

Drought and Health Impacts

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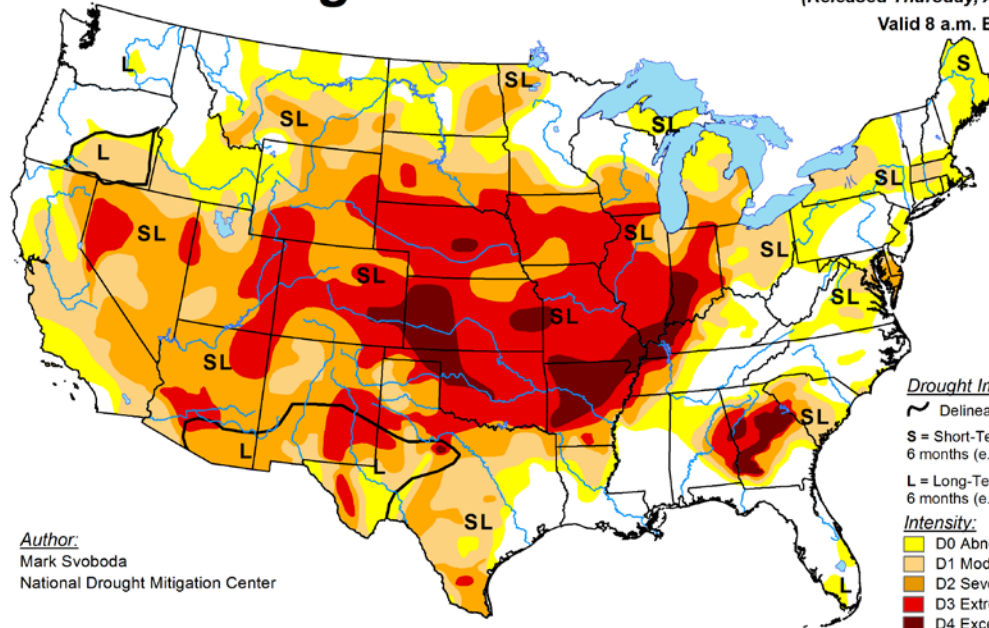
Dust Bowl of the 1930s



2012 Drought

U.S. Drought Monitor

August 7, 2012
(Released Thursday, Aug. 9, 2012)
Valid 8 a.m. EDT



Author:
Mark Svoboda
National Drought Mitigation Center

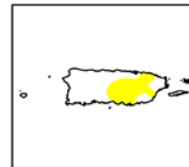
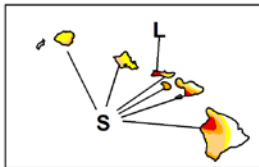
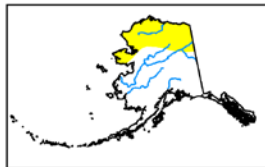
Drought Impact Types:

- ~ 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.



<http://droughtmonitor.unl.edu/>



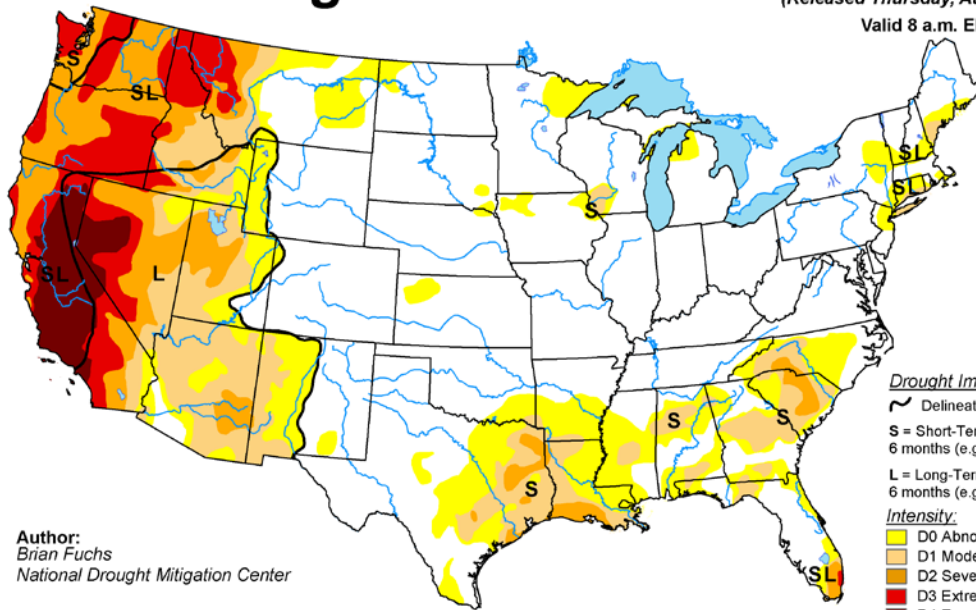
2011-2017 California Drought

U.S. Drought Monitor

August 11, 2015

(Released Thursday, Aug. 13, 2015)

