Community Assessment for Public Health Emergency Response (CASPER)
Defining Disasters

(VULNERABILITY + HAZARD) / CAPACITY
Disasters

- A serious disruption of the functioning of society, causing widespread human, material or environmental losses, that exceeds the local capacity to respond and calls for external assistance*

*CDC/WHO
The Public Health Perspective

Many disasters are responsible for negative health affects

Increased Morbidity & Mortality
Environmental Hazards
Displaced Populations
Disruption of public health infrastructure

...disasters are defined by what they do to people, otherwise they are simply interesting geological or meteorological phenomena...
## Direct vs Indirect Effects

### Direct effects
- Caused by the actual environmental forces of the disaster or direct consequences of those forces
  - Structural collapse
  - Flying debris

### Indirect effects
- Caused by the unsafe or unhealthy conditions that disasters create
  - Diminished sanitation
  - Reduced health services (primary care access, medicine, etc.)
  - Damaged infrastructure (electric, water, etc.)
...many of the problems we have identified can be categorized as ‘information gaps’...Better information would have been an optimal weapon against Katrina. Information sent to the right people at the right place at the right time.”
Disaster Epidemiology

Use of core public health capabilities to assist leaders and decision-makers by providing timely information to the right people.

| Tracking and surveillance | Assessments and investigations | Research |

Characterize short and long-term health consequences.

(Source: UNOCHA)
Importance of Disaster Epidemiology

- Identify key risk factors for mortality and morbidity
- Detect disease outbreaks
- Track disease trends
- Determine action items such as resource allocation
- Target interventions
- Facilitate future disaster planning
Challenges in Disasters

Data challenges:
- Absence of baseline information
- Denominator data difficult to obtain

Infrastructure damage:
- Widespread power outages
- Damaged phone and cell lines

Logistical constraints:
- Environmental hazards
- Roads blocked
- Gasoline shortages

Competing priorities:
- Working with many partners
Disaster Epidemiology Tools and Products

**Surveillance**
- Disaster Mortality Surveillance
- Disaster Morbidity Surveillance
- National Poison Data System (NPDS)

**Assessments**
- Community Assessment for Public Health Emergency Response (CASPER)
- Needs assessments

**Research**
- Epidemiologic studies
- Evaluation studies

**Trainings**
What is a Needs Assessment?

A systematic process of information collection and analysis regarding the type, depth, and scope of a problem.

Can be rapid or in-depth:

- Rapid (RNA): information collected and findings generated over 1 day to few weeks, ideally within 5 days.
- In-depth: comprehensive look to identify recovery-oriented needs, capacities, and gaps taking several months.
Rapid Needs Assessments (RNA)

• Completed in shorter amount of time to develop preliminary understanding of a situation quickly
  • Determines immediate needs of communities
• Focuses on priority areas to get snapshot of the impact
  • Identifies health problems
  • Establishes priorities for decision-makers
• Provides evidence to inform and enhance response capabilities through quick and effective action
  • Balance of timely response and sound methodology
Importance of RNAs

- Provides situational awareness
- Determines needs of affected population, especially with resource limitations
- Provides basis for interventions or follow-up
Types of RNAs

- RNAs encompass a wide variety of topics such as housing needs, education needs, public health needs, resource needs, and more.

- RNA methodologies also vary and can include, but are not limited to,
  - cluster sampling,
  - convenience sampling,
  - or purposive sampling for primary data collection.

- Examples of other agencies with disaster-related RNA methodologies
  - International Federation of Red Cross and Red Crescent Societies (IFRC)
  - Federal Emergency Management Association (FEMA)
  - United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA)
  - Inter-Agency Standing Committee (IASC)
  - Centers for Disease Control and Prevention (CDC)
ONE type of RNA

Provides *household-based* information about a community, quickly and at low-cost

Used in *both disaster* and *non-disaster* settings

Quick, reliable public health and basic needs data to *inform* decision-makers

Is *generalizable*, flexible, and uses *simple* reporting format

Cluster sample methodology – two stage (30x7) design

Results are descriptive of the *entire sampling area*

https://www.cdc.gov/nceh/hsb/disaster/casper/default.htm

Community Assessment for Public Health Emergency Response (CASPER)
History of CASPER

1970s
- U.S. Academy of Science’s identified fastest technique for EPI

1980s
- WHO Expanded Programme on Immunization (EPI) looking for survey technique for estimating vaccine coverage
- U.S. Academy of Science’s identified fastest technique for EPI

1990s
- WHO published the protocol for best practice
- Modified cluster-sampling method for rapid assessment of needs after a disaster published

1996
- CDC Health Studies Branch published CASPER toolkit to assist personnel in conducting a CASPER

2009
- Third toolkit edition & updated CASPER website released
What CASPER is

- Epidemiologic technique designed to provide quickly and at low cost, household-based information about a community’s needs in a simple format to decision-makers.

