurisdiction.

Recommended partners in your area or jurisdiction include both state and local emergency management offices, local healthcare systems, hospitals, emergency medical service (EMS) providers, state climatologist's office, water quality testing centers, local cooling centers for extreme heat relief, local food pantries and food procurement services, mental health service providers, media outlets, local food procurement services, fire services, and others.

Included below is a full checklist of recommended key partners.

What is a State Climatologist?

State climatologists exist in 47 states and Puerto Rico.⁵ Their role is to collect, interpret, and disseminate state climate data, including drought information. You can [find your state climate office online](#) at:

stateclimate.org/state_programs



Key Partnership Checklist

- | | |
|--|---|
| <input type="checkbox"/> State and local emergency management offices | <input type="checkbox"/> Local food pantries and food procurement services |
| <input type="checkbox"/> Local hospitals, healthcare systems, clinics, and EMS | <input type="checkbox"/> Mental health services in your area |
| <input type="checkbox"/> State Climatologist's Office | <input type="checkbox"/> Law enforcement |
| <input type="checkbox"/> Water quality testing centers in your area | <input type="checkbox"/> Medical Reserve Corps (MRC) |
| <input type="checkbox"/> Local cooling centers for extreme heat relief | <input type="checkbox"/> Public libraries |
| <input type="checkbox"/> Media outlets in your area | <input type="checkbox"/> Faith-Based Organizations including houses of worship and nonprofits |
| <input type="checkbox"/> Fire Service | <input type="checkbox"/> Community-based organizations |

Drought Messaging Guidelines

Simple and effective messaging is a key component of responding to health risks associated with drought. The section below is divided into three steps needed to develop messaging for general audiences and patients of health professionals in your area. This section includes example messages that can be tailored to your organization/area/patients. As you begin to develop your messages, check to make sure your messages adhere to the key risk communication tips below.

Risk Communication Tips

- 1 Develop messages using plain language, using no more than an 8th grade reading level. Avoid jargon or uncommon terms.
- 2 Translate or have your messages translated to commonly-used languages in your area/jurisdiction.
- 3 Repetition is a key component of risk communication, repeat key messages often.
- 4 If possible, use graphics and other visual aids that can support your message.
- 5 Cite and connect your audience with credible sources, such as the Centers for Disease Control and Prevention.

Step 1: Determine your Drought Stage

Start by determining what stage of drought your area is currently experiencing. There are several ways to do this:

- 1) Use the NIDIS County Drought Information tool at www.drought.gov/county
- 2) Consult the U.S. Drought Monitor at www.droughtmonitor.unl.edu

- 3) Consult your [state climatologist's](#) office

The U.S. Drought Monitor

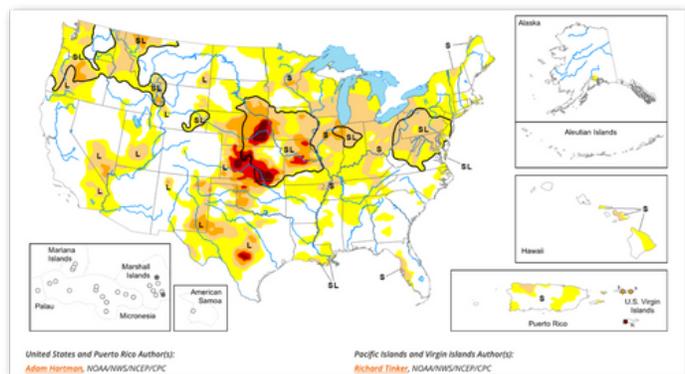


Figure 5: Image from the U.S. Drought Monitor, www.droughtmonitor.unl.edu

Step 2: Recommended Steps to Tailor your Messages

If you are a STATE health department:	If you are a LOCAL health department:	If you are a HEALTHCARE PROVIDER :
<ul style="list-style-type: none"> • Inform all local health departments of the current drought status • Use the messaging guidelines in Step 3 to provide broad, state-level messages regarding drought and health implications 	<ul style="list-style-type: none"> • Inform hospitals, healthcare systems, and clinics in your area of the current drought status • Use the messaging guidelines in Step 3 to release messages that are tailored to your given jurisdiction or service area 	<ul style="list-style-type: none"> • Use the messaging guidelines in Step 3 to release messages that are tailored to your individual patients

Step 3: Message Maps

Step 3 includes three message maps with recommended messaging approaches to help guide your drought communication strategy. Message maps are an important and commonly-used risk communication tool that outline key concepts that should be addressed when communicating with the public or other stakeholders.