Valid 8 a.m. EDT



Author:
Brian Fuchs
National Drought Mitigation Center

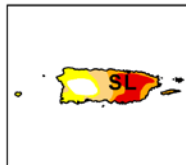
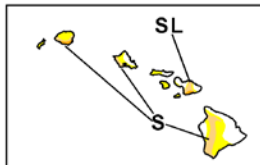
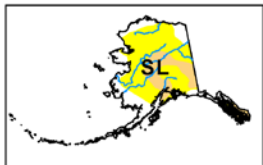
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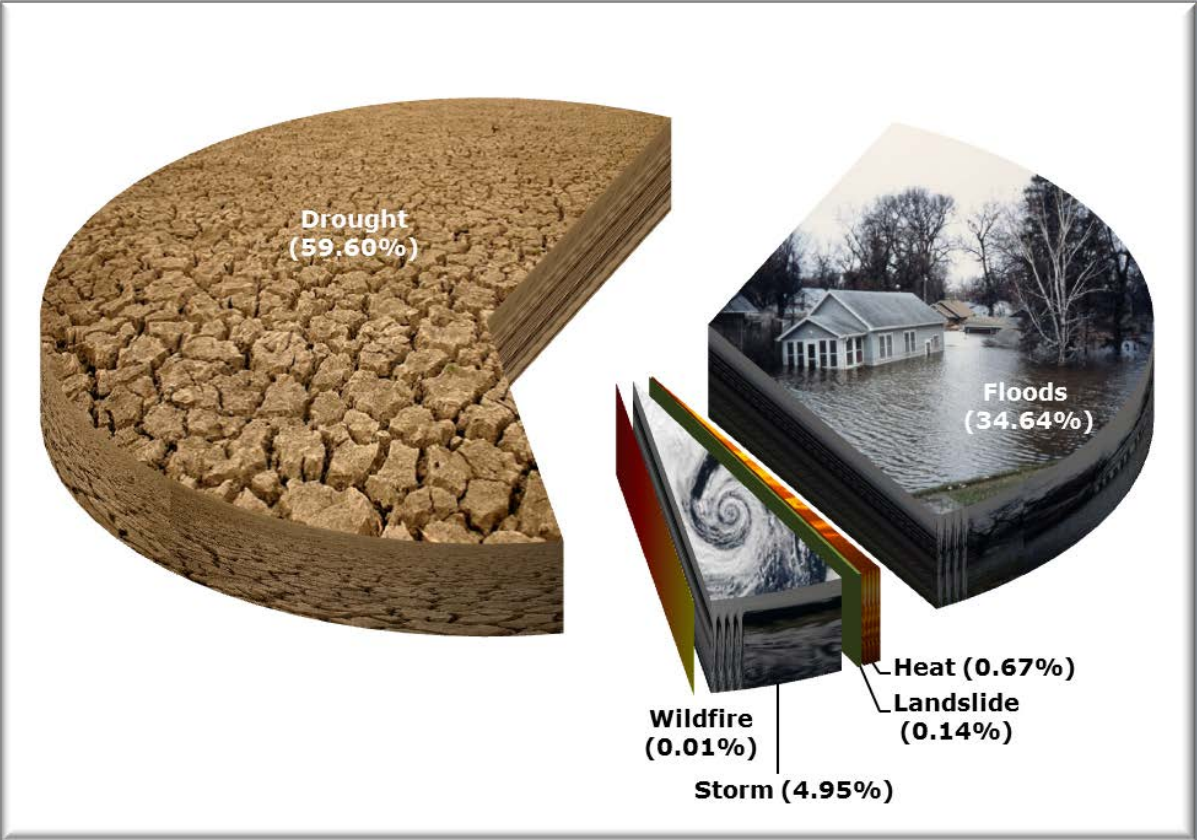




“Floods kill people, but droughts destroy civilizations.”

