Disaster epidemiology workshop
May 11-12, 2010

Opening session notes (*Lindsay Oweida*)

The majority of attendees are state/local health department officials and CDC representatives. One member of the audience was with the Department of Homeland Security.

Much of plenary information can be found in the slides:

> Michael Heumann slides (welcome/overview)
> Tom Sinks slides (charge to group)
> Josephine Malilay slides (history of disaster epi)
> Corinne Peek-Asa slides (role of disaster epi research)
> Amy Wolkin slides (disaster epi in the literature)

To effect policy change, we need studies that are useful to the government, include measurable effects, and propose relatively simple solutions.

Article gaps:
- Evaluate overall response or tools/methodologies used to study the effects of disasters
- Compare response efforts for various disasters

Opening session notes (*Erin Simms*)

Sinks-
   I.   What is disaster epi?
   a) It's almost like outbreak epidemiology; not many differences. Demand and timeliness are very important.
   II. Post Disaster
   b) Rapid needs assessment - rapid cross sectional overview
   c) Health surveillance – biggest opportunity and biggest roadblock. Supervisors and legislators want to know the burden of health. Time to think about surveillance is before the event happens.
   d) Risk factor studies –identify determinants of adverse health. Need to provide answers to the people uyou report to and the public.
   e) Registries – track long term health consequences
   III. Need actionable data to inform response

Malilay-
   I.   Provided definition of disaster and history
   II. After 9/11 more emphasis was placed on rapid needs assessment and studies. However little has been put into development of evaluation and efficacy.
   III. Proposed possible questions that epi's should ask
   IV. What critical mass is needed and how can we be proactive
   V.   Tasks in federal system are almost always surveillance
   VI. What are mechanisms for disengagement
   VII. Future Issues
            a) We need to expand our paradigms

b) Look at biophysical environment and not just human health
c) Become multidisciplinary (seismology, building code, land use, etc)

Peek-Asa-
 I.   Set forth overall goal of disaster epi
 II.   Need to do a better job at deciding what questions need to be answered
 III.   We have not done a good job of learning lessons from other countries
 IV.   Need to integrate epidemiology at all levels of disaster management cycle
 V.   Important roles of disaster epi
   a) Describe health burden
   b) Identify causal pathways
 VI.   Human health effects
   a) Need better prediction models
 VII.   Funding
   a) Academic research has been funded by partnerships with state health departments in the past

Wolkin-
 I.   Need to define rapid needs assessment as it relates to disaster epi and methodology
 II.   Surveillance – found that data collection, when conducted, were difference and not many articles reflected the public health action taken as a result of surveillance
 III.   Epi studies – majority is done by academia
 IV.   Evaluation/Efficacy – no articles highlighted tools. This is an area that the CSTE disaster epidemiology subcommittee can focus on
 V.   [See presentation for Conclusions]

Rapid Needs Breakout Session

Tuesday AM / Jennifer Horney and David Zane
(Lindsay Oweida)

2 sets of slides from presenters

Texas has a decentralized system, with regional epidemiologists. The use a standardized approach to dealing with disasters that includes mortality and shelter studies in addition to CASPER.
- In 2001 (Tropical Storm Allison) the need to build capability to perform rapid needs assessments within the agency, rather than using outside help/support, was first recognized
  - Utilized CDC trainings to build capacity
  - Well established, proven methods
  - State-level assets are now available to regional/local health departments upon request
- CASPER in TX
  - Paper questionnaire (which necessitates manual data entry and high staff resources!)
  - Keep questionnaire simple, 1 page format
  - When first implemented, handheld electronic devices were deemed insufficient and the paper system was maintained
  - TX is open to integrating new systems but doesn't know what is currently on the market or in use
- 2008 (Hurricane Ike)

- o DSHS, US PHS, CDC performed rapid needs assessments up to 12 days after the onset of the storm
- o The local health departments affected requested assessments from the TX state department of health
- o Interview teams were told to notify officials of specific homes with urgent needs (such as medication needs, severe injuries, lack of oxygen tanks, no potable water, etc)
    - ▪ How do you know these needs were acted upon?
    - ▪ For at least one home, the pharmacist charged with providing urgent medications called the field interviewer to confirm handwriting
- • Field reports
    - o 4 pages (intro, methods, results, conclusion and including public health recommendations)
        - ▪ Is this too long?
        - ▪ What should these reports include?
        - ▪ Would a half page summary containing only pertinent recommendations be better received and/or acted upon
    - o Results were shared with local officials
        - ▪ In Galveston, the local health department developed a flier based on household requests for information (as ascertained by CASPER field interviewers)
            - • Included garbage pick-up times and how to maintain sanitary conditions until regular pick-ups were restored
            - • Answered most common needs of local population
            - • This flier was shared in addition to electronic safety messages

CASPER resources can provide survey development assistance and trained personnel to perform interviews. They also provide a standardized sampling methodology, personal interviews, data entry, and analysis capabilities. Building on the systems and methods in place in FL and NC, TX has developed an organizational chart, job action sheets, codes of conduct, and go-kits (which include technological resources needed for carrying out CASPER such as: laptops, printers, cameras, GPS devices, etc). TX also maintains a website to share information with local partners and other interested parties; this website is public information.

Next steps for Texas include refining procedures, incorporating GRASP/ATSDR mapping tools, team member pre-identification (want to be able to deploy two teams at once, or approximately 50-60 trained individuals), developing and facilitating training opportunities for regional/local health departments, conducting exercises, building partnerships, promoting awareness of CASPER among local health departments (as a tool that can be used for disaster response), development of a standardized request form for state CASPER resources, development of standardized reporting to DHHS.

In North Carolina, CASPER has been used both in emergent and non-emergent situations (used both in after-hurricane assessment and response and local health department tasks such as pregnant women surveys). See slides.

General comments and questions included:
- • What is the actual definition of CASPER? NC seems to use cluster sampling methodology to define CASPER, but what is there in addition to the methodology that makes this process/technique/tool useful?

- How useful is CASPER in highly urban settings with established community data sources (for example, NYC)
- What other tools are available for the same kinds of assessments; is the work being duplicated?
  - Family assistance centers
  - Other state data sources
  - FEMA, ARC, etc
- Where is CASPER most useful?
  - Provides approach to gathering information using a mobile infrastructure
  - Gathering information anywhere/anytime if no other infrastructure exists
  - Relatively accurate/representative results based on sampling methods
- What do you do with the info you get from CASPER? Can you help everyone? How? (for example, including mental health questions)
- CASPER info is not useful for registries; must be redone to assess post-disaster follow-up
  - Duplication of effort?
  - Should this be collected with CASPER?
  - Are there privacy issues with this data?
- Health education information should be included
  - Example: what do you (disaster victim) need? Here is a number/website to contact/receive aid
  - Not only responsible for identifying immediate needs but also provide initial info on resources
    - Requires research/knowledge/planning

(Mary Anne Duncan)

David Zane presentation
- Use paper questionnaire, keep it simple (1 pg format)
- Didn't use electronic tools because
  - Visibility of screens in the field was a problem with hand held devices
- Resource intensive – requires manual data entry
  - Interviews; teams trained to
    - Distribute health information
    - Report urgent medical conditions/needs
- Reports were 4 pgs long
  - May be too long
  - Can/should it just include results and recommendations (without background)?
- In Galveston, urgent needs included prescriptions, food, shelter, home repair, medical care (e.g. chemo, premature labor, injured leg/back)
  - Households told interviewers that they wanted to know about debris and garbage collection which led to a one page flier that included info on pertinent recommendations and information
    - 6000 distributed within a week
    - Included info for call center
- Google TX DSHS CASPER to find their website; should contain a lot of relevant information
- Will have held 11 regional trainings at local health departments by August; 82 people trained; APHT in July (exercise maybe?)

- Educate locals that CASPER is available in their toolkit. Promoting it as an epi tool for disaster response is a priority.
  - State HD has pre-filled 213 request form for local health department to request CASPER (makes it easy to request post-disaster)
- Is CASPER a tool or concept?
  - Sampling methods of determining who you want to interview with what questionnaire – tool – putting people on streets
  - Epi capability that can be used in a disaster
- Disconnect in thinking about
  - Local health department nurses (who may be ready to do actions) and
  - Higher-ups (who think nurses won't be free to help and will have other pressing duties)
- Cannot form a registry
  - Data is community level
  - Referral forms have identifiers
- Manpower is an issue
  - Locals may not be able to get enough people to follow the cluster sampling methodology
- CDC toolkit contains a questionnaire bank
  - Can also contain open-ended questions regarding 'greatest immediate need'

Jennifer Horney presentation
- Up to 2004, NC led nation in disasters (then was surpassed by TX)
- Added emotional stress questions after Katrina
- Use CASPER's for community health assessments that all counties have to do every 4 years
- Use for research
  - H1N1, evacuation intention pre-hurricane, disaster supply kits, reproductive health needs (adapt to find women they are interested in – ask about infant care, diapers, premature labor associated with hurricane)
- NC block groups (rural – not enough people to use blocks like CDC does)
- 2 interviewers per team (10 teams); similar to Texas
- Sampling
  - 30 sampling units; probability proportionate to population
    - Select block groups
    - 7 random survey spots within each group
- Send teams out where most efficient
  - May assign clusters in close proximity to the same team
  - Give maps/directions
  - Interview at first house, or nearest house on the right if not home or refused
- NC uses ArcGIS (fast and user friendly)
  - Handheld devices, top of the line (appx $600) with camera, wifi, batteries that last a long time
- 210 surveys will give an idea of the whole area
- Isabel
  - Damaged/uninhabitable houses estimate result very close to FEMA claims later
  - Took 72 hours from deployment to submission of report
  - Previous CASPERS have been done within 48 hours
- Changes for Wilma

- o More and better information and referrals
- o Tracking interviews and sampling – keeps track of doing the interviews and where
    - ▪ Number done
    - ▪ Number not home
    - ▪ Refusals
    - ▪ Language barrier
    - ▪ Track response rate, may be able to estimate who is missing
- o Communications – cell phones and radios
- During the Iowa floods
    - o Most people not staying in their houses; coming back during the day to fix/clean but sleeping elsewhere
    - o If everyone is in shelters, there is a CDC form for shelters
    - o Find out what changed after the RNA
        - ▪ Local HD may be resistant because they don't have the resources to deal with findings
        - ▪ Interviewees may expect help
        - ▪ Similar issues to screening
            - • What are you going to do when you find issues?
            - • Decision makers already know power outages and trees down – need to communicate that having more detailed info from CASPER can enhance understanding
- Teams require resources – it may be better request aid from outside of the state (for example, FL requesting aid from NC) since locals are overwhelmed
- A lot of asked questions were not ESF-8 issues (may have PH implications, but not dealt with by ESF-8). Are these results given to the other ESF-8's?
    - o In TX data is sent to local health departments who disseminate to emergency management
    - o In NC, results given to EOC
- Survey should operate within ICS structure, people who need information should get it
- In NYC, there is access to other data that is much faster than CASPER
    - o 311 call line
    - o Family assistance center run by emergency managers
    - o Could include mental health care, prescriptions, housing, food, shelter
    - o To NYC, CASPER is very 2001-ish
    - o Can get similar data easier in urban setting with other tools
    - o Go to emergency management folks to see if family assistance plans exist, find out what other data is available, see where CASPER might be most useful; if infrastructure intact, this may not be needed
        - ▪ May work well for places where infrastructure is not intact (example: no phone survey capability if phone lines are down)
- Make sure that other efforts are not duplicated (example: ARC has similar questions)
    - o ICS should know if similar assessments are being done
- CASPER: door to door survey methodology
    - o Usually 30x7 sampling, but can be different or changed as needed
- CASPER has been used for H1N1, in NC
    - o Figure out how to best spend education $'s
    - o Most people got info from TV not internet

- Planned accordingly

ATSDR has a program to assist states after large scale spills – combination of rapid needs assessment, exposure assessment, risk factor studies, and registries

CASPER must be thought of in advance
- How can we collect the info
- May be able to use other sources of info
- Work on communication ahead of time
- Decide what the optimal time period is
- Can do multiple CASPERS over time and change questions as needed
- Prepare with ICS incident commanders
- Can look at specific vulnerable populations
  - Example: pregnant women in NC
    - To identify post-partum depression in pregnant women, a CASPER found 4-5% of households with pregnant women. These women were queried about other pregnant women in the community (neighbors, etc)
    - Because pregnant women make up 1% of the population, using strictly CASPER methodology didn't result in large enough numbers for analysis
    - Asking the follow up question about additional known post-partum women allowed NC to identify enough pregnant women in the community to conduct the analysis

(Michael Heumann)

CASPER: Community Assessment for Public Health Emergency Response.
How do you gather information quickly in an emergency, when other means or sources are not available? CASPER is a system or concept for conducting population-based surveys, at the household level, that are conducted shortly after an emergency incident. The primary purpose is to identify immediate needs among impacted communities. The information can provide situational awareness and improved actionable information for Incident Commanders and local health officials.