Each message map below includes recommended key messages and supporting information to use when communicating about the risks of drought.

The messaging maps below are divided by drought stage as defined by the tools in [Step 1](#) of this section. If your area is experiencing a stage D1-D2 drought on the NIDIS County Tool or the U.S. Drought Monitor, use [Message map 1](#). For stages D3-D4 on the NIDIS County Tool or the U.S. Drought Monitor, there are two options: [Message map 2](#) is designed with messages tailored to a **general audience**. [Message map 3](#) is designed with messages tailored towards **patients of healthcare professionals**. Message maps 2 and 3 can be used either separately or together in your response.

Example communications using the key messages and supporting information provided have been included after each message map.

**Message Map 1:
Drought Stages D1-D2 for General Audiences**

Key Message	Supporting Information
<p>It is important to monitor the stage of drought we are experiencing.</p>	<ul style="list-style-type: none"> • Current drought conditions can become more intense and can negatively affect many aspects of your physical and mental health. • Stay up to date on your current drought stage through drought.gov or the U.S. Drought Monitor and prepare to take precautions if conditions worsen. • The negative health effects of drought can happen suddenly or over a longer period of time.

Message Map 1 Example Communications:

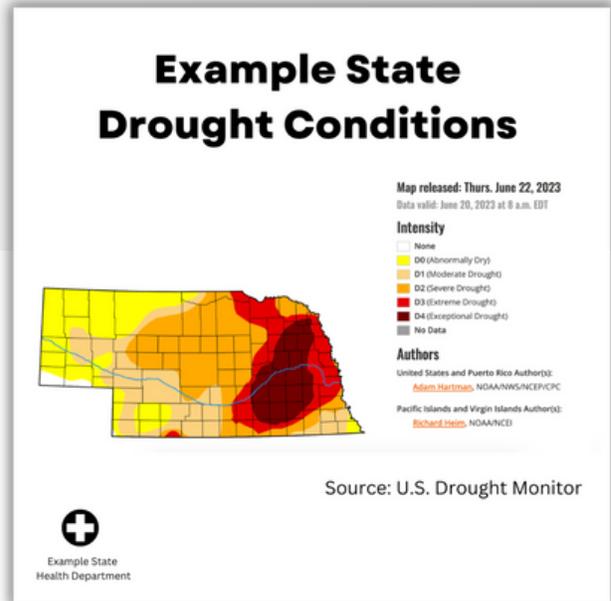
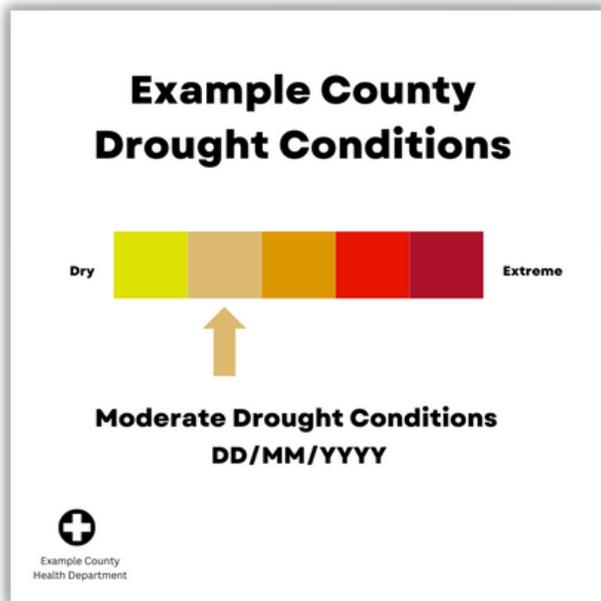
"*Example County* is currently experiencing a moderate drought. Be aware of current drought conditions as more severe drought can have negative effects on you and your family's respiratory health."

"*Example County Health Department* will continue to provide updates on current drought conditions as more severe conditions can negatively affect respiratory health."

"Did you know that severe drought can negatively impact respiratory health? Continue to monitor conditions at www.droughtmonitor.unl.edu as more severe drought can have negative health impacts."

"The more severe the drought, the greater the risk of negative impacts on your respiratory health. Continue to check drought conditions in your area at www.droughtmonitor.unl.edu."

"Severe drought can cause short-term and long-term impacts on your respiratory health. Stay updated on current drought conditions in your area at www.droughtmonitor.unl.edu."