- Advantages of CASPER
  - Provides population estimates
  - Timely
  - Relatively low cost
  - Simple reporting format
  - Flexible
CASPER Phases

**PREPARE**
- Objectives
- Assessment area
- Forms (survey, etc.)
- 1st stage sampling (30 clusters)

**CONDUCT**
- Just-in-time training
- Interview teams
- 2nd stage sampling (7 households)

**ANALYZE**
- Weighted data
- Tracking form

**REPORT**
- Interpret data
- Write report
- Share results
When to Conduct CASPER

- When population-representative data are needed
- Determine if CASPERs 30x7 method is appropriate
  - Size and feasibility considerations (e.g., minimum of 800 households)
  - Other sampling methods may be more appropriate
- CASPER results will be descriptive of the entire area
- Useful throughout the disaster lifecycle
CASPER Objectives

- Preparedness
- Response
- Recovery
- Mitigation
- Other
CASPER Objectives

- Preparedness
  - Evacuation plans, household readiness plans, communications, vulnerability
- Response
- Recovery
- Mitigation
- Other

Graphic: A circular diagram illustrating the stages of disaster management: Preparedness, Mitigation, Response, Recovery. The image includes a call to action: BE READY MAKE A PLAN.
Public Health Emergency Preparedness (PHEP)

• **Capability 2: Community recovery**
  • Function 1 – Identify and monitor public health, medical, and mental/behavioral health system recovery needs
  • Priority 2 – Written plans should include how the health agency and other partners will conduct a community assessment and follow-up monitoring of public health, medical, and mental/behavioral health systems needs after an incident

• **Capability 7: Mass care**
  • Function 4 – Monitor mass care population health
  • Priority 2 – Written plans should include templates for disaster-surveillance forms, including Active Surveillance and Facility 24-hour Report forms
CASPER Objectives

- Preparedness
- Response
- Recovery
- Mitigation
- Other

Current needs of the community, current health status including injuries or diseases, communications, messaging, etc.
CASPER Objectives

- Preparedness
- Response
- Recovery
- Mitigation
- Other

Ongoing needs of the community as it recovers, evaluation of response efforts
CASPER Objectives

- Preparedness
- Response
- Recovery
- Mitigation
- Other

Evaluation of programs and responses, knowledge and/or opinions on new statutes, laws, proposals, etc.
CASPER Objectives

Preparedness

Response

Recovery

Mitigation

Other

Current topics of interest (H1N1, opioids, Zika virus), health status of community, perceptions or knowledge of project, and more
Use of CASPER in the United States

http://www.cdc.gov/nceh/hsb/disaster/casper/casper_map.htm
Impact of PAST CASPERs

Resources

Support

Messaging

Future Planning

Provide valid, evidence-based data for decision-making
Requesting CASPER

- Technical assistance from Atlanta
  - Contact CDC Health Studies
  - Wide range of technical assistance provided (free!)
- In-field assistance
  - State epidemiologist, health officer, and/or tribal council leader must make official request to CDC Health Studies
  - Just ask!
Preparing for CASPER
CASPER Phases

PREPARE
- Objectives
- Assessment area
- Forms (survey, etc.)
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CONDUCT
- Just-in-time training
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- 2nd stage sampling (7 households)

ANALYZE
- Weighted data
- Tracking form

REPORT
- Interpret data
- Write report
- Share results
Preparing for CASPER

Many questions need to be addressed prior to conducting a CASPER

Work with leadership and key stakeholders

**Preparation**
- Determine partners and stakeholders for questionnaire development and recommendation implementation
- Identify who will do first stage of sampling
- Receive approvals for assessment

**Fieldwork**
- Identify interview team members
- Find headquarter location and resources needed
- Secure funding

**Analysis and reporting**
- Identify who will analyze data and write the report
- Determine dissemination plan
CASPER Cost Considerations

**Team members**
- Overtime
- Volunteer incentives

**Travel**
- Overnight hotel
- Flight or mileage reimbursement

**Transportation**
- Rental vehicles, government, or personal
- Gas cards and/or mileage reimbursement

**Logistics**
- Headquarters location

**Materials**
- Printed materials
- Public health materials
- Go-kits
- Community SWAG

What is your funding source?
Determine Objectives and Sampling Frame

- Every CASPER will have different objectives
  - Will help determine if CASPER is the appropriate methodology
  - Will help determine the sampling frame
  - Will focus the questionnaire

- Sampling frame: All households within the selected geographic area
  - Results descriptive of entire sampling frame
  - Determined by local official
  - May need to conduct more than one CASPER

Common Frames
- Impact area
- Most affected
- Least knowledge
- High SVI
- Political layout
- Size
Sampling Frame Example: Alabama Oil Spill

Deepwater Horizon Oil Spill, Mobile and Baldwin Counties
Sampling Frame
Example: Elk River Chemical Spill

• “Do Not Use” order affected 10 counties in West Virginia
Stage 1: Selecting Clusters

- What is a cluster?
  - Mutually exclusive
  - Known number of households

- Census blocks are ideal clusters

- Select probability proportional to size
  - This ensures that clusters with more households have a higher chance of being selected
  - Data are weighted to obtain estimates

STEP-BY-STEP

1. List all blocks in the sampling frame with their corresponding number of households
2. “Number” each household
3. Randomly select 30 clusters using probability proportional to size (number of households)
   
   NOTE: some clusters may be chosen twice
4. Map the 30 clusters using mapping website or GIS software
Explore Census Data

The Census Bureau is the leading source of quality data about the nation’s people and economy.

Questions?
- What is data.census.gov?
- When will American FactFinder (AFF) go away?
- How do I get started with my search?
- How do I save my results or search?
- How do I access data by race, Hispanic origin, ancestry, or country of birth?