CASPER is a science-based system that uses a two-stage cluster sampling design, with a random start in the second stage. The first stage selects 30 census blocks or Census block groups in the area affected by the disaster. Probability of selection is based on proportionate population size. In the second stage, seven homes are randomly selected within each of the 30 Census areas.

CASPER disaster response surveys typically use about 23 questions. The surveys can be completed using paper forms or electronic data entry systems. The surveys are kept short in order to gather key information quickly, allow for rapid data entry, analysis, and report completion.

CASPER interview teams include 27 people, in teams of three people per team. Teams are usually able to complete 10 household interviews each within two days. In addition to conducting interviews, the interview teams also disseminate key health education messages relevant to the incident, and provide eyes and ears on the ground to observe and report any other urgent issues that may need to be addressed.

CASPER can also be used to conduct routine community assessments and special surveillance at the community level.

Texas typically produces a four-page report that contains an introduction, methods section, results and conclusions. The conclusions summarize major findings and provide a list of public health recommendations. Urgent needs identified may include descriptions about urgent needs for medical care, prescription medications, food, shelter or home repairs.

CASPER Surveys usually planned and initiated at the request of local health departments or Incident Command Teams that seek rapid information about community needs. The surveys may be conducted by trained staff at the state health department level, by trained staff from another state, or by teams of trained personnel dispatched from CDC/NCEH. CASPER can be either a state-level or CDC-level asset. The resource to local health departments (or Incident Commanders) includes survey development, sampling methodology, survey interviewers, and personnel to conduct data entry, data analysis, and develop the report.

Texas developed special Go Kits for survey teams that include portable computers, geo-spatial positioning system (GPS) devices, and other items to support the field personnel. For more information about the Go Kits, go to the Texas DSHS CASPER website for specific information (Add website address). The Texas program described the following objectives to improve their program: refine procedures, develop and incorporate GIS mapping tool, pre-identify more people to be trained as functional team members, train staff in the regions and counties of the State, conduct exercises that include CASPER surveys, promote awareness at the local level of the CASPER system and the value doing the surveys rapidly during an emergency, and build new partnerships in the state.

CDC/NCEH, Texas and North Carolina each have tool kits describing their systems. (Add the specific website address for each.)

North Carolina (NC) also uses CASPER methodology for rapid community health assessments. They recently completed a CASPER implementation prior to the availability of seasonal and H1N1 flue vaccine. The CASPER was done to assess knowledge, attitudes and behaviors around readiness and intention of getting a flu shot. They also intend to use the system before the next hurricane season to determine whether people plan to evacuate the area in case of a hurricane. NC has done more than 12 CASPER disaster deployments since 2003. These include in-state assessments and work done in other states.

Other Data Sources on Community Needs. The representative from the New York City (NYC) health authority stated that his jurisdiction has a 311 call system in place that provides public health personnel with rapid information and data about urgent needs among NYC residents. They also have Family Needs Centers that gather information on the public health and other needs of NYC residents.

Related issues.
   1. Requests to conduct a CASPER survey should be run through the Incident   Command in the Emergency Operations Center (EOC). It is important that such requests come through appropriate channels, as this will assure that the need for the information is clearly documented and the results will be expected and used. Initiation for conducting the survey could come from local public health officials or from the Incident Commander in the EOC.

2. Timing is of critical importance in conducting a CASPER Survey. If initial situational awareness is needed, then try to get the request for the survey initiated as soon as practical,
3. What is the purpose of the survey: What questions need to be answered? Each incident and emergency is different and it is important to clearly identify what needs are being assessed.
4. To whom will the information be shared? This could be local health officials or incident command at either the local or state level.

Tuesday PM/ Jennifer Horney and David Zane
(Michelle Podgornik)

A. Texas – David Zane

CASPER methods
- Two-stage cluster sampling (30x7)
- Random start in the second stage
- 27 trained employees capable of filling 10 interview teams
- Standard, paper questionnaire contains about 23 questions
- GIS and Epi Info tools are used
- Door-to-door distribution of health materials

Example: Hurricane Ike (2008)
- Assessment performed in three cities (Liberty, Manvel, and Galveston) two weeks after landfall
- 1,000 homes visited; 500 people interviewed
- Top five urgent needs were prescriptions, food, shelter, home repair, and medical care
- Shared results with local officials; results were used to assist in response (esp. in Galveston)
- Teams were well received by the public
- Trying to build capacity in order to assist local health departments

CASPER resources
- Developed website that contains additional information (e.g. organizational chart, job action sheets, CASPER go-kits)
- Evaluation/impact of CASPER also on website in order to document use of data

Next steps
- Refine procedures
- Incorporate GRASP/ATSDR mapping tool
- Pre-identify team members
- Train regions and local health departments
- Conduct exercises
- Promote CASPER awareness
- Build partnerships

B. North Carolina – Jennifer Horney

Developed website containing CASPER standard operating procedures
Regional epidemiologists and the University of North Carolina (UNC) provide staffing for CASPERs
- Team up students with a seasoned epidemiologist; students know the latest technology (e.g. PDAs) and epidemiologists know the community and how to talk to people

Of all of the states in the country, North Carolina had the most disasters from 1980 – 2004; most experience is with hurricanes and floods; 12+ deployments since 2003

CASPER methods

- Two-stage cluster sampling (30/7)
- In the first stage, identify 30 census tracts or block groups
- ArcGIS toolkit used to identify 7 random interview locations in the second stage
- 10 trained interview teams
- Standard questionnaire; questions on emotional stress and anxiety added in 2005
- Would like to add reproductive health needs questions
- Use Trimble Recons for data collection, although UNC uses Magellan Mappers, which cost less, use regular batteries, have digital cameras, and have the ability to transmit data wirelessly
- Use ArcPAD software in the field and upload data into an Epi Info database for management and analysis purposes
- Stratify populations by, e.g., those in the most flood-prone areas and then perform two-stage sampling for each population/area in order to ensure most severely affected populations are surveyed

Every community in North Carolina is required to do a CASPER at least every four years

Examples of CASPER deployments

- Assisted Iowa in 2008 with CASPER implementation during floods
- Performed CASPERs in Hendry and Broward Counties in Florida following Hurricane Wilma (2005)
- Using CASPER for H1N1 Rapid Survey in order to determine intent to receive vaccination; intent positively correlated with already having received a seasonal flu vaccination
- Teams can't go where there is a State Department or CDC travel advisory

CASPER improvements identified

- Provide educational and informational materials to interviewees (e.g. where can people go to obtain assistance with identified needs)
- Liaison with state and local health departments for referrals
- Track number of interviews completed daily
- Identify and use communications that work in the area in which the CASPER is being performed

Spatial Health Assessment and Research Program (SHARP)

- Assists state and local public health with data collection and spatial analysis
- Provides technical assistance with using GIS equipment and conducting community health assessments

Evaluation study between UNC and North Carolina Department of Health

- Asking teams who have performed a CASPER how they have used the data
- Looking at Iowa floods CASPER

Analysis of cluster surveys

- Have at least an epidemiologist, a biostatistician, a GIS person, and a data analyst on the analysis team
- Code available on Emory website; can import into Excel, Epi Info, etc.

C. Discussion questions

Under what situations can you conduct a CASPER?
- Many different ones, including non-disaster situations (H1N1 Rapid Survey reiterated)

Push back from local officials? Anyone who misinterpreted reasons why CASPER is being done?
- No on both
- In order to prevent pushback, provide sufficient training to teams on why CASPER is being performed so that they can answer questions
- Also, provide feedback/results to local officials

How have data been used to guide response?
- North Carolina is just starting to look at this
- Texas has developed an inventory of journal articles that talk about what has been done with CASPER results

What training is performed? How often?
- Just-in-time training the day before the survey regarding questionnaire, interview techniques, medical mitigation information (e.g. exposure prevention)
- Videotape team debriefs for use in future trainings

How often are results communicated outside of ICS structure?
- As often as possible, but varies by situation
- Texas is trying to publish data/information via journal articles

(Christopher Capelli)

See David Zane slides
- Uses paper questionnaire, EpiInfo, and ArcGIS
- Top 5 urgent needs reported
  - Prescriptions, food, shelter, home repair, medical care
- Talked about next steps at state level

3 committees in NC; practice oriented capabilities; lots of CASPER in NC
- Have a website w/CASPER standard operating procedures
- Use just-in-time training on CASPER when needed

NC has most disasters
- CASPER is an objective way to collect info; generally used for disaster epidemiology but you can collect info on anything you want
- NC uses it for regular community health as well
- Flexible 2 stage cluster sampling using block groups; talked through use of ArcGIS
- Meant to be quick; not opportunity to ask extensive/other info
- How fast can you get analysis data?
  - Very fast
  - CDC has EpiInfo that if you use their questions you can just dump data in
- Can CASPER take into account rural/urban differences if samples are selected by population?

- - Yes, you can stratify it by your needs; the strength is that you can use different sampling methods
  - Look at situation and see what is available
- What about displaced population?
  - This methodology only deals with people still in the communities; won't work if no one is left
- Not a health education campaign, but people need something
  - For example, provide 800 number so you can get a tarp (or other supplies)
- What handheld units do you use?
  - State and regional use tremble recars
  - NC school uses maglin mappers
  - New ones have digital cameras, wifi, AA batteries and cost less than older models
  - Can do a lot with new technologies
- Are there problems with schools wanting to put students into disaster situations?
  - Not really, can sign a liability waiver
- Is there and issue with state v. local capacity to do CASPER
  - In TX they increase own agencies capacity and work with local capacity to educate
- Using CASPER in non-disaster situations is effective
  - Can be specific to county issues
- Any experience with push-back from elected official with differences between your assessment and what do you need now questions? Is there anybody who misunderstands purpose of what you do?
  - Train teams appropriately
  - Let people know what you are doing
  - Let team know what it is responsible for and what it is not
  - Don't ask questions that do not have available resources for response
- How has the data been used to guide response?
  - People have done a good job, but fallen short of seeing real policy changes
  - Literature review of CASPER is needed
  - Even if assessment doesn't indicate any immediate needs; it is reassuring to say you have none
- Experience with training
  - Just in time training is 4 hours
    - Objectives
    - Command structure
    - Areas
    - Safety
  - Role playing is very important and interviewers need to be comfortable with questions
  - Useful to video-tape team debriefs in order to train future people
- For disasters across state boundaries do you perform CASPER?
  - Have done cross-border surveillance but not specifically CASPER
  - Local police need to be informed
- What about IRB and informed consent?
  - Put it through regular IRB
  - Usually exempt because no personal identifiers are collected
- How have you requested additional resources to do assessments?
  - Different avenues depending on what you are asking for

- Brief discussion of some data analysis and formulas available on Emory's website
- What do people really do with CASPER results
  - Currently doing an evaluation
  - Talking to people in NC who have used it
  - Health impact model – looks at policy changes
  - Looking at if people have changed how they do things because of CASPER
  - People always ask what good did it do; need to follow up and see what happened
- Information provided to local HDs, published, presented at conferences; just trying to publicize it

Wednesday AM/Jennifer Horney
(Karen Levin)

I.   Eric Brenner's presentation on Cluster Sampling: Jean Horney, NC presented
   ☐ Cited NC experience with CASPER in disaster and non-disaster environments
   - other public health issues such as H1N1 --exploring population intention to take vaccine, s
   - smokers& uninsured, and other epidemiology questions
   - produces good population data that can be generalized
   - RNA can be "topic specific", i.e., mortality post 2003 invasion - Iraq war

   ☐ Epi steps post initial RNA; repeat 7-10 days and again in 3 weeks to assess what has changed
   ☐ Tool Kit (NC & Texas include Job Action Sheets (ICS)," How to request assistance", "How to do a CASPER", ARC GIS
   ☐ Explanation and discussion of Origins of and how to use 'Cluster Sampling' 30X7
      - Efficient in disasters; a 'gold standard'
      - 'Cluster Sampling' and sampling schemes, and example of convenience sample
      - Not random but is PPS (Probability proportion to size of population)
      - Cluster S good if you do not have a list of every household

II.   Texas experience, David Zane
            1. Description of Texas experience

III. Rapid Needs Assessment - North Carolina
   ☐ Description of NC Disaster Epi Workgroup
      - Meets 2 x yr
      - CAPER, Surveillance & Environmental health
   ☐ Uses of CASPER in non disaster & disaster
      - Community health assessments
      - Answer research questions: pregnant women vulnerability and understand if they have special needs, also pre disaster, are people ready? H1N1 vaccine "potential vaccine uptake/population
   ☐ CASPER in the Field
      ▪ Site selection tool kit
      ▪ Team make up
         - 10 teams – 3 clusters each