~U.S. Government Official at a Drought Meeting

Percentage of disaster-deaths worldwide according to each category of climate-related hazard, (1900-2013)

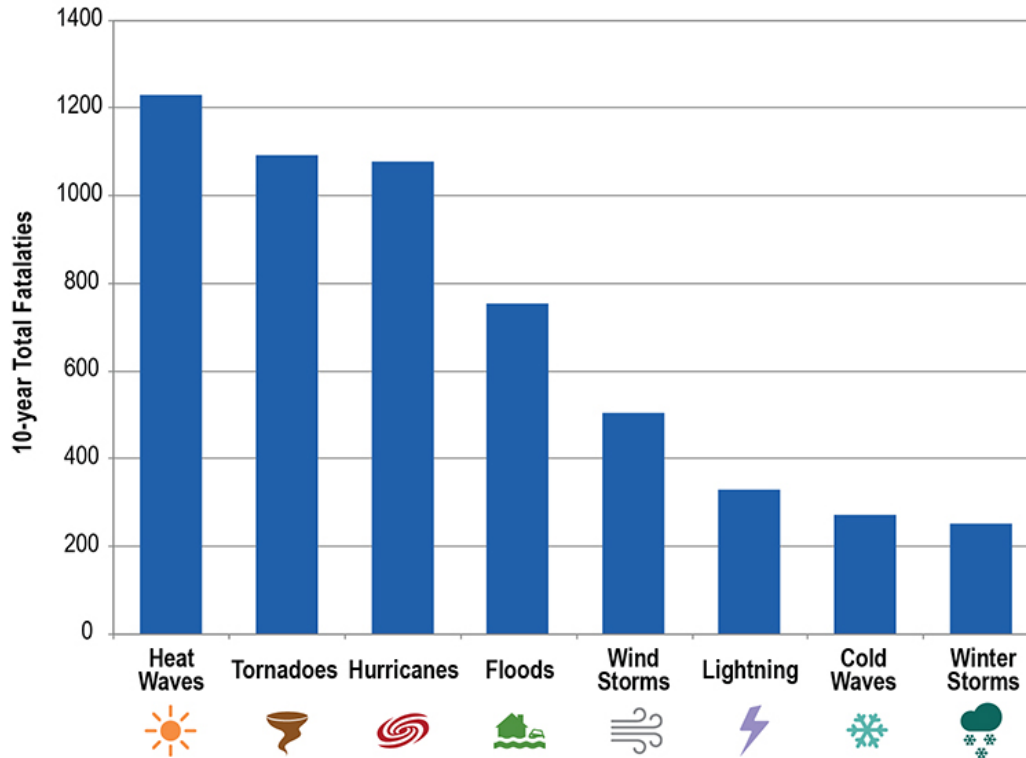


Source: Adapted from EM-DAT: The OFDA/CRED International Database, Belgium 2012
Keim, ME Extreme Weather Events: the role of public health