Release Notes
- More data available
- Table enhancements
- Export to Excel
- Multiple table download
- Bug fixes

Stay Connected

https://data.census.gov/cedsci/advanced?q=&g=
ArcGIS 10 CASPER Toolkit

• Any sampling frame
  • Not limited to county or groups of counties
  • Can use zip codes, landmarks, disaster track, shapefiles, etc.
• Contact CASPER@cdc.gov for mapping assistance
• Faster, less time-consuming
Example CASPER Cluster Maps
CASPER Data Collection Forms

Consent

Questionnaire

Tracking

Referral

Public Health
Survey Opening: Consent Script

- Introduction to the CASPER
- Verbal consent is sufficient
  - No personal identifiers collected
- Provide interviewee’s with written letter
- Follow your local guidance (area IRB)
  - Who you are
  - Why you are there
  - How long it will take
  - Explicit request for consent
  - Phone number for verification or questions

Community Assessment for Public Health Emergency Response (CASPER)

Good afternoon, my name is __________ and this is __________. We are with the Mariposa County Health Department. We are talking to randomly selected households about their experiences regarding the drought in Mariposa County.

- We are talking to residents about how the drought has affected them and how they are responding to the drought.
- We want to get an idea of how the county can better serve residents that are affected by the drought.
- Your house is one of 210 that has been randomly chosen to be in this survey.
- If you agree to participate, we will not ask you any personal questions such as those about education or place of birth. All the questions are about your entire household.
- The survey should take approximately 20 minutes to complete. Your answers will be kept private and the survey is voluntary and anonymous. You can refuse to take part in the survey or refuse to answer any of the questions. Nothing will happen to you or your household if you choose not to take part in the survey.
- We also have some information we would like to leave with you from the County that may be of interest to you and your household.

If you have any questions about this survey, you can ask anyone here right now. If you would like to confirm that we were sent by the Health Department, you may call the Health Department at 209-966-3693 or 800-459-4466.

[Surveyor: Wait for respondent to clearly answer YES or NO after each question below]

1. Would you like to participate in this survey? Yes ____ No ____
2. Do you live in this home? Yes ____ No ____
   a. If “No”: Is there someone else who lives in this home that we can speak to? Yes ____ No ____
3. Are you at least 18 years or older? Yes ____ No ____
   a. If “No”: Is there someone else who lives in this home that we can speak to? Yes ____ No ____

[Conduct interview if respondent answered yes to all three questions]

[IF NOT, tell them: Thank you very much for your time.]
Developing the CASPER Questionnaire

• Determine the scope and nature of the questions
  • WHY ask? What ACTION can be taken?
  • What do you already know?

• Identify the critical information needed
  • Is the question necessary?
  • How will the data be used?
    • Outline basic analysis

• Questionnaire design
  • Keep questionnaires short
  • Closed-ended questions preferred
  • Sensitive information later
Pre-Existing Questions for CASPER

CASPER resources

- CASPER toolkit
- CDC CASPER Website - http://www.cdc.gov/nceh/hsb/disaster/casper/
- Previously used questionnaires (just ask!)
- CSTE Disaster Epidemiology Subcommittee
- Disaster Epidemiology Community of Practice (DECoP)
- NIH Disaster Research Response Project (DR2)

CDC resources*

- Behavioral Risk Factor Surveillance System (BRFSS)
- National Health and Nutrition Examination Survey (NHANES)

*Any individual questions should be changed to household
Developing Questions

- Use as few questions as possible
- Consider the best ways to facilitate recall
- Determine who sees the questionnaire prior to field implementation
- Pilot test for acceptability, comprehension, and appropriate order
  - Develop interviewer instructions
  - Determine average completion time
  - Incorporate comments on wording, content, and format
Example: Questionnaires

Hurricane Ike Community Assessment for Public Health Emergency Response Questionnaire — Liberty, County, Texas, September 2008

Date: ________________ County: ________________ Survey No: ________________ Blocks: ________________

**Address:**
1. Type of Structure: Single family house
   - Multi-family house (e.g., duplex, apartment)
   - Mobile home
2. Do you feel secure in your current housing? (in the last 3 months)
   - Yes
   - No
   - DK
3. How many people lived in this residence before the event?
4. How many people slept here last night?
   - Age
   - Aged 65 years or older
5. Was anyone injured in this residence due to or since the hurricane? (in the last 3 days)
   - Yes
   - No
   - DK

**Questions:**
1. Do you feel secure in your current housing? (in the last 3 months)
2. Is everyone in the residence getting the medication they need since the event?
3. Are there signs of the hurricane preventing anyone in the residence from obtaining medical care?
4. If yes, describe:
5. Do you feel secure in your current housing? (in the last 3 months)
6. Is everyone in the residence getting the medication they need since the event?
7. Are there signs of the hurricane preventing anyone in the residence from obtaining medical care?
8. If yes, describe:
9. Do you feel secure in your current housing? (in the last 3 months)
10. Does anyone in the residence need a medical event?
11. Do you have running water?
12. Do you have safe drinking water?
13. Do you have access to enough food for everyone in the residence (for the last three days)
14. Do you have access to power? (sufficient for lighting, heating, and cooking)
   - If generator, where is it located?
   - Inside, Outside, or Other
15. Are you making inside a charcoal grill or camp stove?
   - Yes
   - No
   - DK
16. Do you have safe drinking water?
17. Do you have access to enough food for everyone in the residence (for the last three days)