Maps and dials are helpful visual tools to use when communicating about the current stages of drought and their associated health risks. A wide variety of drought maps can be downloaded from the [U.S. Drought Monitor](http://www.droughtmonitor.unl.edu).

Did you know?

Drought can affect your respiratory health?

#DroughtWatchTuesdays

Example County Health Department

DROUGHT

can impact your respiratory health.

Example County Health Department

Creating a regular update on drought conditions in your area can be a helpful tool to repeat key messages. If using social media, develop your own hashtags to help audiences recognize that you will post regular updates (ex: #DroughtWatchTuesdays). Images of drought along with the key message that drought and health are linked are important messages to repeat to raise awareness of possible health risks.

Message Map 2: Drought Stages D3-D4 for General Audiences

Most negative health impacts of drought emerge in the extreme to exceptional drought stages of D3 and D4 on the NIDIS County Tool or the U.S. Drought Monitor. The following message map includes key messaging on steps that the general public can take to reduce the risk of negative health outcomes due to drought.

Key Messages	Supporting Information
<p>We are experiencing extreme/exceptional drought levels, take precautions to reduce risk of negative health outcomes.</p>	<ul style="list-style-type: none"> • Regularly check drought status and take recommended actions when drought conditions reach extreme to exceptional drought stages. • Drought periods can vary in length. Prepare for long-term drought conditions by monitoring well levels and water quality. Explore options for alternative water sources for drinking (human and livestock consumption), bathing, gardening and fire suppression. • Extreme or exceptional drought increases risk of respiratory issues, allergy-related illnesses, negative mental health impacts, hunger or famine, gastrointestinal illnesses, infectious diseases, and heat illnesses and injuries.
<p>Take steps to reduce increased risk of respiratory and allergy-related illness during extreme to exceptional drought.</p>	<ul style="list-style-type: none"> • Dry and dusty conditions and wildfires are common with extreme or exceptional drought. Fire and dry soil and vegetation increase the number of particulates that are suspended in the air, such as pollen, smoke, and fluorocarbons. These substances can irritate the bronchial passages and lungs, making chronic respiratory illnesses like asthma worse. This can also increase the risk for acute respiratory infections like bronchitis and bacterial pneumonia.⁶ • Check air quality levels and stay indoors with the doors and windows closed if there is an elevated risk of smoke exposure. You can check air quality conditions in your areas using AirNow. • If air quality is poor, use a N95 mask to reduce your exposure to air pollutants. • Avoid being outside on hot and windy days to reduce pollen exposure. • Remove clothes you've worn outside and shower to rinse pollen from your skin and hair.



Key Messages	Supporting Information
<p>Take steps to reduce negative mental health impacts during extreme to exceptional drought conditions.</p>	<ul style="list-style-type: none"> • Extreme to exceptional levels of drought have been associated with increased levels of negative health outcomes including stress, depression, anxiety, and suicide.⁷ • Know the warning signs for emotional distress related to drought.⁷ • Seek help if you or someone you know are experiencing the warning signs. There are many free resources available to help, including the Disaster Distress Helpline or the 988 Suicide and Crisis Lifeline. • Groups who are at higher risk include people living in remote or rural areas, older adults, and farmers, landscapers, garden supply owners, and others working in agriculture and their families.⁷
<p>Take steps to reduce hunger or famine impacts during extreme to exceptional drought.</p>	<ul style="list-style-type: none"> • Drought can limit the growing season and create conditions that encourage insect and disease infestation in certain crops. Low crop yields can result in rising food prices and shortages, potentially leading to malnutrition.⁸ • Resources are available to assist with food procurement, such as Meals on Wheels, school meal assistance programs and local food pantries. See more under "Key Partnerships".
<p>Take steps to reduce gastrointestinal illnesses during extreme to exceptional drought.</p>	<ul style="list-style-type: none"> • Having water available for cleaning, sanitation, and hygiene reduces or controls many diseases, including gastrointestinal illness. Drought conditions create the need to conserve water, but these conservation efforts should not get in the way of proper sanitation and hygiene.⁸ • Continue to wash your hands regularly for at least 20 seconds with water and soap. • Continue to wash food and kitchenware as normal. • Take showers instead of baths, if possible, to conserve water.