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



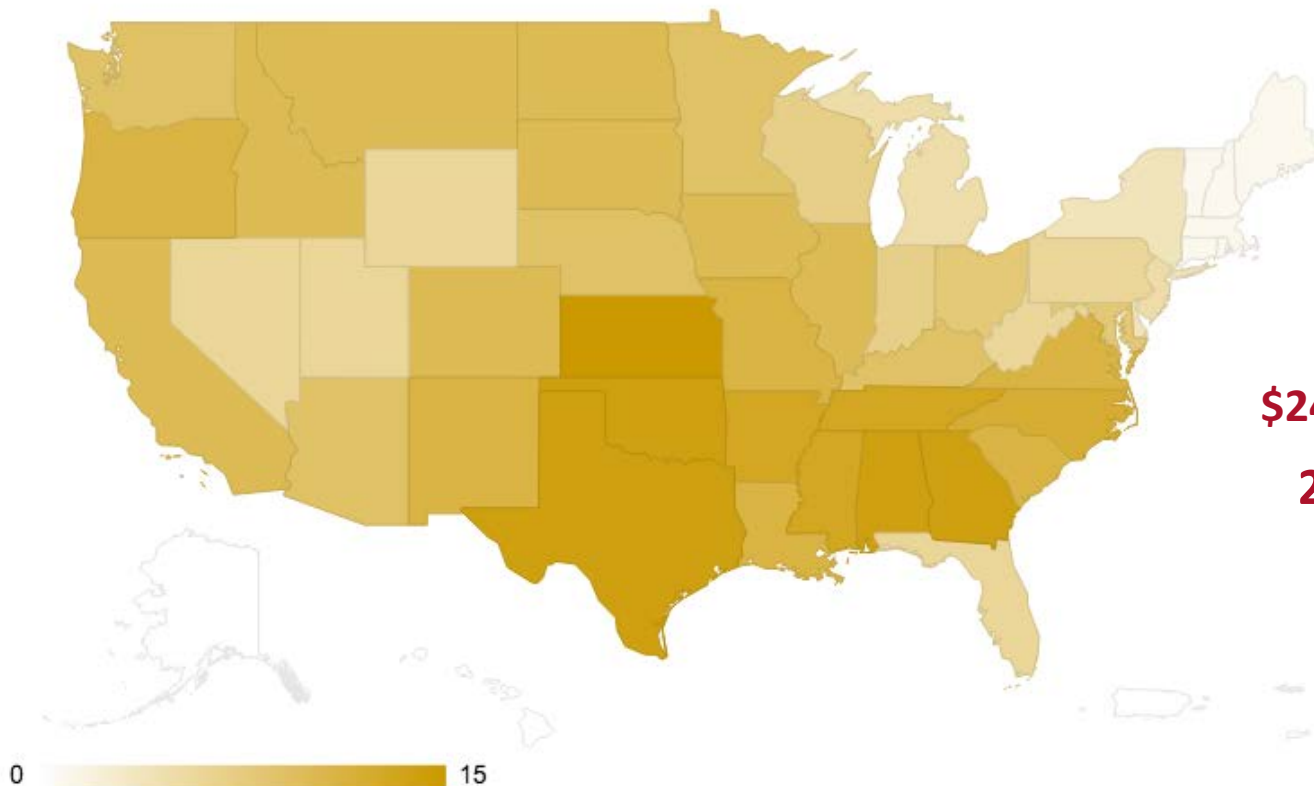
\$46 Billion
Tornadoes/Severe Storms



\$30 Billion
Flooding/Severe Storms



1980-2018* NOAA Billion-Dollar Drought Disasters (CPI-Adjusted)

