Drought and Health Impacts

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Dust Bowl of the 1930s
2011-2017 California Drought

U.S. Drought Monitor

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Drought Impact Types:

- Delineates dominant impacts
- S = Short-Term, typically less than 6 months (e.g., agriculture, grasslands)
- L = Long-Term, typically greater than 6 months (e.g., hydrology, ecology)

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

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http://droughtmonitor.unl.edu/
“Floods kill people, but droughts destroy civilizations.”

~U.S. Government Official at a Drought Meeting
Percentage of disaster-deaths worldwide according to each category of climate-related hazard, (1900-2013)
Drought Impacts

Estimated Deaths and Billion Dollar Losses from Extreme Events in the U.S., 2004–2013

Billion Dollar Losses from Disasters (2004-2013)

- $392 Billion
  Hurricanes

- $78 Billion
  Heat Waves/Droughts

- $46 Billion
  Tornadoes/Severe Storms

- $30 Billion
  Flooding/Severe Storms
1980-2018* NOAA Billion-Dollar Drought Disasters (CPI-Adjusted)

$241 Billion Lost
2,993 Deaths

Drought can be a slow evolving
The impacts are not immediate
Can require intermediate steps for health outcomes
Surveillance is not designed to connect drought and health
Health Outcomes

Exposure Pathways

- Increase in Dust and dust Storms
- More Frequent Wildfires
- Decrease in Water Quality and Quantity
- More Frequent and More Intense Heat Waves
- Change in Vector Habitat and Range
- Loss of Agriculture and Food Security

Environmental & Institutional Context

Drought Types
- Meteorological Drought
- Agricultural Drought
- Hydrological Drought
- Socio-economical Drought

Social & Behavioral Context

- Social Determinants of Health
- Occupation
- Rural/Rural
- Race/Literacy/Age
- Dependence on Caregivers and Medication

Health Outcomes

- Respiratory Issues
- Allergy-related Illnesses
- Injuries
- Infectious Disease
- Hunger/Famine
- Heat Illnesses
- Gastrointestinal Illnesses
- Mental Health Consequences

Preparedness of Health Departments
Agricultural Management Practices
Power, Transportation, Communication and Healthcare Infrastructure
EXPOSURE
Exposure is contact between a person and one or more biological, psychosocial, chemical, or physical stressor, including stressors affected by drought and climate variability.

SENSITIVITY
Sensitivity is the degree to which people or communities are affected, either adversely or beneficially, by drought and climate variability.

ADAPTIVE CAPACITY
Adaptive capacity is the ability of communities, institutions, or people to adjust to potential hazards, to take advantage of opportunities, or to respond to consequences.

VULNERABILITY of Human Health to Drought

HEALTH IMPACTS
Injury, acute and chronic illness (including mental health and stress-related illness), and death
Local

Kansas farmer on alarming suicide rate: 'Nothing gets farmers more down than a drought'

By: Emily Younger
Published: May 21, 2018 09:54 PM CDT
Updated: May 21, 2018 11:24 PM CDT

Farmer’s recovery from depression which led to two suicide attempts shows cost of drought at family level

STEVE Germon left a suicide note on the porch and set about putting down calves he couldn’t feed before turning the gun on himself. Then a ute screamed towards him, his 17-year-old daughter at the wheel.

JACK MORPHET

DAIRY farmer Steve Germon knows what it’s like to be on the brink of suicide. He has been there twice in the past three years.

But saved him in 2015, but those lonely moments last year
Causal Process Diagram

Drought Data on CDC’s National Environmental Public Health Tracking Network

Data released on Tracking Network Download Datasets earlier this year:

https://ephtracking.cdc.gov/download
Future Needs: Drought-Related Research and Initiatives

- Still much to be learned about drought and public health
- Research is needed in many different areas:
  - Analysis of surveillance data
  - Improved environmental monitoring
  - Role of public health departments
  - Economic impact of drought on public health
  - Lessons learned and best practices
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