- Hand held PDA; tablets (enter data and send to server)
- Keep interview short
☐ SMART- Standardized Monitoring and Assessment of Relief and Transitions as an example of RNA tools & methodology

QUESTIONS:
Q1:   What about IRBs?
A: CASPER used as needs assessment – not a research question. We did apply through our NC Univ IRB, we have always been exempt- if question are more 'personal' then you need an IRB
** New Hampshire stated their West Nile survey required an IRB
(Jen) We use 'oral consent' – "Will you participate, Yes, No" or as alternative prepare a "written – 'I received oral consent', and the interviewer signs.'"
(Texas) Always check with the person in charge of area

Q2:   (re: Map) Can you map out areas that have the largest damage?
A2: (Jen) Yes. By Latitude/ Longitude [not mapped to address], this provides specific areas of need to report to LHD. This is information only from sampling frame
    ** Note CASPER can be Disaster-dependant, i.e., A tornado with a delineated path vs hurricane & floods which will be more wide-spread
Q3:   How quick can you get into the field post disaster?
A3: 7 days
Q4:   What if people are not there (at home?)
A4:   Try shelter. You cannot do community-based surveys if people are not there. You then have to do 'Shelter-based' surveys. Note—there are times that people will return to their homes at specific times of the day to check on their property.
This brings up the need for a 'tracking sheet' which tells you why people may not be home – damaged & cannot live in the home, pit bulls in the yard etc. If this is the case—just move to the next house on your right
  - Need to train interviewers about alternatives (if household is a business such as Hair salons, nursing homes)
  - Need different languages – check the area culture – and send appropriate team members
Q5: Can you change to a specific target?
A5: Yes. A Stratified CASPER can do the assessment (not perfect but good enough) You can stratify census block by flood zone so that you can sample both. You can stratify by 'households with low to middle income'
Discussion: Consider your questions:
  - What is the benefit? What is the need to interview? Is this theoretical or Public Health need?
  - You and study are the eyes and ears for state officials
  ■ Discussion: Unintended outcomes – experiences in the field, i.e., Information learned during interviews
(a lot of discussion about this topic continued throughout the morning sessions)
        o   Secondary needs taken to state and used in public service messaging
            ■   CO2 poisoning

> > o Strong advocacy that there should be public health response in the filed by interviewers
> >
> > --- "Why are you doing studies and learning needs if you are not providing "dynamic immediate public health action" as it is now you have only subsequent intervention and that can take weeks

> A5: (cont'd) Discussion of high rise issues r/t generators:
> Try to prepare and anticipate issues, and carry public health messaging and fact sheets, educational materials and referrals. <u>USE a liaison from the community to assist.</u>

> <u>KEY Findings:</u>
> - Assist in developing relevant public health messages (i.e., Water safety, mental health issues.)Surveys can be used as base-lines and a 'heads up' for a need for services
> - Do you have resources for the issues you may encounter?
> - (from H1N1 survey) People did not get information from the Internet. Therefore the Health Depts strategy for using the Internet did not reach the intended audience

> POINTS from Discussions on use of CASPER
> - Telephone surveys are not so useful anymore
> - Need to develop 'outcomes-based' of why use CASPER
> - Evaluate how information from CASPER has been utilized (particularly if policy change)
> - Link data across states & jurisdictions
> - Integrate into ESF 8 and ICS
>   - --- use 'strike team' concept
> - Consideration [impact]of team members being away from the office
> - Use the American Samoa experience (not prior use of CASPER, limited resource)
>   - --- helped develop EPI capacity and prompted awareness and interest in EPI & Mental Health – increased 'team' building
>   - --- helped in non disaster issues /public health concerns
>   - --- increased cooperation with LHD
>   - ---provided meaningful & useful data to Governor who used data to make decisions post disaster

> RECOMMENDATIONS for CSTE:
> - Create a 2 pager document about CASPER, highlighting the benefit of making it a process for usual public health activities
> - Make CASPER friendly and better known for what is can do, how flexible& multi-purpose
> - (NC received a grant for 17 counties to use PDA hand held and began using this method at the local level)
> - What can CSTE do to advocate use of CASPER?

(Erin Simms)

I. CASPER can be useful for multiple types of studies, not only during disasters

    a. Population based, generalizable data

II. CDC developed a toolkit and has other resources available online. UNICEF has a toolkit. Univ. of NC has a SHARD toolkit for GIS tools

III. 30x7 survey design will give you an estimate of your population – who has a need within +or – 10%

IV. Related interviews are an important source of information sharing in the community

V. It was recommended that CASPER is an important tool but are there suggestions or guidelines that can be given to states in order to estimate needs in a community for any given disaster (ie-how many oxygen tanks to provide, tarps, prescriptions, etc.)

    a. Before this can happen, data sources need to be identified and community vulnerability registries may provide this function.

VI. Recommendations

    a. If this is a tool that is agreed upon, CSTE should make a recommendation to states

       i. Make the process accessible to states and make sure states can train in a non emergency situation

    b. How are data utilized after CASPER is done? Are there recommendations on translating data or evaluation of these assessments?

       i. Linking across other datasets (FEMA, red cross) would also be an asset

    c. Outcome – better communication among health department employees (breaking down silos), with federal agencies and other stakeholders, and capacity building.

    d. The intervention component is not that evident, therefore evaluation of the assessment and associated interventions effectiveness are important

    e. Important questions to answer – how do we define or understand the role of the assessment team? How do we communicate results to intervention folks and close the gap?

Surveillance Breakout Session Notes

Tuesday AM/Doug Thoroughman and Jennifer MacFarquhar
(Erin Simms)

I. Why conduct surveillance

    a) General surveillance shows you what is not in the shelters

    b) Within shelters – you can identify outbreaks and allows for better organization for people with chronic health needs (intake triage). Size matters. Enables you to assess magnitude of the disaster and define the population.

    c) Who uses shelters? Should it be surprising what the needs are?

       i. Depends on the event – in the event of an ice storm, many people need assistance, but in the event of a hurricane, it may only be the poor and vulnerable population

    d) All agreed that surveillance is needed during disasters

    e) Objectives of surveillance:

       i. Impact of disasters

       ii. Pick up other populations

       iii. Immunization needs

       iv. Characterize population/ identify special needs

       v. Detect illness and injury and identify trends (rates and prevalence over time)

       vi. Documentation/ reporting/ funding

   vii. Focus on morbidity but mortality is important too (linking gap between medical examiner and health department)

   viii. Health exposure (short term)– development of registries (long term)

f) Are there disaster-related thresholds (severity, scope, scale, etc) for implementing surveillance?

   i. Not based on # of people affected b/c you should do surveillance regardless of the # of people affected

   ii. Type of disaster is important

   iii. Timing matters (immediate vs imminent)

   iv. Should be an evidence-based algorithm

   v. Severity of illness in region and regional differences should be considered

g) It would be great if states could compare their thresholds/plans for events with one another and see how they compare.

h) Disaster surveillance methods:

   i. Consider plume modeling (like done for rad events)

   ii. Syndromic surveillance

   iii. Active surveillance

   iv. Rapid needs assessment forms: a standardized form should be created and CSTE should recommend which forms to use and how to use them. This may lead to comparability across states

i) Sharing data across states:

   i. Participants like CDC's model of communication and data sharing during H1N1. CDC provided 2 ways of reporting and states could choose from these 2 options

   ii. There is a difference between data sharing and information sharing

   iii. It is more difficult to determine causality and risk factors when analyzing aggregate data

j) Disaster registries

   i. It would be nice to follow up with people in registries and assess long term effects

   ii. It should be identified or suggested in what situations are registries useful and then include this in shelter plans or functional needs plan (or within overall preparedness plans)

   iii. Don't do a registry if you do nothing with the data

   iv. It would be helpful to identify the number of people needed in order for a registry to be useful

   v. Needs to be set up quickly

   vi. It would be useful to define events for when registries are useful

   vii. One thing that we currently lack is surveillance of mental health issues and long term impacts on mental health

   viii. Need to define the purpose of a registry

   ix. What are the resources needed to respond to information from the registry?

k) Disaster Surveillance Coordination

   i. CSTE should recommend that states use a standardized form that can also be manipulated for individual states needs

   ii. What is overlap is overlap from what organizations like Red Cross does and what states do? How do you get information from community and faith based organizations?

        iii.   Identify a way to share data across agencies (not just states). Need to create communication pathways

(Christopher Capelli)

Introduction to disaster surveillance
- Why is it conducted?
- What is your experience?
  - LA: shelter surveillance north of NOLA (surveillance systems in place used for other hurricanes, but Katrina overwhelmed)
- Why do shelter surveillance at all?
  - This has come up recently, should we do it?
  - NO shelter surveillance not only to look for outbreaks but also just to organize shelters
    - Shelters used for intake surveillance; where to put people with certain needs?
    - Looked beyond the normal surveillance measures; used to help triage
  - Houston after Katrina
    - 1st priority (2 weeks) focus was population centers (large shelters)
    - Last week went to small shelters and learned what they did differently
    - Used as an opportunity to education
    - Identified whole population of evacuees that never made it onto lists
      - Came at a time when they were going to shut down services – was important to set-up services for this underserved population
- Do we really know who uses shelters?
  - Should it be a surprise people using them have other needs?
  - Depends on event – some are just people with high needs; some for everybody
- Depends on what you are looking for
  - In LA it depends on what you expect for that population
- Depends on what you want, where you are located, and disaster situation
- Are there better ways to do surveillance?
  - We have it all year anyways, how big is this disaster and what is the impact
  - Need to define the populations and disease entities of interest
- Consensus: should be conducting surveillance
- Chief complain in NH was people weren't going to shelters and a lot of people got CO poisoning; we can also use surveillance to see what isn't being done correctly

What are the main objectives?
- Detecting illness/injury, special needs, chronic conditions, immunization status (this status can change during a disaster)
- Post disaster we tend to make recommendations and then back off from them (example: hep A was distributed but no one got the second dose)
- If talking about hazmat disasters also need to look at exposure
- also want to identify trends/rates/prevalence of disease over time
  - how do we prevent/treat?
- Without some of this, ability to be reimbursed by government won't happen
  - Need surveillance data and documentation to show what we did
- Mortality is also important
  - Big gap here; once they are dead, are they less important?

- Katrina ordered 25k body bags but only needed 1000 (over-estimation of need)

Thresholds
- What kind?
    - Severity, scope, how do we identify these? Do they exist?
    - In KY, shelters exist all over the place, but some may serve as few as 3 people
    - Should these be state/local/national based standards
- Should do surveillance no matter what
- Context before the disaster – did it happen during H1N1?
    - This is important to identify novel needs
- If you don't get a call from an affected area within 24 hours, you need to go to that area regardless of request/threshold (all phones, including satellite, are probably down)
- In LA, if a hurricane is predicted to strike, start enhanced surveillance 24 hours prior to estimated time of landfall
- Look back at all previous disasters to develop an evidence-based algorithm
- Surveillance teams will be different in different areas with different disasters
- Also include a measure of how widespread the disaster is
- It would be nice if states with similar disasters could compare (all do things differently and would like to be able to compare results)

Disaster surveillance methods
- What would you do in a disaster setting?
    - Active surveillance
    - Syndromic surveillance
- Population under a plume – use mapping to get a sense of magnitude of situation
- Environmental health is doing syndromic surveillance in ED's for oil spill
- Some states start with passive/regular system
- When is active surveillance necessary
    - Lack of communications
    - Situation dependent
- All of this requires standardized forms, especially to compare data (CSTE should recommend using a form to standardize things because CDC cannot)
- People feel sharing data has to happen in order for things to be effective
- Some states careful about what they send to CDC because CDC has released it to people the state wouldn't
    - The lawyer got a lot from CDC because of freedom of information (i.e. restaurant histories)

Registries
- Not currently done, but there is a need
- Nice to have a registry to follow-up with later
- Always questions of long term effects; registries are useful to collect this
- Recommend guidelines to establish when registries should be used
- Thresholds for going to shelters and doing registries
- Not limiting to shelters – keep registries of all who would be affected
- Why would you do a registry if you were never going to do a study about it?
    - Registries depend on event

- o   Is it hazmat or disease? Hazmat probably needs a registry.
- Can be useful but need to be set up quickly
- People don't trust the government – won't give you more information than you need to know
  - o   In a registry, what info are you collecting?
  - o   Need to establish use of registry before you do it if you want to use it

