Assessing Drought Impacts Using Community Assessment for Public Health Emergency Response (CASPER)

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Preparing for the Health Impacts of Drought ● February 4, 2019
Drought

A “deficiency in precipitation over an extended period, usually a season or more, resulting in a water shortage causing adverse impacts on vegetation, animals, and/or people”

—National Oceanic and Atmospheric Administration
Drought

...a complex and prolonged disaster

one of the most costly climate-related events
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The Mercury News

Brown declares California drought emergency

Source: U.S. Drought Monitor
Potential Health Effects of Drought

• Decreased **quality** and **quantity** of potable water
Potential Health Effects of Drought

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- 2,600 dry wells
- 13,000 residents
Potential Health Effects of Drought

- Decreased quality and quantity of potable water
- Compromised food and nutrition
Potential Health Effects of Drought

- Decreased **quality** and **quantity** of potable water
- Compromised food and nutrition
- Increased disease incidence
Potential Health Effects of Drought

- Decreased **quality** and **quantity** of potable water
- Compromised food and nutrition
- Increased disease incidence
- Adverse behavioral health outcomes
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severity

health effects
duration

vulnerability

Photo: Justin Sullivan — Getty Images
Assessments of Public Health Impact of Drought, 2015

Mariposa County:
- Sierras, forested foothills
- Massive tree-deaths, low reservoirs

Tulare County:
- Central valley, agricultural
- >1,300 dry wells, impacting >6,000 residents
Objectives

Effects of Drought

- Access to water
- Attitudes and practices
- Chronic disease exacerbations
- Behavioral health outcomes
- Finances and property
Community Assessment for Public Health Emergency Response (CASPER)

- Rapid needs assessment
- Disaster response
- Decision making and resource allocation
- Specific needs of local health jurisdiction
Community Assessment for Public Health Emergency Response (CASPER)

- Two-stage sampling
- 210 interviews (30 x 7 design)
- Generalized to the area of interest
Community Assessment for Public Health Emergency Response (CASPER)

Community Assessment for Public Health Emergency Response (CASPER) Toolkit

Second Edition

Centers for Disease Control and Prevention
National Center for Environmental Health
Environmental Hazards and Health Effects
Health Studies Branch

210 Households
48 Hours
Results in 1–2 Days
North Tulare: Wells beginning to run dry

South Tulare: Dry wells for multiple years
Private well owner
North Tulare: 29%
South Tulare: 63%
Mariposa: 74%

No running water in home
North Tulare: 8%
South Tulare: 12%
Mariposa: 3%

Photo: Chris Richard
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Reduced water for lawns
- North Tulare: 83%
- South Tulare: 92%
- Mariposa: 80%

Capture and reuse water
- North Tulare: 29%
- South Tulare: 42%
- Mariposa: 37%

Photo attribution: CNN
Wash hands less frequently/shorter duration

North Tulare: 58%
South Tulare: 68%
Mariposa: 52%
Property impacts
North Tulare: 39%
South Tulare: 48%
Mariposa: 54%

Financial impacts
North Tulare: 39%
South Tulare: 40%
Mariposa: 25%
Chronic condition has gotten worse since drought started*

North Tulare: 26%
South Tulare: 46%
Mariposa: 36%

* Among households reporting a member with a chronic condition
Acutely stressed
North Tulare: 15%
South Tulare: 26%
Mariposa: 8%
Considered moving
North Tulare: 14%
South Tulare: 34%
Mariposa: 17%
Decreased quantity of potable water
Water conservation behaviors
Exacerbations of chronic disease
Acute stress
Property and financial effects
Depopulation risk
Recommendations

- Provision of private well assistance
- Promotion of proper hygiene
- Expansion of health services for drought-affected persons
- Facilitation of tree removal
Is CASPER Right for the Job?
CASPER e-Courses and Videos

- UNC course (25min, CEU available)
  https://nciph.sph.unc.edu/tws/HEP_CASPER/certificate.php
- CDC course (60-120 min, CEU available)
  http://www.cdc.gov/nceh/hsb/disaster/CASPER_elearning/
- Lake County, CA, 2012 (9-min)
  https://www.youtube.com/watch?v=vf12bE-pdu0
- Fort Bend, TX, 2015 (5-min)
  https://www.youtube.com/watch?v=37mWBZ83aQE
- Ysleta Del Sur Pueblo Indian Nation, by El Paso, TX, 2015 (7-min)
  https://www.youtube.com/watch?v=pQtpKoAaV_w
- Harris County, TX, 2015, 2017
  (3-min) https://www.youtube.com/watch?v=IDgna5xyG4c (10-min) https://www.youtube.com/watch?v=GwB9jtTbrKU
  (nine 1-min videos on different CASPER aspects)
  https://www.youtube.com/playlist?list=PLOBJggWGHBJEcdrJhS22AL3cvumFxtVWz
- CDC Response to Hurricanes, 2018 (5-min)
  https://www.youtube.com/watch?v=bTc91V1Xexg