7 Substance Abuse and Mental Health Services Administration (SAMSHA). Drought. <https://www.samhsa.gov/find-help/disaster-distress-helpline/disaster-types/drought>
8 Centers for Disease Control and Prevention (CDC). The Health Implications of Drought, <https://www.cdc.gov/nceh/drought/implications.htm>

Key Messages	Supporting Information
<p>Take steps to reduce infectious disease transmission during extreme to exceptional drought.</p>	<ul style="list-style-type: none"> • Drought can increase risk of food-borne diseases (ex: E. coli, cholera, dysentery), water-borne diseases (ex: typhoid and rotavirus), vector-borne diseases (west nile virus, St. Louis encephalitis, Rift Valley fever, dengue), and Zoonotic diseases (mpox and Nipah virus).⁹ • Continue to wash your hands regularly for at least 20 seconds with water and soap. • Follow CDC recommendations for safe and healthy swimming.¹⁰ • Make sure you and your family are up date on all CDC-recommended vaccinations.¹¹ • Follow CDC recommendations to prevent mosquito and tick bites.¹²
<p>Take steps to reduce heat-related illness and injuries during extreme to exceptional drought.</p>	<ul style="list-style-type: none"> • Extreme heat can cause heat illness that can lead to injury or death. Extreme heat often exacerbates negative outcomes of drought.¹³ • Learn the warning signs and symptoms of heat-related illness.¹³ • Follow CDC recommendations to prevent heat-related illness.¹⁴ • Groups at higher risk of heat-related illness include older adults, infants and children, people living with chronic conditions, people who earn a lower income, athletes, people who work outdoors, and people who are pregnant.¹⁵

9 PreventionWeb. Droughts Bring Disease Here: Here are 4 Ways they Do It. <https://www.preventionweb.net/news/droughts-bring-disease-here-are-4-ways-they-do-it#:~:text=Food%2Dborne%20diseases%20linked%20to,during%20times%20of%20water%20scarcity>.

10 Centers for Disease Control and Prevention (CDC). Healthy Swimming. <https://www.cdc.gov/healthywater/swimming/index.html>

11 Centers for Disease Control and Prevention (CDC). Child and Adolescent Immunization Schedule by Age. <https://www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html>

12 Centers for Disease Control and Prevention (CDC). Fight the Bite! Preventing Mosquito and Tick Bites. <https://www.cdc.gov/ncezid/dvbd/media/fight-the-bite.html#:~:text=Covering%20your%20skin%20with%20long,and%20repel%20ticks%20and%20mosquitoes>.

13 Centers for Disease Control and Prevention (CDC). Warning Signs and Symptoms of Heat-Related Illness. <https://www.cdc.gov/disasters/extremeheat/warning.html>

14 Centers for Disease Control and Prevention (CDC). Tips for Preventing Heat-Related Illness. <https://www.cdc.gov/disasters/extremeheat/heattips.html>

15 Centers for Disease Control and Prevention (CDC). Protecting Disproportionately Affected Populations from Extreme Heat. <https://www.cdc.gov/disasters/extremeheat/specifigroups.html>

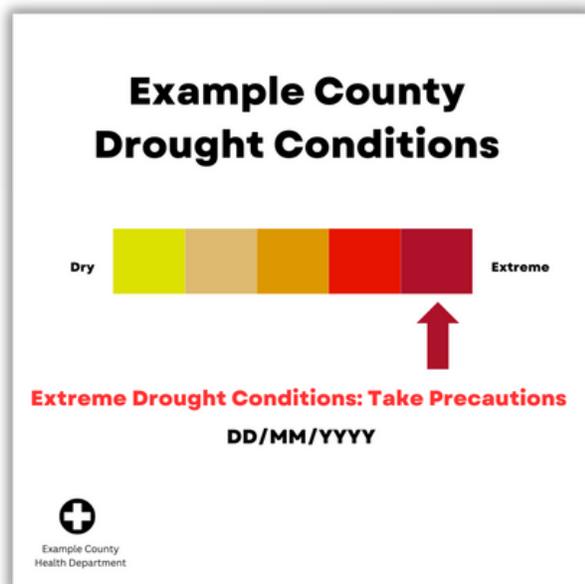
Message Map 2 Example Communications:

"*Example County* is currently experiencing an extreme drought. Drought at this stage can cause increased risk of respiratory issues, allergy-related illnesses, negative mental health impacts, hunger or famine, gastrointestinal illnesses, infectious diseases, and heat illnesses and injuries. Please follow all recommended actions from the *Example County Health Department* to reduce your risk."