Surveillance Coordination
- No surveillance standards
- CSTE can recommend a standard from that can be customized as needed
- Have discussions with national organizations such as ARC to determine overlap
- Have more organization between different agencies – state reports to one group who then funnels it out to everyone else
  - o   Possibly create a database that all data goes into

Tuesday PM/Janet Hamilton and Rebecca Noe

(Amy Schnall)

Winter Olympics in Utah, had syndromic surveillance set up in hospitals
- Sentinel smart person integrating with people (i.e. pharmacist)
- Those who integrated with public, recruited chain pharmacies with centralized system
- Looked for otc related to respiratory, diarrheal, rash, etc
- End of day report
- Trained to see/notice clusters
- Very successful system, quick ability to respond

Florida has used national data retail system and didn't find too successful so had dropped (why is this different from UT experience?) - Not useful for day-to-day activities but maybe for a disaster

What are main objectives when setting up surveillance during a disaster?
- Try to go through process but sometimes size gets in the way of logistics
- Scale of event affects what we can implement
- Objective-driven (i.e. CA wildfires) could focus, form-based, looking for certain indicators in specific hospitals
- Part of problem is that hospitals are extra busy during event

Thresholds?
- Yes, some exit
- Sometimes driven by political reasons, sometimes by PH reasons, sometimes both
- Hard to put real numbers on things
- Sometimes incident causes (lack of communication may be a threshold in and of itself)
- Electronically managing hospital beds – what facility is open, what's going on, etc. tap into EM system
  - o   OR has many online and reporting during event
  - o   Concern is frequent disconnect between those in charge and those interested, need to bring people together
- Threshold -> activate at any time

- Create models at state level to coordinate and bring together
- National model for efficient application of NIMS, etc.
    - Need better system to integrate PH
    - Create model, best practices, etc
- As doesn't have capability for epi so when in disaster highly rely on federal assistance; need more organization at local level all the way up to federal govt.
    - Build capacity at local and territorial/state level
- Specific model vs. all hazard model
    - Move away from scenario based to capacity based (mortality situation, etc)
    - Narrow down what need for specific event and don't' get distracted

Methods
- What is in existence and working first; start with ERs (who's coming in, how can we respond)
- FL only uses syndromic when can get electronically
    - Part of methods is knowing when can and can't use
- VT uses EARS; can't see a lot of utility in system; typically it's a savvy physician in ER
    - Competing systems cause problems
- Depends on how tailored you can make your syndromic surveillance system; flexibility allows to modify
    - Use for situational awareness not change in environment
- Reportable are all different in states
- Have state system and push to biosense
- Timing is sometimes an issue
- Look at syndromic system as a whole and put out why and how it is useful
- CSTE/CDC put out document about what systems can/can't do, use tools have, etc
    - Not a one size fits all system (can't be) but is a skill set need
        - Many states/locals/etc lacking even basic epi capacity
        - What's available and how to use it
- What kinds of questions has the incident command structure asked of you?
    - How many x? are my people coung to be safe?
- When think about methods, think about what is being asked fo use
    - Goes back to infrastructure and resources you have prior to event; adjust to what you have
- The more crisis emergent, the more often bring in different active
    - Decision makers want counts, usually have to use syndrome to provide count, combine with case based reporting

When do you know to close down state?
- Depends on issue… when EOC shuts down, after period of non-reporting
- When does EOC shut down?
    - Recovery phase and initial response
- Have interim group that makes assessments (don't go from all to nothing)
    - Have inbetween phase in less formal setting to ensure nothing falling between cracks

Shelter-based surveillance
- Do surveillance when you need to; if large population in shelters, then probably need to

- How to plan pre disaster
  - Emergency management in shelters
  - Acute v. long term events
  - Coordinate information
  - At least one overnight period use individual and tally if they want to; routinely make available and suggest but decision at local level
    - Depends on people… need to collect and analyze
  - Is info already being gathered by somebody else?
    - What's out there
    - What do we need
  - Important to have things ready that you can tweak
    - FL has a toolkit
  - Special needs shelters
    - KY ice storms: do surveillance? Intake form?
- Close gap between preparedness and public health

Coordination of activities
- Document what you want to know and how to increase effectiveness
- Physically put a person in the other department (NYC put person from HD in with NYPD activation or EMS activation, etc)
  - When questions, they are there so ask personally to get info
  - Infiltrate the system; be in the environment, trained to know what to do and who to call
  - Have liaison from AOC to EOC and state puts senior management at local health dept EOCs
- Educate emergency management people on epi issues
- Usefulness of national group for guidelines, recommendations?
  - CSTE subcommittee a good place to start
  - Will we say all situational?
  - Maybe including ARC and ASPR will help, but they are very independent locally

Surveillance is important; use systems in place when you can, shelter based worthwhileness still debatable, national group needed to help create base recommendations

(Michael Heumann)

Introduction, examples of surveillance. There are many examples of surveillance efforts that have been established and conducted during emergency situations as well as large scale planned events. For example, Utah conducted sentinel surveillance of pharmacy sales of over-the counter medicines dispensed for respiratory symptoms, diarrheal illnesses, and skin rashes during the 2001 Winter Olympic Games. They also asked hospitals to report increases of cases they were seeing that met the same syndromic criteria. These were part of their efforts to be able to detect any increase in these common illnesses. State public health authorities review these data and summarized them for the local health departments.

During the H1N1 outbreak, California public health officials began conducting flu surveillance by asking for reports about all hospitalized cases, as a way to track cases of significance. The numbers were overwhelming, so they switched to looking at cases of influenza cases admitted to intensive care units

(ICUs). These case numbers too became unmanageable, as the outbreak continued. So they settled on tracking reports of flu-related fatalities.

During recent wildfires, California conducted hospital-based case surveillance from selected hospitals for respiratory symptoms and injuries related to the fires. The information was received on paper form reporting.

The thresholds for conducting surveillance may change in different situations or emergencies. For some state public health agencies, surveillance may be considered any time there is an activation of the EOC. During the wildfires in California, there were political pressures that came from outside of the public health agency that initiated the surveillance effort. In Oregon, surveillance of hospital services utilization and bed capacity is routinely tracked through a close to real-time electronic reporting system called HOSCAP. Also, during the 2007 Winter Storms that struck the coastal counties in the northern part of the state, there were major power outages and routine communications were disrupted. In this instance, the state health agency dispatched epidemiologic strike teams to visit hospitals in coastal counties to conduct data reviews and collection emergency room and admission data.

Those in the session agreed that there was value in creating a model to bring together all epidemiologic disciplines to discuss developing shared criteria about when to initiate surveillance.

Approaches to surveillance. There was discussion about the utility or appropriateness of conducting syndrome (or syndromic) surveillance in general. There was agreement that it depended upon the particular emergency, and in certain cases it would be very useful. Florida reported that they tried to use the model of surveillance that was developed for hurricanes when they had the H1N1 influenza outbreak, but it did not fit for the different kind of emergency or outbreak. CDC reported that they often apply an infectious disease model of surveillance to natural disasters, when an injury model would more often be more appropriate. American Samoa reported that they had no epidemiological capacity to conduct surveillance. They need to rely on the Federal government for assistance, but that is not always timely and may not meet their needs. They see the need to build epidemiologic capacity at the Territorial and local levels. People discussed needing to be able to apply an all-hazards approach to surveillance. There was agreement for the need to develop clear objectives for surveillance systems and approaches—to be clear about what information is needed.

Surveillance methods. Syndrome Surveillance vs situational awareness.

Chief complaint reporting from hospital emergency department (ED). Some will only use if available as electronic reporting.

EARS Early Abberation Reporting System. Vermont will only use EARS data from the one tertiary care facility. They used it to track respiratory PPE use during flu pandemic.

HC Standard. Measures how stressed are the resources in hospitals

Non-syndromic surveillance. Base surveillance on the specific crisis, know what you are expecting to see and ask only for cases that match that.

Do not wait for electronic reporting. Can do counts and call to get those numbers.

Use reports to aid situational awareness.

Need a flexible system that can change to meet needs of each different incident.

Do not rely on Biosense. It is not flexible.

Georgia: EARS syndromic surveillance worked to help them see early flu cases, by counting numbers of cases at EDs for respiratory syndrome. Also measured an influx of displaced persons by looking at zip code information.

Incident detection surveillance system needs to be useful during an emergency to be able to detect new cases of whatever you are trying to detect – as an early indicator of the incident or outbreak.

Need to create a catalogue of tools available and the capabilities needed to use them (epidemiologic capacity and defined skill sets).

See article entitled, "The Wiki and the Blog" which addresses using alternative sources of information.

What kinds of questions does Incident Commander ask Epidemiology to respond to? (Larger emergency operations center (EOC) or public health agency operations center (AOC)?)

Can we anticipate them? Can we boil them down to a list of simple questions, such as number of new cases, by severity, etc? May not be that easy, and will likely depend on how knowledgeable the Incident Commander (IC) is about public health..

In most instances, IC and leadership first want to know if their assets safe (usually means first responders and related personnel).

In many places, participants felt that EOC and IC leaders do not recognize public health as an active player, and do not know what we do or how to use our resources, outside a narrow band of activities (like infectious diseases and syndromic surveillance).

Standard forms may not always work. Need flexibility here also.

When to activate surveillance? Is level of urgency the trigger to activate? If we can anticipate the incident, are we justified to begin looking now, as a way to look for early cases, or establish a baseline against which to measure potential outbreak or incident-related cases?

Often smaller hospitals are unable to report when they are suddenly overwhelmed with a large influx of cases. The influx could be infectious cases, injuries, exposures (needing decontamination), etc. How sustainable might that be over the long term?

If infectious, need case definition, case-based data with identifiers (for follow-up and potential contact tracing), otherwise it may be possible that numbers of cases alone (meeting the case definition) would be enough. If the agent is unknown or new, we may need identifiers in order to interview cases about exposure and onset time interval; or we may want to know where were the individuals when they were exposed; were there others who were also exposed; etc.

When the EOC closes, does the AOC close automatically, and does epidemiologic surveillance stop? There may be ongoing hazards or risks of public health significance (or interest) that is below the threshold of the EOC (e.g. hazards and exposures associated with post flood clean-up, or PTSD symptoms following some other traumatic incident).

Some jurisdictions reported having interim groups that will continue to meet after the EOC de-activation to continue their work until it is clear or agreed upon to cease active surveillance efforts. They may meet on a less frequent interval.

Shelter-based surveillance. Do it when you need to. When is that? There are no generic answers. In Texas, they will activate surveillance when there are 10,000 people or more (e.g. when Reliant Stadium filled after Katrina). Public health was ready to detect changes in illness frequencies among the population. Students from school of Public Health were there to track, detect and respond. For example, they were able to detect a diarrhea outbreak at an early stage and isolate the affect people (kids) and bring in alcohol hand cleaner for easier and more frequent hand cleaning among many.

Generally use forms that gather aggregate data the provide changes in gross counts of conditions over time.
Questions about formal shelters vs "mom and pop" shelters. It is hard to know about small and impromptu shelters that may be established on the fly. Another concern is that the Red Cross may not want to share data. In Texas, Emergency Management officials ran the shelters and issued identity badges to each person upon arrival, and local public health did the surveillance. (e.g. track # of fights per day, as a way to gauge the need for mental health support or need to call in police)

Information Flow from shelters. Reports may not reach all levels of pubic health. Do they need to? What are the criteria?

How do you decide whether to do shelter surveillance? In Georgia, if a shelter is open and provides services over night, then shelter surveillance is activated. When to stop? What resources?

American Samoa did a rapid needs assessment at shelters and learned that in some instances, they served more like dispensing centers or pods, where people came for food, supplies, etc. but went home or stayed with relative over night.

Who is (should) gather the information? Is public health duplicating efforts with shelter operators? This needs to be clarified and coordinated.

Do states have shelter surveillance forms ready to go, in advance of the need? Does CDC have some same forms? Do folks create forms each time they need them?

Recommendation: Create forms in advance and share them.

Who will pick up the forms and analyze the data? If there are many places, this could be difficult to do.

Special needs shelters. Need to identify these folks and set up ahead, prepare. Register people identified in advance whenever possible – this may not be considered an ESF-8 issue, but it will become an ESF-8 problem, if not dealt with properly. Encourage providers to make arrangements to transport in advance, etc. Issues for special needs populations include mobility and access issues (beds, wheel

chairs, etc), more than the usually amount of Rx meds, oxygen use and supplies and other medical devices that may be needed, and language issues. Special needs populations should include prison populations (or create as a separate category), and these need to be included in planning for potential evacuation and sheltering. In Texas, they planned to evacuate special needs populations and prison inmates first.