**Now, we would like to ask you some questions about how your household might prepare for a disaster or emergency.

- What is your household's total number of people?
- Do you have a designated meeting area for your household in case an emergency occurs?
- Do you have an emergency plan for your household?
- Do you have a designated meeting place outside your home or close by in your neighborhood?
- Do you have a designated meeting place outside your neighborhood in case you cannot return home?
- Do you have a designated meeting place outside your neighborhood in case you cannot return home?
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Question Wording: Example I

- Have you ever used drugs?  ___Yes  ___No
Question Wording: Example I

- Have you ever used drugs?  ___Yes  ___No

- Have you or a member of your household ever used any of the following (check all that apply)
  ___ Alcohol
  ___ Marijuana
  ___ Methamphetamine (speed, crystal meth)
  ___ None
  ___ Don’t Know
  ___ Refused
Question Wording: Example II

- Does your household plan to move and buy a house within the next year? ___ Yes ___ No
Question Wording: Example II

- Does your household plan to move and buy a house within the next year?  
  ___ Yes ___ No

- Does your household plan to move within the next year?  
  ___ Yes ___ No ___ DK ___ Ref

- Does your household plan to buy a house within the next year?  
  ___ Yes ___ No ___ DK ___ Ref
Question Wording: Example III

- Does your household not have adequate drinking water for the next 3 days?  
  ___ Yes ___ No
Question Wording: Example III

- Does your household not have adequate drinking water for the next 3 days?  ___ Yes ___ No

- Does your household have adequate drinking water for the next 3 days (1 gallon/person/day)?  ___ Yes ___ No ___ DK ___ Ref
Question Wording: Example IV

- Have you ever been diagnosed with herpes zoster? ___ Yes ___ No
Question Wording: Example IV

- Have you ever been diagnosed with herpes zoster? ___ Yes ___ No

- Has a doctor or other healthcare provider ever told you or a member of your household that you had shingles? ___ Yes ___ No ___ DK ___ Ref
Question Wording: Example V

- How many times have your or members of your household visited a doctor in your lifetime? _____
Question Wording: Example V

- How many times have your or members of your household visited a doctor in your lifetime? _____

- Have you or a member of your household visited a doctor or other healthcare provider in the last 6 months?
  ___ Yes ___ No ___ DK ___ Ref
Question Wording: Example VI

- Doesn’t your household use TV as it’s main source of information regarding a disaster or emergency event? ___ Yes ___ No
Question Wording: Example VI

- Doesn’t your household use TV as it’s main source of information regarding a disaster or emergency event? ___ Yes ___ No

- What is your household’s main source of information regarding a disaster or emergency event? (select one)
  ___ TV
  ___ Radio
  ___ Text message
  ___ Internet (not including social media)
  ___ Social media
  ___ Word of mouth
  ___ Local newspaper
  ___ Other, _________________
  ___ DK ___ Ref
Standardization Procedures

- Standardization increases reliability of data

Tips for standardization
- Ask the question in the *same order with exact wording*
- Don’t prefill questions or finish respondents' sentences
- Read the entire question
- Record answer verbatim

Departures from standardization
- Changing wording = asking different questions
- If respondents have difficulty....pause!
- Document any departures
Conducting CASPER in the Field
CASPER Phases

**PREPARE**
- Objectives
- Assessment area
- Forms (survey, etc.)
- 1st stage sampling (30 clusters)

**CONDUCT**
- Just-in-time training
- Interview teams
- 2nd stage sampling (7 households)

**ANALYZE**
- Weighted data
- Tracking form

**REPORT**
- Interpret data
- Write report
- Share results
CASPER Timing
Public Notice of CASPER

- Local police department
- Local media
  - Press release, official webpage, social media such as Facebook or twitter

Lake County Public Health officials to conduct CASPER survey to assess emergency preparedness

LAKE COUNTY, Calif. — Lake County Public Health officials are overseeing a first-of-its-kind survey in Lake County that will look at how prepared local residents are for potential disasters.

Later this month the Community Assessment for Public Health Emergency Response — or CASPER — survey will take place in neighborhoods around Lake County, according to Lake County Public Health Office Dr. Karen Talt.

"It’s actually something that we’re doing voluntarily," she said.

The Centers for Disease Control and Prevention’s Division of Environmental Hazards and Health Effects, Health Studies Branch developed CASPER to enable government at all levels to rapidly assess a community’s health needs after a disaster, as well as to measure household preparedness for disasters, according to Talt.

In Lake County’s case, Talt said it’s meant to measure preparedness and help her staff know how best respond in times of disaster to help meet the community’s needs.

Talt, who is overseeing the local work, said that among its many benefits, the CASPER survey is “a rare opportunity for local, state and federal agencies to coordinate at the field level.”

Such work often is challenging and messy in real disasters, she pointed out, so it’s a good practice exercise.

Coming as it does following a summer of wildland fires that threatened Lake County communities, “It’s really perfect timing,” she said.

The survey will take place Monday, Nov. 27, through Wednesday, Nov. 29, in Napa, Lucerne, Clearlake Oaks, Clearlake, Clearlake Ranch, Middletown, Hidden Valley Lake, Cobb, Lakeport and Kelseyville, according to Talt.

Spring Valley, which Talt said the county had planned to survey before August’s Wye Fire, will be the focus of a separate and specific CASPER survey.