"*Example County Health Department* will continue to provide updates on current drought conditions as current extreme drought conditions can negatively affect mental and physical health."

"As drought conditions can affect physical and mental health in both the short and long term, continue to follow recommendations from *Example County Health Department* to lower your risk of illness or injury."

"Current extreme drought conditions can make respiratory illnesses, such as asthma, worse. Keeping windows closed while indoors and regularly taking allergy medications are just two ways that you can protect yourself from pollen that triggers asthma attacks. Learn more ways to protect yourself at <https://www.cdc.gov/climateandhealth/effects/pollen-health.html>".



Use language that prompts viewers to take recommended actions. The health effects of drought are not as commonly known to general audiences as other natural disasters. Create messages that demonstrate and explain the health risks of drought.

"If you work outside and are experiencing stress, depression, or anxiety because of drought conditions, you are not alone. Resources are available through the Disaster Distress Helpline and/or the 988 Suicide and Crisis Lifeline. Call 1-800-985-5990 or 988 today."

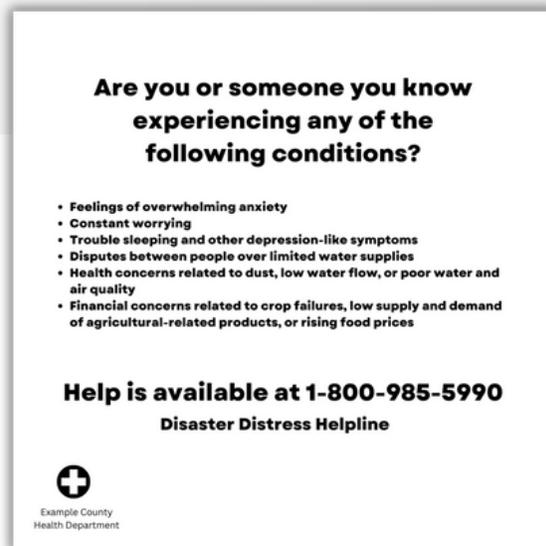
"Did you know that *Example County Health Department* can connect you with local resources to help with your grocery bills? Contact us today."

"Although *Example County* is experiencing extreme drought conditions, residents are advised to continue regular hand washing to reduce risks of gastrointestinal illness, such as salmonella."

"Extreme drought conditions can increase the risk of getting vaccine-preventable illnesses. Protect yourself and your family by staying up to date on your recommended vaccines. See the list of recommended vaccines here:
<https://www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html>."

"Fight the bite! Wear an EPA-registered insect repellent and wear long clothing when you go outdoors to avoid mosquito and tick bites."

"Work, play, or compete outdoors? Protect yourself from heat stroke by knowing the warning signs. Visit https://www.cdc.gov/disasters/extremeheat/heat_guide.html for more information."



Provide messages that give simple actions that the audience can understand and complete. Inform and connect audiences with trusted resources.

Message Map 3: Drought Stages D3-D4 for Healthcare Providers to Patients

The following message map includes key messaging that healthcare providers can use when discussing the harms of drought to patients. This message map emphasizes groups that are at most risk of negative health outcomes due to extreme and exceptional drought.

Key Messages	Supporting Information
<p>During extreme to exceptional drought conditions, patients should be advised to take precautions to reduce risk of negative health outcomes.</p>	<ul style="list-style-type: none"> • Advise patients that that the current extreme drought conditions can affect both physical and mental health. • Drought periods can vary in length. Patients should be advised to prepare for long-term drought conditions and treatments may be over the long-term as well. • Notify patients that extreme to exceptional drought increases risk of respiratory issues, allergy-related illnesses, negative mental health impacts, hunger or famine, gastrointestinal illnesses, infectious diseases, and heat illnesses and injuries.
<p>Advise patients, particularly those at higher risk, to take steps to reduce increased risk of respiratory and allergy-related illness during extreme to exceptional drought.</p>	<ul style="list-style-type: none"> • Advise patients that dry and dusty conditions and wildfires are common with extreme to exceptional drought. Fire and dry soil and vegetation increase the number of particulates that are suspended in the air, such as pollen, smoke, and fluorocarbons. These substances can irritate the bronchial passages and lungs, making chronic respiratory illnesses like asthma worse. This can also increase the risk for acute respiratory infections like bronchitis and bacterial pneumonia.¹⁶ • Ask patients with a history of pulmonary conditions (e.g., asthma, chronic obstructive pulmonary disease [COPD]) if they are experiencing worsening symptoms. • Advise patients to take recommended steps from the CDC to reduce risk of adverse health effects due to reduced air quality.¹⁷ • Note that groups at greater risk include children & teenagers, older adults, people with comorbid pulmonary conditions, people with cardiovascular disease or diabetes, people who have lower incomes, and people who work or exercise outdoors.¹⁸