How do states work with shelters? Is there any regular coordination? Do public health personnel routinely dispense health and safety information at shelters?

New York City public health--requires that a senior manager is at the EOC—as a decision-maker at the table.

Florida—similar presence in EOC, but not an epidemiologist. So it is often difficult to get data to epidemiology about shelters.

Utah—Epidemiology chair and other public health chair present at the EOC.

Oregon—has a public health liaison in the EOC, but not in an epidemiologist position.

Overall, people felt that shelter surveillance was worthwhile and important.

Recommendation: There should be a national group to develop guidelines both around staffing EOC positions and dealing with shelters and shelter population planning.

American Samoa reported that DHHS-ASPHER often filers or selects the information they collect or provide, and this may not meet local needs. Other states also reported that ASPHER may not share back with the state or local public health the data that they acquire.

Recommendation: CSTE Disaster Epidemiology Subcommittee should convene a national partners group to identify common or minimum data elements based on what works and best practices.

Wednesday AM/Aaron Fleischauer and David Zane

Facilitator notes (Aaron)

Outline:
- Priorities for surveillance/concerns
- Managing expectations
- Disaster-specific

Shelter surveillance?
- Passive v. active
- External hazard assessments
- Outcomes in shelters not seen in acute care setting

Injury surveillance
- MVA/MVC
- Animal bites
- Electrocution
- Chainsaw/falls
- CO
- Heat/cold exposure

- What can we do to respond to these?
  - Warnings/alerts
  - Communication and public safety/EM
  - Shelters/resources
- Trauma
- Resource utilization
- Mechanisms
- Resource management
- Inform prevention (in the future!)

Recommendations
- Scientific justification for focusing on morbidity surveillance
- Metaanalysis/review of all prior events
- Recapturing data and linking with surveillance
- Learning new technologies/internet/social networks
- Exercising the system
- AAR/trip report through CSTE
- CSTE position statements on data collection/info sharing/AAR

Outputs
- Reports – different stakeholders (must have daily deadline)
  - Public health
  - EM/ICS/government officials
  - Media/public
  - Pass the headline test?

Analysis/interpretation
- Managing other sources of info from others
- How do you set denominator estimates?
  - ED census (24 hr)
  - Counts v. rates
  - Historic data
  - Explain to stakeholders from start (source of data analysis)

Building surveillance program
- Workforce (where to get people to collect data)
  - Local PH may be affected
- Partnerships for data sources
  - Hospitals/hospital preparedness
  - ME/coroner
  - Shelters
  - Poison control
  - Laboratories/LRN/reportable disease
  - EM/responder
  - EMS/trauma
- Case definitions/data collection tools
- Where does the data go? outputs

Surveillance: prevention v. response
- Poisoning (CO toxic)
- Injuries/trauma
- Heat/cold exposure outcomes
- Respiratory outcomes
    - Infection
    - Injury (chemical, smoke, dust, mold)
    - Exacerbation (COPD, asthma)
- Syndromic (GI, rash)
- Mental health needs
    - Specificity is difficult
- Chronic disease
- responders

(Lindsay Oweida)

Data must have some response associated with it (purpose of surveillance is to produce some actionable response)

What type of data do you want? What does your supervisor/partner want? How will you act? What can you respond to? (identify outcomes and procedures early)

Importance of injury surveillance
- No specific point-source; many isolated events (although there may be a common cause, i.e. disaster)
- One of the main outcomes in disaster surveillance
- Issue of prevention vs. response

Main outcomes of interest
- Injuries
- Respiratory disease
    - Exacerbation of chronic
    - New effects (acute) due to new exposure
    - Inhalation "injuries" (e.g. particulates, smoke, chemical exposure related) vs. infectious
- Syndromic surveillance
    - Emergency department
    - For ACUTE outcomes; immediate cluster response
    - Supervisors want to know numbers and rates, is it going to get worse, and a breakdown by demographics (age/gender/race)
- Motor vehicle accidents
    - Can increase staffing, monitor highways in response
- Poison control system integration
- Shelter surveillance
    - Concentration of "exposed" people
- Mental health
    - Rates of suicide attempts, depression, PTSD

- - Post-disaster surveillance is only a few weeks of intense, focused, active surveillance
  - How do you respond to this mental health surveillance?
    - People need to be housed by loved ones (and pets) to minimize stress
    - Information available on tv, especially information about relatives at risk/displaced
    - Pet shelter development
      - People won't leave home if they can't bring pet
  - Don't have capacity to do whole scope of mental health (ex: quantify anxiety)
    - What are the acute/important outcomes in disaster settings?
      - Qualitative (but what screening questions do we use)
      - Ask how we can make it better (what do you need to improve your mental health?)
    - How do you measure this?
    - How do you balance responsibility of action after collecting mental health data
      - May not have resources to address
    - Lack of training/familiarity with certain acute outcomes
      - Trained investigators are needed to question victims with respect to mental health
- Chronic disease exacerbation
- Monitoring prescription refills and access to care
  - Is it advantageous/efficient/effective?
  - Good use of PH resources?
  - Should we focus more on acute HEALTH outcomes rather than capacity-related?
- Hazards
  - System to monitor hazards (water/food, etc) statewide after disaster
  - Possibly ongoing using partnerships to inform PH rapidly (associated with census?)
- Responders
  - Often overlooked; most heavily exposed
  - Separate systems/stations for responders?
  - ID outbreaks (h1n1, respiratory diseases) due to close living quarters, lack of proper ppe, etc.
  - Use of hazard surveillance/assessment to identify first responder needs
  - Mental health
  - May have immediate disaster needs too (can lose workforce)
- Tracking displaced persons

How do you build a surveillance program around these outcomes?
- What systems are currently in place?
  - Relationships with shelters/hospitals
  - Syndromic surveillance
  - Active surveillance resources (volunteers, workforce, etc)
    - Requires pre-event training
  - Issue of small shelters (within churches or neighborhoods)
    - How do we build relationships with these small, mobile, possibly unknown groups
  - Must happen before disaster
    - Build relationship with first responders, IC, and persons in hospitals

- Solid relationship must be established prior to disaster

Where does data come from?
- Anywhere we can get it
  - Phone, email, fax, surveillance networks
- Hospital preparedness system
  - Trees funnel up to regional preparedness coordinators for aggregate information
  - Can get estimates of hospital capacity
  - Example of a strong, prior relationship (with associated surveillance system)
- Poison control
- Laboratories
- Personal contact from individuals who are associated with PH
- Automated systems
  - Hospital bed capacity
  - Real-time hospital resource systems
  - Anything that doesn't require PH personnel to input/send data
- EMS/trauma systems (local/regional/state)
  - Already overstressed
  - May not be as effective; need disaster info collection methods
- Responder data
  - Emergency management linkages within incident command system
- Developing/disseminating clear case definitions; standardized reporting and alternate/contingency plans in case of loss of power/phone/web
- EMR systems from ED's
  - Challenges of hand-written data
- Laboratory response network

Can we develop common recommendations for disaster surveillance (key elements)?
- Need clear method and key persons who need to be briefed for dissemination
- When should what surveillance be done
  - Example: mental health surveillance probably shouldn't be done in immediate response (2 weeks out) but maybe later
  - Acute, subacute, chronic subsets
- Identify funding streams
- Setting up systems
- IT support
- Hiring appropriate personnel
- What type of report should be generated?
  - Media
  - PH vs. gov't officials vs. EMS
  - Time constraints (what can we actually do; can we create a multi-functional response)
  - Pertinent negatives (what we are NOT seeing)
- What should be in a core surveillance report?
  - Morbidity and mortality
  - Relatively short and clear
    - Over-complicated or confusing data may present more of a problem later
    - Understand limitations of data!!!
  - When is the deadline for the report?

- Make sure to follow it!
- Identify denominator populations to develop appropriate rates and interpretations

Analysis
- Keep things simple
- What do we report?
    o Frequencies? Rates? Risk?
    o May never know denominators
        - But how many people were affected is a key outcome. How do you get these estimates?
        - Number of patients seen in ED overall and then rates of syndromes and sub-syndromes
            - Provide baseline rate vs. daily disaster rate
        - Do we focus on data sources where you understand the target population?
            - ED, shelters, field hospitals
            - Don't let lack of denominators prevent you from presenting data (can always introduce rates later)
            - Is there any historic data?
            - Make sure to cite data sources (and limitations)
- How do you manage competing information?
    o Social networking sources?
    o Can the public inform on outbreaks?
    o May be authority on morbidity surveillance, but not necessarily mortality surveillance
- Managing media reports
    o Don't want analysis info, just want headlines and interpretations

Can we contact the people after the disaster?
- Ethical considerations
- Location of incident/covariates/follow-up might be useful but difficult to obtain

Leveraging new technologies is important (internet, social networks)

Literature is missing meta-reviews of disaster response

What can CSTE do?
- CSTE position statement advocating that states need to have designated disaster epidemiologists and enhance awareness
- Recommendation from CSTE for states to develop an epi-aid report (what worked well, what didn't, what response was informed by surveillance data, what data was used?)
- Standardize methods for after action reports
- New CSTE position statement
    o Need to collect data! Don't just focus on services
    o Standardized timeline for types of data
        - What is collected at what time (possibly a matrix showing the types of surveillance to be conducted by time period and disaster)
    o Manage expectations from state government and media
    o Produce clear messages to the media

Is shelter-based surveillance a waste of time?
- Cost (burden of collection) vs. benefit (usefulness for actionable response)
- Prioritize surveillance (limited time/resources)
- Shelter populations tend to be a health population
  - No acute care infrastructure in shelter, these people meeting acute outcomes will go to ED (where we already have surveillance)
  - Shelter injuries tend to be more minor
  - Can still link with nurses and ARC (ex: if you see something unusual in the shelter, call this number – passive surveillance)
- Persons in the shelter may be able to help with hazard identification
- Passive v. active
- Is this a location for mental health surveillance?

Injury surveillance
- Look for things you can respond to with respect to morbidity
  - Animal bites, bee stings
  - Electrocution
  - Chainsaw injuries/falls
  - Weather related (element exposure)
  - Chemical exposure
- Hospital-based injury surveillance
  - Crisis phase
    - Trauma/resource utilization
      - Where are people transported; what is needed
      - Immediate response (48-ish hours)
  - Post-crisis phase
    - Follow up for cause/mechanism to inform the science behind recommendations
      - Shouldn't evacuate if over 3 stories up, safest corner in house, etc
- Need to use data to translate into public safety messages or interactions
- Distinction between primary and secondary surveillance
  - Primary: disaster associated
  - Secondary: recovery phase

Future steps
- Useful to establish a group to generate national guidelines
  - May not be able to set specific guidelines or measures, but can overall call for a need to develop these
- Tool-kit of data-collection tools
  - Standardized/priority data sources
  - Methods
  - Etc.

(Amy Schnall)

Surveillance must have some response (action)

Very diverse, try to come with consensus
- What type of questions being asked
- What type of data
- Why?
    - Rumor control (inform public what's not going on)
    - Balance with what can respond to – injuries common but no "outbreak" of injuries (can only respond so much)
        - Things like CO, we can do something
        - Injury control measures are important
        - (Aaron) injury surveillance is important outcome but injuries typically many isolated events and its mostly prevention methods and populationcontrol

What are the main outcomes to look for?
- Injury/trauma
- Exacerbation of chronic disease
- Acute respiratory illnesses (infectious origins, injury origins – inhalational)
- Syndromic (GI, rash, etc)
- Poisoning (CO, toxic, etc)
- Mental health?
    - MH needs, specification difficult
- Responders
    - What about hazards? Safe water? Safe food? Major flood zone? Chemical plants?
        - Use partnerships

What systems are in place to give us data?
- Workforces
    - Working with mom and pop shops, manpower, how to do surveillance, where to get people when they are effected too
- Building surveillance program
- Building system should happen prior to disaster, build solid relationship (hospitals, etc)
- Data sources: get anywhere you can!
    - Hospitals, MEs, shelters, poison control, laboratories, ICS structure (lead fireman gives responder info, liaisons, etc)
- Case definitions (have same idea)/data collection tools
- Processes and back up/contingency plans (if no power, etc)
- If do active surveillance; need to limit because it is so labor intensive
- Need a dissemination plan
    - Who needs to know what, where
    - How media involved

Outputs
- Reports
    - What should be in a core surveillance report?
    - Morbidity, mortality, recommendations
        - Short and clear!