Fifteen member-survey teams will visit neighborhoods, going door to door, looking to locate seven respondents households within each census block. Talt said team members can’t wear any identifying signs.

She said survey team members will include epidemiologists from neighboring counties, state public health personnel, public health students and some of the county’s own public health nurses.

They will not be collecting any personal information and will only conduct the work during the day. Talt said.

Talt said that at the same time, there will be teams working in some neighborhoods to conduct air quality measurements in order to find evidence of geographical variation, a phenomenon that’s been seen in parts of the county.

By Friday, Nov. 30, Talt anticipates having some initial analysis completed on the results. "It should be fairly fast."

How the process works

Talt and her staff began planning for the survey in June. "It’s been a pretty intensive planning process for us," she said, adding that they’re also getting a lot out of it in terms of experience and information.

Lake County Public Health is offering much more local support than CDC is accustomed to, said Talt. "We decided to make it a kind of logistical exercise for ourselves."

Talt said the CASPER process involves choosing 30 census tracts within Lake County that are weighted toward more populated areas. Seven houses within each tract are then selected at random.

In Kelsey Valley, where a separate CASPER is being undertaken, 14 households will be surveyed. Talt said...
Just-In-Time (JIT) Training

~3 hours of training

- One day in advance OR morning of first day of the CASPER
- Supplement to CASPER preparedness training

Items to cover

- Background and objectives
- Assessment methodology
- Roles, responsibilities, logistics

Familiarize teams with data collection instruments

- Questionnaire, tracking form, etc.
- Any technology (tablets, GPS)
CASPER Teams

• **10+ teams of two interviewers**
  • 15 or more is ideal

• **Team composition**
  • Local person
  • Level of experience
  • Diverse (gender, age, race, etc.)

• **1-2 headquarters staff**
  • Coordinate field teams and safety
  • Answer field team questions
  • Begin data entry
Who will be your teams?

**Department staff**
- Epidemiologists
- Contractors
- Fellows

**Other HD staff**
- Mental health
- Surveillance nurses
- PHEP coordinators

**Students**
- Local colleges and universities
- Michigan

**Volunteers**
- Medical Reserve Corps
- AmeriCorps
- Local organizations
- Community members
- Public Health Student Action Team (PHAST)

*Consider a small incentive such as a $20 gift card*
Safety Briefing

- Watch out for domestic and wild animals
- No trespassing vs no solicitation
- Situation-specific hazards
- Personal safety
  - Entering households
  - Knowing limitations
  - Drinking plenty of water
## Supplies and Materials

<table>
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<th>Field Teams</th>
<th>Headquarters</th>
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| • CASPER Go-Kits  
• Sufficient quantity of all forms and office supplies  
• T-shirts, ID/authorization  
• Transportation  
• Wireless communication devices  
• Car chargers for all devices  
• Snacks, water, first aid | • Laptops preloaded with EpiInfo, SAS, or other statistical package  
• Team/equipment tracking forms  
• Base communication  
• Large map of the entire sampling area including clusters  
• Internet access (helpful) |
Providing Public Health Information

Eat Safe Food

After a flood or power outage, some food and coolers may be too hot to eat and must be thrown out.

Throw out perishable food (such as meat, fish, eggs, milk, and leftovers) if your refrigerator has been off for 4 or more hours.

Throw out frozen food that still contains ice crystals can be refrozen or cooked if not thrown away.

Do the following with food and containers that may have had contact with flood or storm water:

Throw out these foods:
- Food with unusual color, odor, or texture
- Casseroles or food containers that are bulging, open, or dented
- Food not in waterproof containers or cans
- Food canned at home
- Food in cardboard containers including cans, milk, and baby formulas
- Food in containers with screw caps, snap lids, crimped caps, twist caps, flip tops, or snap tops

Throw out these things:
- Wooden cutting boards
- Baby bathes, nipples, and pacifiers

Clean and sanitize things that touch food in a four-step process:
1. Wash with soap and clean water.
2. Rinse with clean water.
3. Sanitize by immersing 1 minute in a solution of 1 cup of bleach and 5 gallons of clean water.
4. Allow to air dry

When in doubt, throw it out.

8 TIPS TO CLEAN UP MOULD

- Put on personal protection equipment (goggles, respirator) and protect your eyes, nose, mouth.
- Take all food and utensils that you eat with flood water from your home.
- Open all doors and windows where you are handling any damaged or dirty food.
- Close the doors of closets and cabinets that are damaged or dirty

Clean with water and a detergent. Remove any excess water. Dry right away.

http://www.cdc.gov/moldcleanup.htm

Providing Public Health Information

Croker County Public Health

Emergency Preparedness

Weekly Steps for Emergency Preparedness

A budget-friendly plan to build a disaster supply kit in 24 weeks.