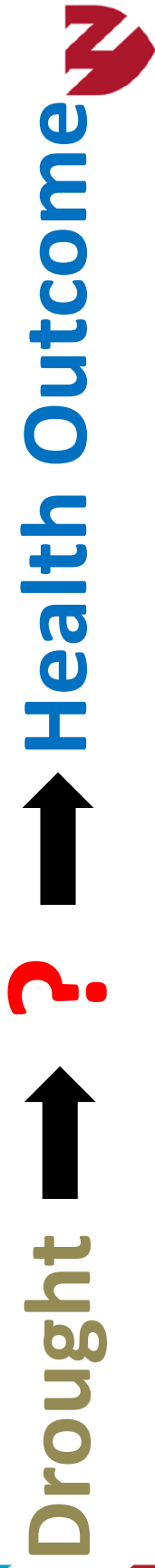


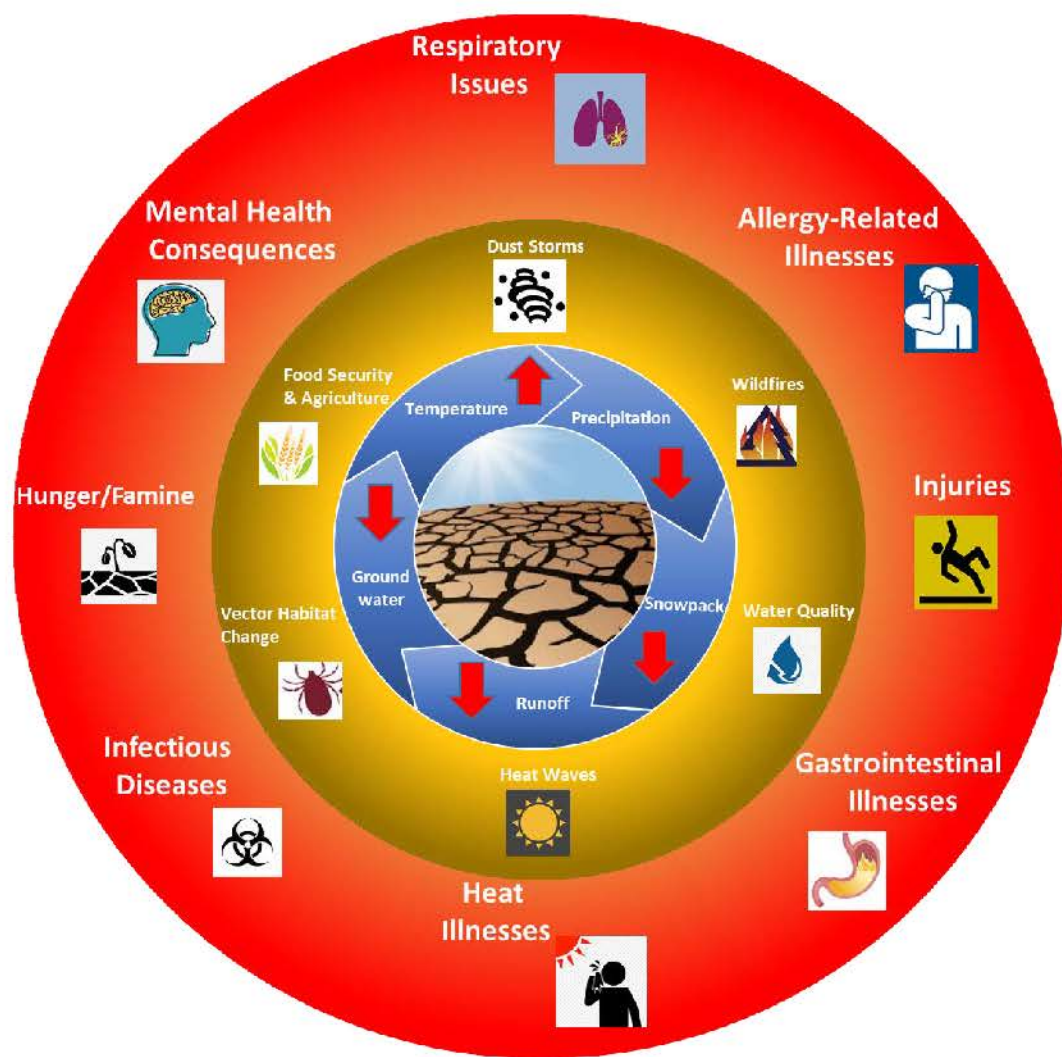
25 Events
\$241 Billion Lost
2,993 Deaths