- o Model output to different stakeholders (PH, emergency management, media/public, government officials)
  - Does it pass headline test
  - Have one report that can cover all due to time constraints
- o Expectation of when it will come out to stop rumors

Analysis/interpretation
- How to get denominators? How complex? What can do?
- Dependent on data collection
- Recommendation: keep simple
- What report out?
  - o Frequency, rate, risk?
  - o What's easily interpretable
- Can we try denominators? How do we get?
  - o Morbidity: number of patients seen in ED
  - o Don't let lack of denominator limit you – counts v. rates
  - o Historic data
- Explain to stakeholders from start what things mean; cite where data comes from (source info); hard v. soft numbers
- Managing other sources you don't have control over (i.e. social networks); build partnerships with others
- Media gets info quickly, manage media reports important as well
- Every event different but could be some digest about what common, so can compare rates (or whatever)
  - o We always keep reinventing the wheel in disasters, but always ask same questions (or very similar)
  - o What is the scientific basis for these?
  - o What are the most common things seen in a hurricane? When see something different, can investigate why
  - o Challenge is state/local doesn't have time/resources
  - o Partner with academics, but academics need good surveillance data
  - o Practitioners so limited in resources and would like to devote energy to certain areas; need science to back up/justify
- Would be better if could go back to surveillance data and link to others (go back to individual, etc. however ethics is a barrier; identifiable info, how to track folks?)
- Learning new technologies (interact with social networks)
- Denominator data – work with emergency responders?
- Work out system beforehand
  - o Exercise the system so know how it will work
  - o Debriefing after is important; can learn a lot
  - o CSTE should develop recommendation and best practice template/report
    - What's learned
    - How data used
    - How it could be better
- If you are prepared and anticipated what is needed beforehand, more prepared during report; keep track during response (like ICS)
- CSTE position statement on data collection/info sharing/AAR

- o Template/recommendation/best practices
- o Priorities for surveillance
- o Manage expectations
- o Disaster-specific

Shelter surveillance – is it worth it?
- Cost v. usefulness
- NC (aaron) doesn't think its useful. If prioritize surveillance (due to limited time/personnel), have certain outcomes interested in… those who interested in will be transferred to DMAT, hospital, etc. typically shelter pop more health and less severe outcomes; if looking at big things, probably not interested
- Unless you are looking for something going on in a health population, then no need
- Still do passive surveillance – link with nurses, etc. have call if something comes up
- Depends on situation – where were folks before? (ie. Katrina)
- What about reporting that nothing is going on…?
- Need some type of tracking where people go and what's going on with them
- Passive v. active v. risk/hazard (shelter safety)
- Info gathered can be useful in response but not necessarily state epi thing; could be red cross thing
- Want scientific evidence before saying 'no' to shelter surveillance; need to know what's going on
  - o Are there outcomes there not in others? (ie. Mental health, things in acute care setting useful? Skin?)
  - o Want literature to know and have scientific base
- Depends on size of shelter and event also
- May not be good for series morbidity but shelter itself can increase risk
  - o Aaron wants passive surveillance, developed case definitions, work with red cross and staff of shelter will notify us when pick up phone and call
    - ▪ Surveillance still there but we do passive (ARC or shelter staff does more active surveillance)

Specificity of injury surveillance
- Priority injuries and actions
- Electrocution, animal bites, hot/cold exposure, MVA, chainsaw, ladder falls, CO, etc
  - o Things give warning
  - o Another action is communication with public safety (police)
    - ▪ Could public safety do something in response? Increase staff in MVA in an area, put officer there or stop sign, make sure light works, etc
    - ▪ Increase shelter opening or outcry to public
- Hospitals -> trauma resource utilization (in beginning)
- Mechanisms to inform prevention
- Direct v. indirect; strategies differ
- Think about feedback loop of surveillance long-term as well (not just immediate action)
- Need to have focus in each state for disaster epi
  - o State needs expertise in field
  - o Possible CSTE position statement?

Future steps
- Position statements – repository for sharing best practices, prioritizing methods if possible
- Broad recommendations of what to look for and how to do it
- If some consistency, then can share/compare across states/events which would help build case
  - Core elements across states to collect and share

Are registries useful in disaster surveillance?
- Depends on nature of disaster… only when potential long-term (Katrina); depends on outcomes, unknown exposures (WTC), what data expect to look at in lifetime?
- Expensive and time consuming
- Enough past event to look back and find; during event too difficult, cannot be initial response
- How will we do? Funding!!

Epidemiologic Studies Breakout Session Notes
Tuesday AM/Corinne Peek-Asa

Facilitator notes (Corinne)

Opportunities for research:

1. Synthesize data from multiple CASPER investigations
2. Synthesize data from syndromic surveillance (which is mandated in some states)
3. Examine common needs in events that may be very different from each other – even disparate types of events are likely to require some of the same basic response elements
4. Use new technologies to collect data (e.g. mapping, smart phones, telemedicine)
5. Evaluate different methods of data collection to see which is most efficient (paper and pencil may not be sooo bad in some instances)
6. Use information from previous events to give public information early on. For example, we now know that generators pose a risk for CO poisoning and this needs to be a health education message that is disseminated early in related events.
7. Apply CASPER methodology to outbreak investigations – a good method and will also keep the public health workforce trained and ready
8. Capitalize on field trends to generate hypotheses for research – close loop so that the hypotheses are already defined and can be integrated into the next events (e.g. effects on pregnancy outcomes; BMI on H1N1 severity)
9. Involve more first responders in data collection, such as passive GIS technologies that can be integrated into response efforts

Barriers:

1. Lack of funds and ability to quickly find funds when available
2. Response, participation, and public reticence about role of public health
3. Lack of access to information and access to data source
4. Need to keep up with technologies so that they are not outdated and inefficient when finally used
5. Privacy laws and informed consent

What can CSTE do?

1. Educate people about what public health is so the response work is better accepted – increased participation rates
2. Publicize sources and mechanisms for resources. For example, CSTE can help promote message to states that they can contact CDC for Epi Aids.
3. Help identify potential partners and facilitate links between partners (states-locals-feds-academics)
4. Advocate for increased funding and help identify potential sources. For example, CSTE could identify a list of research priorities and call on agencies to fund those topics)
5. CSTE can be the nexus to bring together partners for ongoing dialogue (maybe by including partners on CSTE committee?).
6. CSTE can advocate and even convene groups for cooperative agreements and larger studies
7. Advocate for more training opportunities, both within public health degree programs and professional training.
8. Help identify databases that can provide good information (health statistics, geographic and urban planning, health readiness, etc)
9. Help demonstrate the value of putting systems, such as CASPER, in place
10. Provide guidance on best practices
11. Assist in developing dissemination strategies so that results can better inform policies
12. *Encourage getter formats for reporting results and lessons learned. Peer reviewed journals are not the best format, but perhaps open access journals, or modification to research articles (practice and/or policy forums, such as in AJPH or Injury Prevention*

(Amy Schnall)

Introductions: most are epis, nurse epis, physicians, experience with epi studies, ideas to move forward

What are causal pathways, determinants of health outcomes, include evaluation studies, etc (to inform policy and decision making)

Some examples of studies involved in:
- Northridge earthquake (Corinne) – patterns of mortality and injuries in the earthquake. Had connections though other projects at 130 hospitals, had FEMA money going to LA county and state health department; all looking at complimentary things (seismic aspect, behavioral aspects, and mortality/injury); did case control studies; worked with seismologist to change way mortality is categorized; look at buildings as well (that are retrofilled); saw that didn't account for fact that the shaking causes things to move around (building didn't fall but now issue with content safety); data collected helped make good decisions and policies

University partnerships – pandemic flue needed behavioral risk factors; using surveillance setup and partners to obtain info – university helped move process along (Because they have the time)

How do you handle data gaps?? Do you charge ahead with the limitations and discrepancies?
- Race/ethnicity not part of reports always
- BMI: going back to get; had to go back to chart; lots of work

CO poisoning during disaster

- At Tulane, looked and children and followed cohort about respiratory issues after Katrina
- CDC looked at children living in FEMA trailers

Epi studies purely based on charts doing require a lot of resources; when doing household studies, it is much more resource intensive
- during a disaster, people participate and want to know (when immediate)
- response rate much lower when go back later for epi study
- during a disaster, gathering data is difficult since other priorities (such as surveillance) take precedence
- resources spread thin
- shelters provide a captive audience; much more difficult to do door to door or tracking

NC has strong disaster epi program; build RNA to be used for other uses (not just disasters).. more routine use/daily use
- surveillance piggybacks on NC DETECT (mandated hospital syndromic surveillance)
- has robust capacity but how to present usefulness of data
    - want to measure that value – evaluate use of CASPER (UNC is going to follow retrospectively what happened with the data)
    - need to justify use and value
- usefulness on day to day? We often look at events in isolation, but we should compare. Look at things to scale – each may need different tools depending on scale
    - UNC CASPER toolkit essentially same concept as CDC (210 household); toolkit more focused on state
        - CASPER collects data quickly but sometimes can become immediately irrelevant (i.e. survey about flu vaccine and 60% said they wanted it, but vaccine not available for months and only about 20% got it)

Keep important issues in the press for response
- Maybe talk to media on how we use CASPER?

Handhelds
- Limitation is not enough people with skill to use; we are way behind the curve with respect to technology
- Handhelds now outdated; rest of world using social media, social networks, and smartphones
- What is best technology?
- Michelle-HSB come up with ideas on technology
- Shahed – text messaging after ice storm; went out too late. Timing of response very important with CO because its important to go out BEFORE. Idea of common needs in disaster – know before

Lots of opportunities, what should we do?
- Need to stop reinventing wheel too; use CASPER for common needs such as outbreaks, etc
- Having enough clean data to develop pristine study; also encourage moving forward less robust ones (we're in a difficult field and need practice-based evidence even if coming up short; important to share)
- Use technology to share and get info out; as long as report shortcomings
    - See what's out there

- o See where gaps are
- Capitalize on what seeing in field to get stuff out quickly
  - o MMWRs can be turned around quickly
  - o Flue helped get funding by capitalizing on interest
  - o Prioritize and get info out there!
- Funding always an issue

CSTE/CDC partnership important; can turn around and start epi studies
- Maybe partner with others? First responders? To help turnaround to epi study quicker

What can CSTE subcommittee do to help build capacity and make these opportunities realities?
- Portion of public doesn't like government in affairs, why do we need the info?
  - o Hospital stopped sending demographic sheets, etc. privacy acts (HIPAA, etc)
  - o Fight to explain confidentiality and how to address concerns
  - o Important in prevention
  - o States stop collecting race so don't have disparity data; don't have the data to even share
  - o Sometimes issue is that people don't' want to give info
- how to gather info without disturbing somebody's sense of privacy
  - o people don't know what public health is
  - o think health is individual, not public
  - o don't know what we do, so why do we need it?
- Virgin islands – everyone kept a card on them with vaccinations and there was no backlash from the public
  - o Depends on the approach and the culture
- Educating people about what public health is and what epidemiology is
  - o Important first step
  - o Launch national campaign (CSTE, NAACHO, ASHTO, etc)
- States can ask for epiaid as method
  - o Collaboration and partnerships
  - o More awareness about the mechanism is needed
- Academic partners (have students who can help, especially with technology)
- Funding (always a bottom line); things don't happen without the funding in state health departments, narrowly focused targeted funding providing by federal government, CSTE, NAACHO, etc for studies
  - o Maybe can do something specific and reasonable instead of tackling large broad issues
  - o RFA program for states to collaborate together for disaster epi
    - ▪ Difficult of federal grant availability
  - o Insert need for disaster training in education
    - ▪ Part of Berkeley funded by CDC, try and make public health preparedness as center, important part
    - ▪ Traditional epi si a little different
    - ▪ Disaster epi is more interactive, different pace, different decision making in response
  - o Who sets curriculum guide?
    - ▪ Branch of ASPH – core
  - o Conferences
    - ▪ MOMS is huge for first-responders

- Rapid response by CDC?
    - Get involved quickly
    - CDC EOC gets activated
    - Want to get all experts together from states/federal government on calls, etc

Most important message
- Mechanism: as academic can't do disaster epi without state so partnerships are extremely important
- Partnerships with others – think outside the box; disaster epi isn't just one thing so should use to advance field
- Look at tools differently; take disaster tools and use everyday
- What are set of goals? What should always look at? Should stop reinventing the wheel and make tools available… get guidance and best practices
- Public health communication and education – increase effectiveness
- Demonstrating value for these capabilities in peer review
    - Repository of best practices
    - Work with states together across state and event
- Studies/research in disaster epi make relevant and useful to issues at hand… make connection to more routine public health
- Can we increase standards of reporting disaster epi studies? Who requested? Was it internal? External? Etc. how the study was done, etc. CSTE should consider discussing how to report studies… avenue to publish reports and get out there as well (especially CASPERs, etc)
- Encouraging and comforting that other states experiencing same challenges; good forum to share
- With some states not involved as much, don't know disaster epi (i.e. OH)
    - Need to build partnerships and bring info into public health departments
- Public health actions for policy change, use collective voice to change policy
- Federal government needs to let states know what is available and how to get these resources – CSTE great avenue
- CSTE great partnership to bring together all involved
- States deal with all aspects, federals more focused in area. Federals should be more proactive than reactive
- Info sharing on all levels
    - States with states
    - Public (translate to meaningful, understandable info)
    - Federal government