- Water: 1 gallon per person per day for 3 days
- Food: non-perishable, high-energy foods
- Medications: all prescription medications
- Lighting: batteries
- Communication: battery-operated radio, flashlights
- Important documents: birth certificates, prescriptions
- Special needs: baby formula

Health risks and how you can prevent

Health Infographic

- Food Safety
- Water Safety
- Personal Health
- Mold Exposure
- Disaster Planning

- Mold Exposure
- Disaster Planning
- Water Safety
- Personal Health
Stage 2 Sampling: Systematic Sampling of Households

- Randomly choose a starting point (e.g., intersection, center) prior to heading into the field
- Select the nearest house, then every $n$th house after
- Choose $n$ based on the size of the cluster
  - Look at the approximate number of households found on the map
    - If 23 households, $23/7 = 3...$ select every 3$^{rd}$ household
    - If 10 or less households, go to every one!
    - Apartment complexes: each unit is a separate household
  - Once you pick a number, stick to that number!
- The goal is to be sure interviews are spread out across the cluster
Stage 2 Sampling: Systematic Sampling of Households

Choose
Randomly choose a starting point (e.g., intersection, center) prior to heading into the field

Select
Select the nearest house, then every $n$th house after

Calculate
Choose $n$ based on the size of the cluster
- If 23 households, $23/7 = 3...$ select every 3rd household
- If 10 or less households, go to every one!

The goal is to be sure interviews are spread out across the cluster
Exercise: Selecting Households to Interview
Tips: Selecting Households to Interview

- Apartment complexes
  - “Mixed” clusters

- ONLY replace HH if
  - VACANT
  - REFUSES
  - no answer after THREE attempts

- Always call HQ if there are any questions
Exercise: Selecting Households to Interview
Stage 2
Sampling Tips

Systematic sampling of households is always recommended!

- Avoid convenience and target sampling

Some exceptions can be made

- Less than 10 households in the cluster
- Response urgency and cluster composition
  - Example, Bastrop fires

Only use sequential sampling when absolutely necessary

- Take every effort to not target starting point

REMEMBER: Always track ALL households visited!!!
## Community Assessment for Public Health Emergency Response (CASPER): Tracking Form

**City:** Crook, **Cluster # (i.e., 1-30):** 13 **# of Houses in the Cluster:** 53 **Team:** dinosaur **Date of Interview:** 5/2/17

**Instructions:** Use one tracking form per cluster. Check where appropriate, but try to choose only one best option for each of the five categories. Go as far down the list as possible for each site you visit. Use neighbors to find information if no resident is available.

### Sampled Households

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<td>Interview begun, not finished</td>
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<td><strong>Survey # (i.e., 1-7) from Completed Questionnaire:</strong></td>
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</tbody>
</table>
NOTE: Write information to identify households to return to or any notes that you may need to take (e.g., why the household is inaccessible) on the back of the form.

Sample Completed Tracking Form
Confidential Referral Form

- Report urgent household need(s)
- May need to pass personal identifying information to the health department or other agency
- Ensure field interview teams know the plan in the event they come across an urgent need
- Should illicit immediate follow up
Ending the CASPER Interview

- Thank for participation!
- Offer how and when results will be available
- Check the entire questionnaire before leaving
Team Member Responsibilities

- Remain flexible – 2 person team
- Think safety
- Understand the objectives
- Adhere to the methodology
  - Map – sample validity
  - Interview – data quality
  - Tracking form – representativeness
  - Data entry - timeliness
- Be respectful
- Understand personal limitations
Team Member Responsibilities

- Remain flexible – 2 person team
- Think safety
- Understand the objectives
- Adhere to the methodology
  - Map – sample validity
  - Interview – data quality
  - Tracking form – representativeness
  - Data entry - timeliness
- Be respectful
- Understand personal limitations
Analyzing CASPER Data & Interpreting Results
CASPER Phases

PREPARE
- Objectives
- Assessment area
- Forms (survey, etc.)
- 1st stage sampling (30 clusters)

CONDUCT
- Just-in-time training
- Interview teams
- 2nd stage sampling (7 households)

ANALYZE
- Weighted data
- Tracking form

REPORT
- Interpret data
- Write report
- Share results
Analyzing Data Basics

- Data from the questionnaire can be entered into EpiInfo™
  - Any statistical software package that allows you to weight data is acceptable (SAS, SPSS)
- Develop the database for manual entry or tablet data collection as early as possible
  - Keep the electronic version of form as similar as possible to the paper form
Data Cleaning

- After data entry, merge all data into a single database (if multiple)
- Export file into a spreadsheet for cleaning (and creation of weight)
  - Always keep an original copy in case of any mistakes
- Before analysis, clean the data
  - Review quality checks
  - Ensure skip patterns correct
  - Categorize free text

Common CASPER Cleaning Steps

- Cluster number
- Blanks/Missing variables
- Age variable
- “Check one” vs “Check all”
- Skip patterns
- Categorization/standardization of any open-ended questions
Analyzing Data: Sampling Weight

- Numerator will be the same for every household within the assessment area (sampling frame)
- Denominator will differ (potentially) between clusters
  - Ideally 210 (i.e., 7 [households] x 30 [clusters])
  - Obtain information from tracking form
In this example, there were 354,241 total households in the sampling frame and 30 clusters surveyed (see the equation for cell E2 at the top of the page). NOTE: the weight value for clusters 2 and 4 is the same because the same number of interviews was completed in both clusters.
Analyzing Data: Classic Mode

- Recommend classic mode
  - Allows option to use code
Classic Mode: Read Data

- Import your excel file
  - “Read” data option under first folder
  - Ensure “database type” is .XLSX
Classic Mode: Weighted Analysis

- Complex sample frequencies under “Advanced Statistics”
  - May select more than one variable at same time
- Option write code
  - Use program editor at bottom of screen
  - “Run Commands”