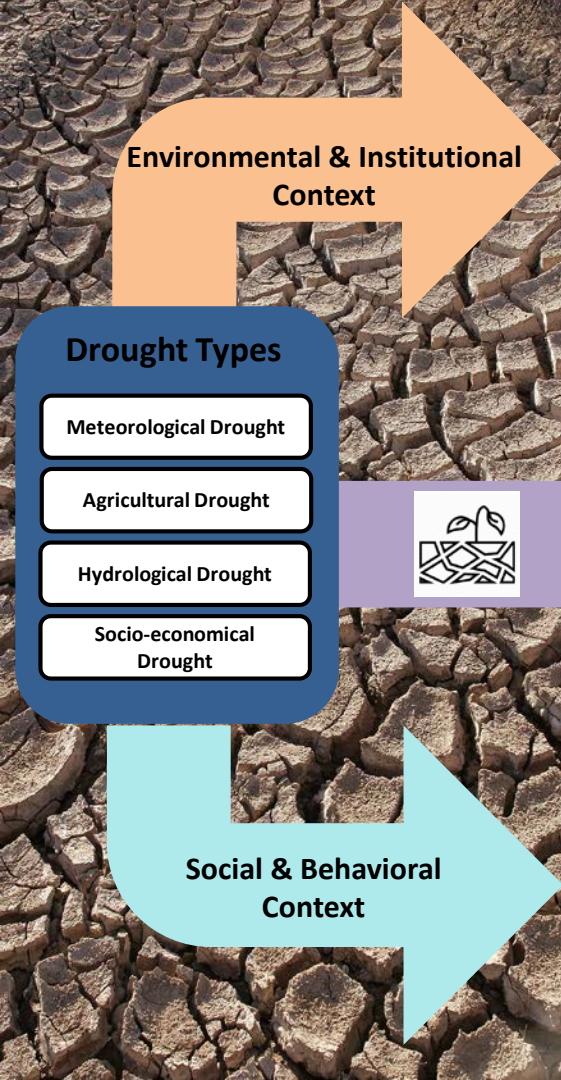


Health Surveillance Data

- ✓ 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







Environmental & Institutional Context

Drought Types

Meteorological Drought

Agricultural Drought

Hydrological Drought

Socio-economical Drought



Social & Behavioral Context

Water Supply

Local Environmental Conditions

Preparedness of Health Departments

Agricultural Management Practices

Power, Transportation, Communication and Healthcare Infrastructure

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

Health Outcomes

Respiratory Issues

Allergy-related Illnesses

Injuries

Infectious Disease

Hunger/Famine

Heat Illnesses

Gastrointestinal Illnesses

Mental Health Consequences

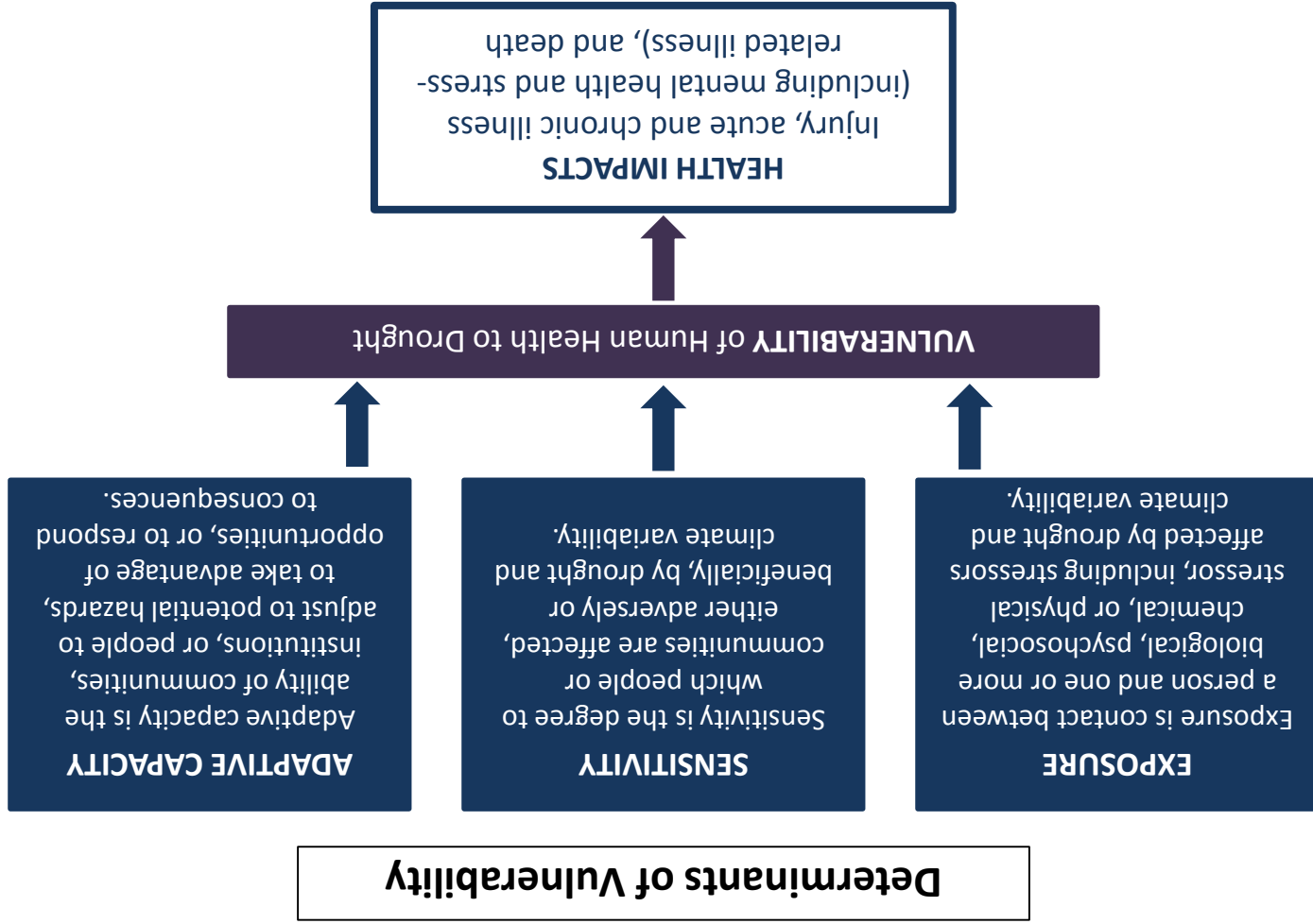
Social Determinants of Health

Occupation

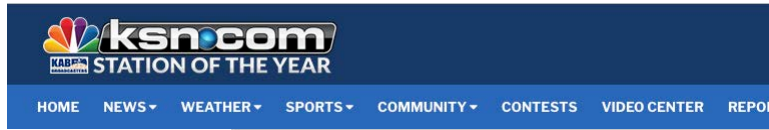
Rural/Urban

Race/Literacy/Age

Dependence on Caregivers and Medication



Complex Pathways: Mental Health



Local

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

By: Emily Younger

Posted: May 21, 2018 09:34 PM CDT
Updated: May 21, 2018 11:34 PM CDT



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nsw act