(Gerry Fajardo)

Summary:

A. Epidemiology is way behind the curve – current use of media, smart phones, etc.

B. Data Collection
  ➢ Look at how to handle the data gaps. Manpower technical issues. Race and ethnicity a horrible gap. Disparity – some states stopped reporting race
  ➢ Including info that we don't know – gaps that keep on recurring
  ➢ Before collecting data, Sensitivity about what we know

- ➢ Getting info in a timely manner
- ➢ Need for clean data - Move forward with lumpy data and refine later
- ➢ Think outside the box
- ➢ Disaster epi tools
- ➢ Paper-based vs entering directly in the PDA
- ➢ Methods of collecting data
- ➢ CASPER to use in outbreak situations
- ➢ Data collection tools for the disaster
- ➢ Peer-review; some kind of repository of best practices
- ➢ Software , out- of- date
- ➢ Geospatial mapping
- ➢ Monthly epidemiology bulletin

C. Challenges:
- ➢ Media - Public health epi against the media
- ➢ Privacy Laws/Privacy Acts making data collection a big challenge
- ➢ What resources are out there and how to get these resources
- ➢ Lack of coordination among people who are supposed to be doing an epidemiologic study
- ➢ Opportunities you see to help move idea move forward
- ➢ Best practice and guidance
- ➢ Can we increase the standards of reporting
- ➢ Communication between disaster epi and routine public health is very valuable
- ➢ Engage the process – very important
- ➢ Public health action
- ➢ Need for Disaster training - Center for health preparedness, Epidemiologists trained in disaster epidemiology

D. People share experiences when disaster is more immediate (and personal?) Individual states have different experiences with the H1N1 vaccination program

E. Public health education, communication, proper approach, explore partners/stakeholders, field visits, different strategies in each state, local health department

F. University partnership - Academic researchers cannot do disaster epi without partnerships

G. What can CSTE do to help build capacity? Use our collective voice to effectively do our job

Tuesday PM/Marizen Ramirez

Facilitator notes (Marizen)

CTSE to provide guidance on how to set up relationships with academic institutions for engagement in disaster-related research. Possibly, consider writing a position paper for state/local public health agencies. This is important for several reasons:

- o data sharing agreements are established beforehand
- o Standardized data collection tools are utilized and have utility for research
- o Reduces study participant burden/research fatigue
- o Ensures that data are translated and disseminated most effectively and efficiently
- o Considers methods for conducting data that are sensitive to the population (e.g., anonymous report; accounts for potential response bias)

Funding issues

- o Grant opportunities exist where states may take the lead on epidemiologic studies. Partnerships with academic institutions could help in terms of providing expertise as sub-contracts
- o Rapid response monies available. Should involve both research institutions as well as public health agencies.

Areas for future research

- o Cost effectiveness studies to assess economic impact of preparedness practices engaged in by public health departments
- o Use of volunteers in disaster response (cost and effectiveness)
- o Using evidence-based tools/practices (e.g., thresholds and trigger points) for decision making in disaster settings (e.g., when to put up a surveillance system)
- o Evaluation of after-action reports coupled with qualitative interviews of public health officials to study disaster response and management

Dissemination and translation of research

- o How to communicate research findings is a challenge and sometimes the university may be seen as a non-threatening source of information, while other times the public health agency is the appropriate avenue for dissemination. A lot depends on culture and population of study.
- o Uses of epi research include policy, practice, professional/public education

(Erin Simms)

I. Displacement is a huge issue post disaster. Definition of what a population is after a disaster differs.
   a. How do you measure secondary impacts?
II. Ethics is a big issue – how do you define ethical guidelines during disasters?
III. Use of existing data sources has not been tapped fully
IV. How do you do research?
   a. ELC grants – possible way for states to conduct research with universities
   b. Joint university-health department agreements or grant announcements (National science foundation rapid response funding, CDC epi aids)
V. Research designs
   a. We see a lot more descriptive epi in the current literature
   b. Qualitative studies need to be done more during/after disasters
VI. Purpose of research studies
   a. Policy change – prescription drug laws, dialysis and oxygen tanks
   b. Practice – need to build the literature on what physicians may see post disaster
   c. Provide professional and public education
   d. Evaluation – identify what went well/wrong

          i.   We have not done a good job with evaluations. This is a challenge because disasters are rare. Are simulations a better idea?

VII.   Interpreting and communicating results
- a.   Need a uniform approach!! Need guidelines that everyone can understand
- b.   It will be important to address study/subject fatigue and the overburdening of affected communities.
- c.   Manpower is an issue in health departments so working with their university is important (in addition to working with PERCs)

VIII.   After action reports
- a.   These reports are most likely not used outside of the health department
- b.   May be a way to evaluate response to a disaster

IX.   Summary
- a.   Data sharing (how to do this with academic partners)
- b.   Need to make relationships with academic institutions
- c.   Be mindful of research subject fatigue
- d.   Think about cost effectiveness
- e.   Identifying thresholds
- f.   Translation of research findings

(Lindsay Oweida)

How long should disaster studies last?
- No clear consensus, depends on time frame of interest (and possibly outcome variable)

Definitions
- Epidemiology: quantitative study of distribution of population health effects
- How do you define population at risk (especially given population displacement)
- Set clear case definitions

Can states do research during/after disasters? Do ELC grants forbid this?

Can you do epi studies (further/extensive) following disaster relief?
- Standardized tools?
- Education?
- Use of existing resources?
- Time to do follow-up research?

Research design
- Descriptive statistics are generally requested by media/gov't
- Case control possible? On what?
  - o   Requires specific research question

Research purpose
- Response (best possible outcome for most of population)
- Policy change?
- Public and professional education

Research needs

- Health economists (cost/benefit analysis!)
- Health impacts
- Efficiency/efficacy studies
- Infrastructure
- Use of volunteers in disaster response
    - Effectiveness?
    - Evaluation?
- Threshold/trigger tolerances
    - Definitions
    - What is enough?
    - Evidence based?
- After action reports (how should they be utilized)
- Information from PH nurses

What can CSTE do?

- Not prepared to do research on site; CSTE can develop relationships between states and universities to ensure that this research gets done

Wednesday AM/Josephine Malilay

(Michael Heumann)
Mary Ann Duncan spoke briefly, and introduced the ACE (Assessment of Chemical Exposures) program at ATSDR. ACE provides experts to help gather surveillance information after large scale releases of toxic substances (when requested). ACE is part of the National Toxic Substance Incidents Program (NTSIP) at ATSDR, which gathers information about harmful spills stat that it can be used to help prevent or reduce harm caused by toxic substance incidents. Teams dispatched within 48 hours of receiving a request. State and local authorities can request help with recording contact information of people who may have been exposed; interview these people to get detailed information on their exposure, health effects and needs post incident; and collect and test samples to measure levels of the toxic substance in people and the environment.

Research vs. Public Health Practice. This was a very big issue that many states are dealing with—CDC also. Disaster Epidemiology is considered part of public health practice and applied research.

Investigations and Assessments. This aspect of disaster epidemiology looks for risk factors associated with incidents.

Public health needs to find better ways to insert ourselves in disaster response. We have a unique role and abilities. Many states have less experience in doing post disaster investigations and assessments. Often there is not permission given by the incident commander for epidemiology to do investigations. Our role is not known to them. Not aware of who we are or what we can do.

Descriptive and Analytical Assessments. What is needed in local jurisdictions to do these? Public health in Oklahoma has done assessments after tornados incidents, and recommendations made to reduce the risks in future incidents.

Recommendation: Have CSTE or CDC epidemiologists available to assist in doing assessments post disasters, and raise the questions that might be asked. For example, there is conflicting theories or recommendations about where is the safest place to be during an earthquake in the U.S. This is the kind of assessment/investigation that could be done following earthquakes among fatalities, injured survivors and un-injured survivors. Need to gather information from rescue workers shortly after the incident, while survivors can be identified and interviewed later.

There may be limited capacity, interest, or emotional energy at the local level to conduct descriptive/analytical assessments after a disaster. Gathering information may not be an immediate priority (or a priority at all). And they are not simple to do.

One approach, if this kind of information gathering is recognized as being of value would be to develop MOAs (memos of agreement) with universities and schools of nursing to be available to gather the data. Need to pre-plan, pre-train, prepare. Arizona, Minnesota and California are examples where this is being done or considered. An example is that in Minnesota where trained teams gathered information about the prevalence of diarrhea among post disaster populations in a shelter.

Timing of data gathering post incident is something to consider:
        Where in the cycle to consider implementing this?
        Consider mental health aide with neighboring communities or states as partners to come in and do the assessments. When is the most appropriate time to do this? Acute versus an on-going need post disaster?

        Some mortality information may need to be gathered quickly, as rescue worker may not recall well what they found. Other information about fatalities (e.g. cause of death) may be able to be gathered later.

Look at best practices from what has been done previously.

Look upstream: How prepared are communities, and does that make a difference (research question).

Preparedness questions: Where would you go in an emergency? Who do you trust for information?

Combine studies with interventions—disseminate information.

How long can you wait to ask or initiate the assessment? Risk loss of memory and willingness to collaborate. Lost to follow-up issues. When do you try to reach out to folks, just to know who they are?

Be clear about what you are trying to describe.

Capacity for doing this work is often limited

EMAC resources can focus on cluster analyses.

Recommendation: CSTE should look into what are the most common thinkgs to look at after a disaster (e.g. co poisoning following floods, storms or other incidents that result in power outages), and what resources are needed to gather this kind of information?

Is there interest in doing these kinds of assessments?

Florida cannot justify applying resources in doing these kinds of assessments during a response mobilization. So it is pushed off for later—then usually is dropped all together.

Need to frame these as part of the "lessons learned" as part of after action assessments. These assessments may well inform public health messaging, and may influence timing and frequency of messages (again look at CO poisoning cases that seem to happen despite messaging efforts).

There is a need to tweak the ICS structure to be more attuned to what epidemiology has to offer.

Post disaster epidemiology may happen outside of the normal ICS timeframe. Epi-aide requests may help address this. Need to remember that state and local authorities (public health and emergency managers) may not be ready for this during an incident.

How do we sensitive and prepare CDC Epi Aides to be available and ready to do this kind of work?

Recommendation: Catalog States that have done assessment work already. Do they have staff resources and expertise that might be made available to other jurisdictions?

Communication is another important issue around doing investigations and assessment studies. How do we message about this?

Recommendation: Create indicators for studies/investigations/assessments.

Other issues to consider:

Costs and how do we fund such studies? Catalog how it has been done successfully in the past.
Skills – what is needed?
People – who, what training, how many?
Time – how long will such efforts take?
Structure – within public health? Pass to university researchers? Which study designs to use?

Must prepare before the incident (when caught up in the incident is usually not the time to begin thinking about doing a study)
What are the unanswered questions?

Not all incidents offer an opportunity to investigate.

Logistic issues and barriers: Ideally, Public Health Director would introduce the idea and demonstrate the will, and see about getting partners onboard.

What do we need to adjust for during incidents (SES, language, disabilities, etc.).

There may be some resistance at the local level in some instances for a variety of possible reason,. One mentioned is that it is difficult to have outsiders look at you misery. There was a worry expressed that CDC or university researchers are going to come in and do something to us, or they will study us and not include us or inform us about what they are doing. One important way to address that is to include the local health officials as co-investigators, who help shape the direction of the investigation and assessment.

There was consensus among participants that it is critical to share data and information from studies with the local officials and community members, early and often. Get the information back to the community where it is most relevant. Make the findings relevant to local interests and policy decision makers. Make results of investigations and assessments accessible to local officials so they can use the information to decide what actions can be taken and when.

It was mentioned that we need a mind shift about the limitations to our data. Do not become paralyzed by lack of perfection. Subsequent studies will build upon prior work.

It was also felt that findings must be timely and useful, given the limitations. Get the results to the stakeholders first. Do not focus on academic journals.

Academia could assist in applied reports, but it is not likely that many academic institutions will take the lead on doing applied epidemiologic projects. For the most part the focus of university staff will be on research. UCLA, confirmed that faculty work needs to be research-based. Texas A&M has a distinction that allows for research, for public health practice, and for teaching. There is an important role for university epidemiologists to conduct and publish research on disaster epidemiology assessments. They may try and test the hypotheses that are raised during applied assessments. They may be able to build on the work done by others.