Code for CASPER Analysis
FREQ [Variable Name] WEIGHTVAR=aWEIGHT PSUVAR=Cluster
## Example CASPER Presentation Table

<table>
<thead>
<tr>
<th>Current household needs</th>
<th>Frequency (n=200)</th>
<th>Estimate</th>
<th>Percent</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bed nets</td>
<td>43</td>
<td>29,421</td>
<td>21.8</td>
<td>15.2–28.4</td>
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<tr>
<td>Medication</td>
<td>19</td>
<td>4,253</td>
<td>9.8</td>
<td>5.8–13.9</td>
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<tr>
<td>Food</td>
<td>21</td>
<td>4,802</td>
<td>11.1</td>
<td>5.7–16.5</td>
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<tr>
<td>Tarps</td>
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<td>2,504</td>
<td>5.8</td>
<td>3.1–8.5</td>
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<tr>
<td>Water</td>
<td>21</td>
<td>4,712</td>
<td>10.9</td>
<td>6.4–15.5</td>
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<tr>
<td>Other*</td>
<td>6</td>
<td>1,218</td>
<td>2.8</td>
<td>0.3–5.3</td>
</tr>
</tbody>
</table>

| Top 3 Household Greatest Need | | |
|------------------------------|---|---|---|---|
| Nothing/Don’t Know           | 64| 13,852 | 32.1 | 24.2–39.9 |
| Repair/cleanup                | 77| 16,799 | 38.8 | 30.2–47.5 |
| Money                         | 24| 5,244  | 12.1 | 7.7–16.6  |

*Other includes clothes, mosquito spray, etc.
Example CASPER Presentation Graph

- Experienced 1 or more: 40.4%
- Difficulty concentrating: 16.9%
- Trouble sleeping: 15.1%
- Agitated behavior: 14.9%
- Witness violence: 11.1%
- Loss of appetite: 10.7%
- Increased alcohol: 7.8%
- Increased drug use: 2.7%
Analyzing Data: Tracking Form

Calculation of *response rates* provides an indication of the representativeness of the sample to the population.

Calculate *totals* for each row of every cluster tracking form. If discrepancies arise, use logic and judgment to rectify.
### Analyzing Data: Tracking Form

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<td>Interview begun, not finish</td>
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</tr>
</tbody>
</table>
Contact Rate

The percentage of households that complete an interview after contact is attempted.

\[
\text{Number of completed interviews} = \frac{\text{All HUs where contact was attempted}}{}
\]
Cooperation Rate

The percentage of households that complete an interview after contact has been made.

\[
\text{Number of completed interviews} = \frac{\text{All HUs where contact was made}}{\text{All HUs where contact was made}}
\]
Completion Rate

Number of completed interviews compared to the ideal number of completed interviews

(Number of completed interviews) / (Number of interviews intended to complete)

Must reach 80% completion rate to conduct weighted analysis
## Example Response Rates (Preparedness CASPER)

<table>
<thead>
<tr>
<th>Description</th>
<th>Percent (%)</th>
<th>Rate</th>
<th>Total contact made</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion</td>
<td>91.0</td>
<td>191/210</td>
<td>Total completed</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>210</td>
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<tr>
<td>Cooperation</td>
<td>66.6</td>
<td>191/287</td>
<td>Total contact made</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Total contact made</td>
</tr>
<tr>
<td>Contact</td>
<td>41.9</td>
<td>191/456</td>
<td>Total selected</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Total selected</td>
</tr>
</tbody>
</table>
Response Rates

- REVIEW: What are the three CASPER response rates?
  - How do they work together to determine the representativeness of the sample to the population?

- EXAMPLE:
  - 850 households approached (15 inaccessible, 835 accessible)
  - 470 answered doors
  - 207 interviews completed, 260 refused, 3 language barriers
  - What are the response rates? Is the sample representative?
    - \[ \frac{207}{210} = 98.6\% \quad \frac{207}{470} = 44.0\% \quad \frac{207}{850} = 24.4\% \]

- QUESTION: Is it better to complete 210 surveys by approaching 800 households OR 200 surveys by approaching 500 households?
CASPER Phases

**PREPARE**
- Objectives
- Assessment area
- Forms (survey, etc.)
- 1st stage sampling (30 clusters)

**CONDUCT**
- Just-in-time training
- Interview teams
- 2nd stage sampling (7 households)

**ANALYZE**
- Weighted data
- Tracking form

**REPORT**
- Interpret data
- Write report
- Share results
Activity: What can you conclude from this table?

<table>
<thead>
<tr>
<th>Damage to Household</th>
<th>Sample (n 200)</th>
<th>Estimated HH</th>
<th>Weighted %</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>None/Minimal</td>
<td>67</td>
<td>14,302</td>
<td>33.1</td>
<td>24.6–41.6</td>
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<tr>
<td>Damaged</td>
<td>124</td>
<td>26,906</td>
<td>62.3</td>
<td>54.2–70.2</td>
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<tr>
<td>Destroyed</td>
<td>9</td>
<td>2,006</td>
<td>4.6</td>
<td>1.9–7.4</td>
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</table>

<table>
<thead>
<tr>
<th>Feels home safe in which to live</th>
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</thead>
<tbody>
<tr>
<td>Yes</td>
<td>52</td>
<td>11,335</td>
<td>26.2</td>
<td>18.7–33.8</td>
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</table>