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

The Sunday Telegraph JULY 1, 2018 1:00AM

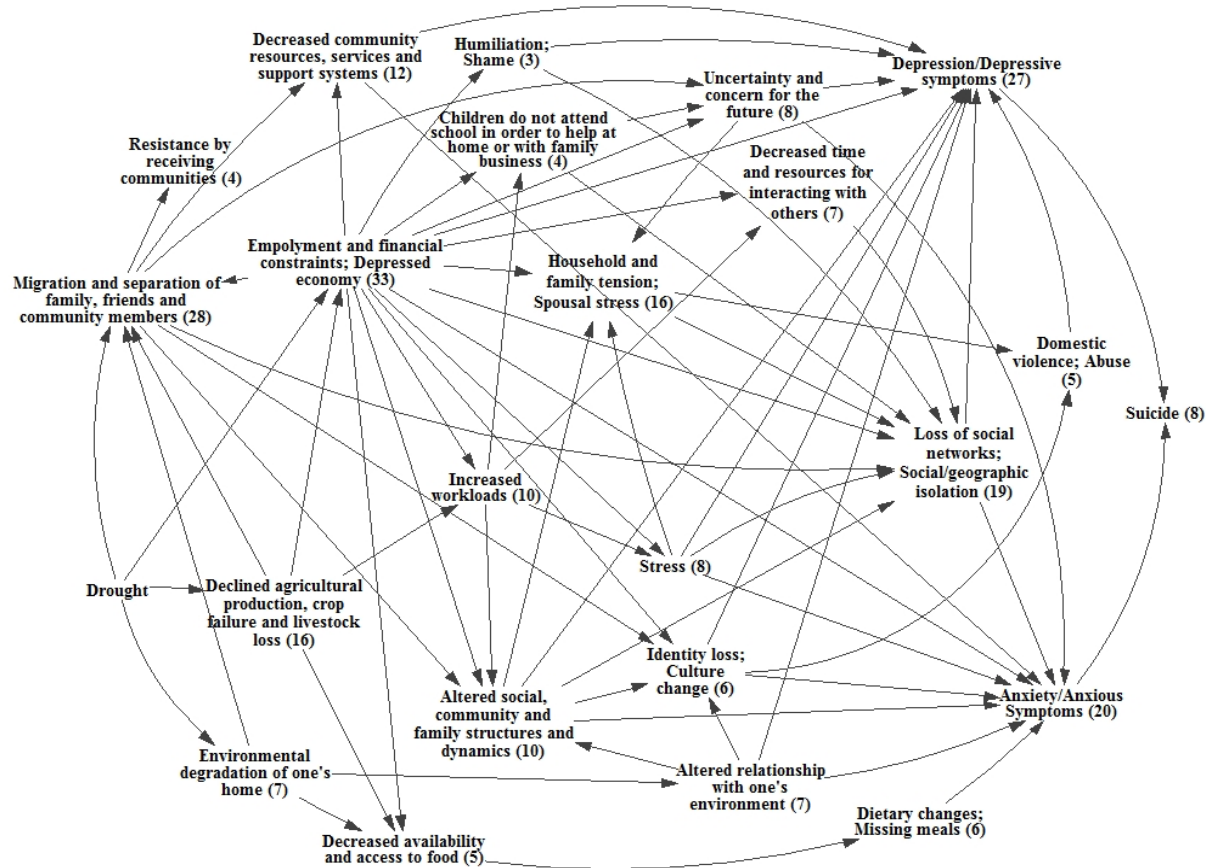


NSW stricken by severe drought

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.

... that saved him in 2015, but those lonely moments last year

Causal Process Diagram





DROUGHT AND PUBLIC HEALTH IN THE U.S.



Why drought matters

When drought affects a community, its devastating consequences can include decreased food and water security, economic hardship, and increased risk of wildfires, which are complex, and costly.

National drought, 2005–2015

Did not experience extreme or exceptional drought.

Experienced extreme drought.

Experienced exceptional drought.

Experienced extreme and exceptional drought.

Protect health

Plants, animals, and the environment that drought can do:



Count and sustain diseases. Mosquitoes like virus can spread in areas where there is water pooling grounds. Sticky soil increase the risk of lung infection from dust in the soil.



Intensify wild and dust storms, thus increasing the number of particulates in the air. This can worsen asthma and other heart and lung diseases.