¹⁶ Centers for Disease Control and Prevention (CDC). The Health Implications of Drought. <https://www.cdc.gov/nceh/drought/implications.htm>

¹⁷ Centers for Disease Control and Prevention (CDC). Air Quality. <https://www.cdc.gov/air/default.htm>

¹⁸ The American Lung Association. Who is at Risk? <https://www.lung.org/clean-air/outdoors/who-is-at-risk>



Key Messages	Supporting Information
<p>Ask patients in fields of higher risk about their mental and behavioral health status.</p>	<ul style="list-style-type: none">• Advise patients that the levels of drought we are currently experiencing have been associated with increased levels of negative health outcomes including stress, depression, anxiety, and suicide.• If a patient discloses that they are struggling with their mental health, provide or connect them with mental health treatment options. There are many free resources available to help including the Disaster Distress Helpline or the 988 Suicide and Crisis Lifeline.• Groups at greater risk include people living in remote or rural areas, older adults, and farmers, landscapers, garden supply owners, and others working in agriculture and their families.¹⁹
<p>Providers and patients can take steps to reduce hunger or famine impacts during extreme to exceptional drought.</p>	<ul style="list-style-type: none">• Drought can limit the growing season and create conditions that encourage insect and disease infestation in certain crops. Low crop yields can result in rising food prices and shortages, potentially leading to malnutrition.²⁰• Look for signs of malnutrition, advise on any signs that patients can look for and treatment options if there is a concern.• Connect patients with resources that can assist with food procurement, such as Meals on Wheels, school meal assistance programs and local food pantries.• Groups at greater risk include people who have lower incomes, single-parent households, Black and Hispanic households, people living in large cities or rural areas (excluding suburban).²¹
<p>Patients can take steps to reduce gastrointestinal illnesses during extreme to exceptional drought.</p>	<ul style="list-style-type: none">• Advise patients that having water available for cleaning, sanitation, and hygiene reduces or controls many diseases, including gastrointestinal illness. Drought conditions create the need to conserve water, but these conservation efforts should not get in the way of proper sanitation and hygiene.²⁰• Advise patients to continue regular hygiene and sanitation efforts as normal to reduce their risk of illness.

19 Centers for Disease Control and Prevention (CDC). Protecting Disproportionately Affected Populations from Extreme Heat.

<https://www.cdc.gov/disasters/extremeheat/specificgroups.html>

20 Centers for Disease Control and Prevention (CDC). The Health Implications of Drought, <https://www.cdc.gov/nceh/drought/implications.htm>

21 U.S. Department of Agriculture. Food Security and Nutrition Assistance. <https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/food-security-and-nutrition-assistance/>

Key Messages	Supporting Information
<p>Advise patients on preventative steps needed to reduce infectious disease transmission during extreme to exceptional drought.</p>	<ul style="list-style-type: none"> • Educate patients that drought can increase risk of food-borne diseases (ex: salmonella), water-borne diseases (ex: E. coli and Harmful Algal Blooms), vector-borne diseases (west nile virus, St. Louis encephalitis, Rift Valley fever, dengue), and Zoonotic diseases (Huntavirus and Valley Fever).²² • Ask patients about their outdoor activities and current hygiene practices. Emphasize that patients should follow CDC recommendations for safe and healthy swimming, CDC recommendations to prevent mosquito and tick bites, and CDC recommendations on safe and effective hygiene practices.²³⁻²⁵ • Check that patients are up to date on all CDC-recommended vaccinations, advise them on the importance of any vaccinations needed.²⁶
<p>Providers and patients can take steps to reduce heat-related illness and injuries during extreme to exceptional drought.</p>	<ul style="list-style-type: none"> • Extreme heat can cause heat illness that can lead to injury or death. Extreme heat often exacerbates negative outcomes of drought. • Patients should be educated on the warning signs and symptoms of heat-related illness.²⁷ • Ask patients about their sun habits (how much time in the sun, what precautions they take, etc.). • Advise patients to follow CDC recommendations to prevent heat-related illness.²⁸ • Groups at higher risk of heat-related illness include older adults, infants and children, people living with chronic conditions, people who earn a lower income, athletes, people who work outdoors, and people who are pregnant.²⁹

22 PreventionWeb. Droughts Bring Disease Here: Here are 4 Ways they Do It. <https://www.preventionweb.net/news/droughts-bring-disease-here-are-4-ways-they-do-it#:~:text=Food%2Dborne%20diseases%20linked%20to,during%20times%20of%20water%20scarcity>.