<table>
<thead>
<tr>
<th>Noticed increase in rats/mice</th>
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</thead>
<tbody>
<tr>
<td>Yes</td>
<td>80</td>
<td>16,967</td>
<td>39.3</td>
<td>30.9–47.6</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Concerned about mosquito borne disease</th>
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</thead>
<tbody>
<tr>
<td>Very concerned</td>
<td>78</td>
<td>16,764</td>
<td>38.8</td>
<td>30.3–47.3</td>
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<tr>
<td>Somewhat concerned</td>
<td>57</td>
<td>12,306</td>
<td>28.5</td>
<td>20.9–36.1</td>
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<tr>
<td>Not concerned at all</td>
<td>65</td>
<td>14,144</td>
<td>32.7</td>
<td>25.4–40.0</td>
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</table>

<table>
<thead>
<tr>
<th>Injuries</th>
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</thead>
<tbody>
<tr>
<td>During storm</td>
<td>9</td>
<td>2,161</td>
<td>5.0</td>
<td>1.4–8.6</td>
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<tr>
<td>During cleanup</td>
<td>23</td>
<td>5,549</td>
<td>12.8</td>
<td>6.9–18.7</td>
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</table>

<table>
<thead>
<tr>
<th>Worsening of 1+ chronic disease</th>
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<tr>
<td>Yes</td>
<td>81</td>
<td>17,502</td>
<td>40.5</td>
<td>33.2–47.8</td>
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</table>

<table>
<thead>
<tr>
<th>Experienced 1+ BH Indicator</th>
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</thead>
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<td>Yes</td>
<td>234</td>
<td>26,479</td>
<td>61.3</td>
<td>54.5–68.0</td>
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</table>
Example: Results

- Almost 70% of households (~29,000) were damaged or destroyed
  - Roughly a quarter say they do not feel safe to live in their homes
- Approximately 40% (~17,000) noticed an increase in rats or mice
- 38.8% (16,764) of households are very concerned about mosquito-borne diseases and an additional 28.5% (12,306) are somewhat concerned
- Approximately 18% of households had one or more persons injured
  - 12.8% were injured during cleanup
- 40.5% (17,502) of households reported one or more persons with an worsening of their chronic health condition (e.g., asthma, COPD)
- More than half (61.3%) of households reported one or more persons experience at least 1 behavioral health indicator of a potential acute mental health issue
ACTIVITY: What Recommendations can be made?

- Deliver risk communication messages about safe home cleanup, vectors, safe cleanup behaviors and other relevant topics
  - Employ early communication or prevention messages in the future
- Develop strategies to address community chronic health needs such as access to continued care during response/recovery
- Communicate about available mental health resources
- Respond to the concern of increase of mosquitoes and diseases
  - Potential bed net campaign for protection
- Share findings with relevant recovery partners and stakeholders to promote data-driven recovery efforts
- Conduct a follow-up CASPER (determine if needs met and/or changed)
Report Writing Considerations

- Presenting the data is a key part of any CASPER
  - Will help better understand the needs/health status of the community

- Preliminary findings should be shared within 36 hours of data collection
  - Can be through slide presentation

- Questions to consider
  - Who will draft the written report?
  - How will you report the data?
  - What are your deadlines?
  - Who is your audience?
  - What action will be taken? Who should implement?
Who will draft the written report?

- Individual who drafts the report should be involved in all aspects of the CASPER
  - Including preparation phase so understands key objectives
- Can begin to draft the report early
  - Background and methods are known prior to fieldwork
  - Table shells can be created to save time
    - During analysis only need to “plug in” numbers
How will you report the data? What are your deadlines?

**Preliminary Presentation**
- Conducted within 36 hours of data collection
- Include select preliminary key data
- Presented to stakeholders for immediate action

**Final Report**
- Full report structure and include all data tables
- More accurate and detailed; time for data cleaning
- Widely distributed, potentially via publication
Who is your audience? How will you present your data?

- **Potential audiences**
  - Emergency managers
  - Epidemiologists
  - Politicians
  - Media

- **Data presentation**
  - Simple, easy-to-read format
  - Tables or graphically

- **Link to original objectives**
What action will be taken based up on the results? Who should implement them?

- Stakeholders that will play a key role in implementing any recommendations based on CASPER data should be involved beginning in the preparedness phase.
- During the preliminary report presentation, encourage conversation on how best to implement action.
  - Assign roles, when possible, for actionable items.
CASPER Review

- Quick, inexpensive, and flexible household assessment
- Valid and reliable methodology
  - Designed to provide population estimates
- May be used throughout disaster cycle or in non-emergent situations
Helpful Links & Resources

- CASPER Website [https://www.cdc.gov/nceh/CASPER](https://www.cdc.gov/nceh/CASPER)
- CASPER Training Template [https://www.cdc.gov/nceh/casper/docs/CASPER_2018_template.pptx](https://www.cdc.gov/nceh/casper/docs/CASPER_2018_template.pptx)
- CASPER YouTube video [https://youtu.be/bTc91V1Xexg](https://youtu.be/bTc91V1Xexg)
- Preparedness questionnaire template [https://www.cdc.gov/nceh/casper/docs/preparedness-template-P.pdf](https://www.cdc.gov/nceh/casper/docs/preparedness-template-P.pdf)
Thank You