Drought preparation can help reduce the impact of drought on public health. The National Center for Environmental Health's (NCEH's) current drought preparedness plan, like the National Oceanic and Atmospheric Administration's (NOAA's) system (NIDIS) to identify ways to better understand health effects.

CDC A-Z INDEX

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WHEN EVERY DROP COUNTS

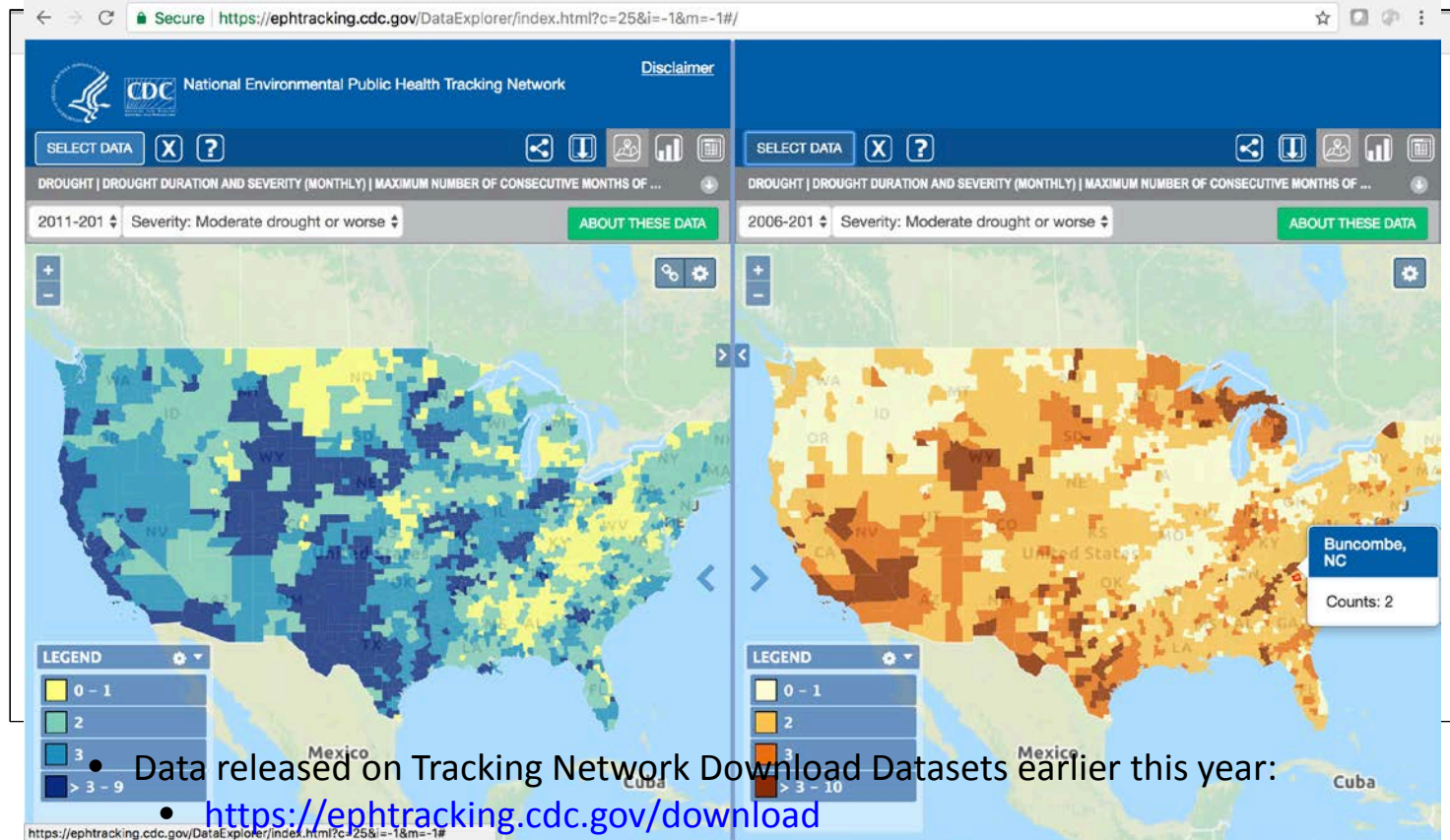
Protecting Public Health During Drought Conditions
A GUIDE FOR PUBLIC HEALTH PROFESSIONALS

PREPARING FOR THE HEALTH EFFECTS OF DROUGHT

A RESOURCE GUIDE FOR PUBLIC HEALTH PROFESSIONALS

- the at-risk populations living within the affected area, and

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



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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