23 Centers for Disease Control and Prevention (CDC). Healthy Swimming. <https://www.cdc.gov/healthywater/swimming/index.html>

24 Centers for Disease Control and Prevention (CDC). Fight the Bite! Preventing Mosquito and Tick Bites. <https://www.cdc.gov/ncezid/dvbd/media/fight-the-bite.html#:~:text=Covering%20your%20skin%20with%20long,and%20repel%20ticks%20and%20mosquitoes>.

25 Centers for Disease Control and Prevention (CDC). Personal Hygiene. <https://www.cdc.gov/hygiene/personal-hygiene/index.html>

26 Centers for Disease Control and Prevention (CDC). Child and Adolescent Immunization Schedule by Age. <https://www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html>

27 Centers for Disease Control and Prevention (CDC). Warning Signs and Symptoms of Heat-Related Illness. <https://www.cdc.gov/disasters/extremeheat/warning.html>

28 Centers for Disease Control and Prevention (CDC). Tips for Preventing Heat-Related Illness. <https://www.cdc.gov/disasters/extremeheat/heattips.html>

29 Centers for Disease Control and Prevention (CDC). Protecting Disproportionately Affected Populations from Extreme Heat.

<https://www.cdc.gov/disasters/extremeheat/specificgroups.html>

Message Map 3 Example Communications from a Healthcare Provider to a Patient:

"Our area is currently experiencing an extreme drought, which can lead to an increased risk of respiratory issues, allergy-related illnesses, negative mental health impacts, hunger or famine, gastrointestinal illnesses, infectious diseases, and heat illnesses and injuries. If you are seeing or feeling any abnormal signs or symptoms, please let me know."

"I understand that you typically work outside. Since our area is experiencing an extreme drought right now, I recommend you to be vigilant on making sure that you are taking breaks from the sun and staying hydrated."

"I noticed that you may not be up to date on all of your recommended vaccines. Do you have any questions for me about what vaccinations you may need?"

"Drought can create situations that cause stress, especially with individuals whose work is outdoors or dependent on normal rain cycles. I know others have said they may feel overwhelmed, alone, or even suicidal when they've experienced drought. With everything that has been going on, are you having any of those same thoughts?"

"It sounds like you are outdoors often, but aren't currently using insect repellent. I would recommend using an EPA-registered insect repellent and wearing long sleeves and pants to reduce your risk of getting a disease spread by ticks and mosquitoes, such as west nile virus or Lyme disease, which we know is a concern in our area."



Use language that prompts viewers to take recommended actions with a “call to action”. Keep the message simple and actionable. Reference trusted resources.

Glossary

Drought - A deficiency of moisture that results in adverse impacts on people, animals, or vegetation over a sizable area

Drought Indicators - Measurements used to describe drought conditions and include variables such as precipitation, temperature, streamflow, ground and reservoir water levels, soil moisture, and snowpack.

Groundwater - Water that exists underground in saturated zones beneath the land surface.

Particulate Matter - A mixture of solid particles and liquid droplets found in the air

Snowpack - Snow on the ground in mountainous areas that persists until the arrival of warmer weather

State Climatologist - State Climatologists are individuals who have been identified by a state entity to collect, interpret, and disseminate state climate data.

Streamflow - The volume of water in streams or channels that moves over a designated point over a fixed period of time.

Resources for Drought Response

[988 Suicide & Crisis Lifeline](#)

[AirNow: U.S. Air Quality Index](#)

[Disaster Distress Helpline](#)

[Drought and Public Health: A Roadmap for Advancing Engagement and Preparedness](#)

[NIDIS County Drought Information](#)

[NIDIS Drought Impacts by State and U.S. Drought Monitor Category](#)

[Preparing for the Health Effects of Drought: A Resource Guide for Public Health Professionals](#)

[When Every Drop Counts: Protecting Public Health During Drought Conditions—A Guide for Public Health Professionals](#)

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