Important applications of epidemiologic assessments/investigations post disasters include:
> Identifying gaps and opportunities to reduce risks from disasters.
>> To do this well, we will need people with expertise, funding, and partners to help carry out this work. This can include a range of non-traditional partners (some of which include emergency responders, local community organizations active in the disaster area, and many others).

> Gathering information on vulnerable populations. These may include groups not normally considered at risk. Post disaster assessments will help identify them. In some instances, data needs to begun being gathered in the middle of the response phase. This would include information about circumstances of fatalities that can only be acquired shortly after the fact from search and rescue workers. In other instances, you may want to collect minimal contact information from as many impacted individuals as possible, so they can be contacted at a later time. Pregnant women are another population for whom identifiers should be gathered as soon as practical, for later follow-up.

What is the Role of CDC in doing Disaster Epidemiology? CDC staff felt that there should be an active role across Centers in the agency. Career Field Officers (CFOs) in COTPER would be logically involved. CDC has a Disaster Epidemiology Workgroup in NCEH.

Recommendations.
1. The NCEH Disaster Epidemiology Workgroup should be sure to reach out to others across Centers to build a cadre of trained people to participate in responding to disasters in support of local and state public health requests.
2. CDC should consider creating a list of personnel, expertise and interests in this area.

3. CDC should create a higher profile in Disaster Epidemiology and get the information out to state and local partners in advance of emergencies, so during a disaster, people will know where to go for assistance.
4. CSTE should help build a list of other partners who could be called upon in an emergency. Who they are and what they do.

Next Steps.
1. Increase visibility of Disaster Epidemiology with public health emergency preparedness leaderships in public health agencies at Federal, state, local and tribal levels. Link up with their meetings.
    a. Georgia – CFO was able to open doors between PHEP and Epidemiology via liaison relationship.
    b. Arizona –Epidemiology has made inroads with other groups, like law enforcement and fire departments through the Fusion Center. The Fusion Center now has a public health representative on board, and public health was able to provide valuable information about hazards from smoke exposure among the downwind public during wildfires.
2. Figure out how to raise Disaster Epidemiology visibility among Emergency Operations Center Command staff.
3. CDC should improve communications with state partners about what the Disaster Epidemiology Group does, and how to liaison with states, catalog information about what has been done—build connections.
4. Find ways to include language in the PHEP grant from CDC to include language about conducting Epidemiologic Studies following disasters that would enhance future planning.
5. Local/state PHEP plans could include an Epidemiologic studies component following disasters, as a part of improving prevention.
6. Catalog articles in the literature, list of resources and expertise (include journal articles, reports, text books, websites, etc.).
7. Consider expanding the CSTE Disaster Epidemiology Subcommittee Workgroup to include universities, CDC and States.
8. Create listing of lessons learned, and share experiences. Find a way to enable people to learn from each other, and access after action reports.
9. Outreach to larger cities to engage them as well.

Summary. Studies in Disaster Epidemiology are needed to provide information that cannot otherwise be developed; and provide resource information about methods and approaches to be shared widely. The findings from Disaster Epidemiology studies need to be shared with others. Communication, in general, needs to be improved around Disaster Epidemiology and the studies they are able to conduct.

(Christopher Capelli)

Disaster epi is not research, but I can be applied to research
- Use terms like assessment or evaluation to get at what we need without saying research

What we think might be needed to get the disaster epi skills? (main point of discussion)
- Thought for state people
    o There has been a lot of research, but in states you can't think about doing this during the disaster

- Should CSTE look into these states and keep a core group of people to coordinate and help with research and resource questions about tornadoes?
  - Do we know what questions to ask?
  - Example of this research: people still get in doorways during earthquakes, but research has found this unsafe
    - Need epi to be subject matter experts to change this
- What questions though
  - Where are the specialists that we can turn to? CSTE, CDC, academics?
  - What resources do we have to do this?
  - Need to get past barrier of local HDs not having the time to deal with these questions after a disaster (hands already full)
    - Training MPH students ahead of time to do epi work in disaster settings
    - Capacity building is a problem for epis in a lot of places
      - Simple things are not needed; how do you build this advanced capacity?
- With epi studies surveillance, come PH action close to the event
  - Epi studies for public health
  - More in depth studies later
- Are states interested in sources of info for disaster epi
  - Interest for the resources
  - Want to do these things, but at the time of the event is not appropriate for the state to do it
  - There is an interest in using epi to learn, but it has to be pushed back later
  - Need to change frequency and intensity of PH message (ex: CO poisoning)
  - Need to tweak ICS structure
    - They close down right after an event then nobody can do studies 3-4 months later
    - Lack of ability to follow-up
  - Find a way in preparedness to do sensitivity
  - EIS programs that months later states would like on EpiAID rather than during a disaster
  - A cataloguing of specialists for states to contact
  - Requires building info search and rescue to gather data as they work for mortality studies especially
  - Create indicators, this will help with research during later disasters
  - We are trying to prevent; we should be doing studies pre-disaster to find out how prepared the population is
    - In this way, studies can be interventions as well; give messages while doing interviews
  - Money, skills, and infrastructure are needed to do the epi studies; timing is important but it all depends on what you are trying to answer
  - You need to write down your questions before an event occurs; if there is a tornado, what questions will you have? Put this list together for a number of different disasters and get other people/agency opinions
  - Realistic discussion between disaster epis and people who run the management before the disaster happens
    - How can we insert the studies into event logistics

- When doing a study and writing a paper, involve everybody involved or you will hit a barrier
  - Academics assisting state/regional powers to do research
    - Is epi past/pre disasters useful?
      - Yes, it helps us to understand the gaps between states
      - Yes, due to turnover of people, need a strong foundation so we don't keep reinventing the wheel
    - Important to gather information on vulnerable populations before a disaster or during?
    - Might be helpful to know where people are and what they do at CDC
      - Can we make a list?
      - What do some CDC staff do, what are their interests?
      - Nobody knows who is at CDC and how to contact them
  - Breaking into PHEP; a lot of conferences now all over the place
- We need more liaisons in PH institutes – going to conferences is important
  - Need to make other public service understand what we do (fire, etc) to facilitate information sharing
- Have an epi studies group that can plan activities so states can know who their federal liaison is and what CDC specialists to contact
  - In PH preparedness grant to put in some part for capacity building and who epi studies are important
  - Also do international discussion

Can CSTE chair a workgroup to discuss epi studies and their resources?
- Being on a listserv
- Creating website with lessons learned/discussion board so people can learn from others
- Good lessons that may not be in a journal
- Put big cities specifically on a list serv
  - Cities feel left out; add room in CSTE for cities!

Large Group Discussion Notes

Rapid Needs Assessment/CASPER
(Lindsay Oweida)

- What is the purpose of doing CASPER?
  - Is there a need?
  - What types of questions need to be answered?
    - Can they be answered with existing data sources already in place?
    - Do we need to quantify this data? (ex. What percentage of households using generators)
  - Capability that some jurisdictions may need to answer questions that cannot be addressed with existing systems
  - When do you use CASPER?
    - Who needs it? What are the threshold values?

- Once you've done CASPER, and realize its benefit (despite the resource-intensive nature), you may start to see other areas where it might be useful
- May require a certain damage threshold – but it is more of a judgment call
  - May depend on requests of local health departments
  - For more widespread situations, state health department may be able to act proactively
- Timing of CASPER depends on objectives
  o How do you market CASPER to your local health departments?
    - Regional epi teams working with county health departments to build capacity (CASPER is a component in training, education, and promotion)
    - Information on how to request, benefits, step-by-step process, etc. on website
    - Included in state's annual hurricane preparedness exercise
    - Build into state planning
    - Promote concept of what CASPER is and isn't
    - CDC-sponsored state training opportunities – CASPER included in disaster epi planning; field exercises using CASPER
    - Mutual aid – call a state that has done CASPER to assist in planning/use
      - Some states may not be able to afford CASPER education/implementation
      - Knowledge gap may result if your state depends on another state to perform assessments (local HD may not be aware of resources available)
- Science behind assessments – focus on sampling
  o Are there ways to improve cluster/household identification?
- Questionnaire
  o What questions do we ask? What are the objectives?
  o PLAN AHEAD! Develop templates ahead of time (possibly disaster-specific)
  o Simple but actionable questions
- Training
  o Resource-intensive to perform these types of community assessments
  o How to do you find people to be a part of the field/interview teams?
  o Just-in-time training using volunteers; what is the best way to deliver training, what needs to be included?
    - Role-play, lectures, group discussion
    - Members of teams need to understand job to perform well
  o CDC working on updating toolkit to enhance training
- Deployment issues
  o What are the roles of interview teams?
    - Provide health education materials
    - Eyes and ears of local HD – refer emergent issues back to local HD
    - Conduct interviews appropriately

- o Can be drawn from a variety of disciplines (mental health, HIV, STD); take advantage of existing resources
- How does it fit into ICS framework?
  - o How is the request for resources made? Logistic support? Report dissemination through incident command structure?
- Recognize need to document what type of action was taken based on the assessment information
  - o How can we document PH response? How was it used to inform PH decisions?
- Linking CASPER data with other data systems (such as surveillance data)
- Reluctance from jurisdictions on requesting CASPER
  - o Goal is to document needs in a community after a disaster
  - o May identify unmet needs; may not have the resources to meet these needs
    - ▪ If you document needs, there may be an expectation that these needs need to be met
- Evaluate CASPER
  - o Need to evaluate over short, medium, and long-term.
  - o Longitudinal data collection possibility?
  - o Build evidence base from evaluation perspective that it is useful in the immediate response as well as mid- and long- term response phases
- Can be used in non-disaster settings
  - o Is this a good strategy to encourage use in disaster settings?
  - o Increase awareness
- Can we add an intervention component?
  - o CASPER is an assessment tool (ESF-8) to perform situational awareness
  - o Decision makers should receive this info to determine and support needed interventions
- What can CSTE do?
  - o CSTE can encourage connections with CDC and States about the use of CASPER in both emergent and non-emergent situations
  - o CSTE can make recommendations to states about doing CASPER
    - ▪ Fact sheets
    - ▪ Executive summary of usefulness
      - • Tool for use on a regular basis as well as disaster epidemiology
    - ▪ Promote regular use of CASPER (position statement?)
      - • Needs to address where it is useful
    - ▪ May allow local health departments to increase visibility within community; market the benefits of CASPER to not only the community but also the department
  - o Can CSTE close information sharing gap between those who perform the assessments and those who act on the information?
  - o Can we collect information on how CASPERS have been used (personal experiences, etc)?

- CDC is looking at states that have used CASPER
  - o Can CSTE help facilitate training?
    - CDC is facilitating on-going training opportunities (2 day training, upon state request)
      - States identify goals of training (education or implementation)
      - Offer disaster epi trainings (contact Amy Schnall at ghu5@cdc.gov)
- Who is doing CASPERs?
  - o NC, TX, FL (requests aid rather than implementing), KY (has done 1 – ice storm), AS, IA (with CDC and NC assistance), MS (with NC and CDC assistance)
  - o AS:
    - Had never heard of CASPER; was introduced by the epi teams in CDC
    - Able to do it on their own (despite small size); could do locally
    - Can invest in this tool – trainings next month
    - May use for other PH situations
    - Can we outreach to other Pacific islands or other disaster teams? Invitations to attend training extended.
    - Benefit of CASPER: can bring together many groups (some of whom may not be familiar with epi concepts and what PH does); very flexible!
- Who isn't doing CASPERs and why?
  - o Might not be 'essential' to every state; although its benefits are clear
  - o CO: having a threshold would be very valuable. Is doing a CASPER on a very small local level really worth it? Evidence on CASPER use in disasters of varying sizes (small/local, medium, large).
  - o Is it a good use of resources to develop CASPER in states with low disaster risk?
    - Using it as SOP would include CASPER in toolkit – could be used in disasters without huge investment for possibly irrelevant training
  - o MI: doesn't have lots of disasters, do we have the resources ($$), FEMA DOD exercise – can we start thinking about uses of CASPER not only in disasters but also in regular HD activities
  - o Need examples of how CASPER can be used in several scenarios (disaster and non-disaster)
  - o Try to plan some sort of live training (can CSTE or CDC facilitate this?)
    - Toolkits are available online but may be intimidating
- How do we fit this into ICS structure? How does epidemiology do a better job of getting involved in ICS structure?

How can we market epidemiology? Who do we need to engage with?

(Erin Simms)

I.   Should we do this? What is CASPER and is there even a need? Is there a need to quantify what public health needs if we already know the anticipated needs?
   a.   CASPER answers questions and provide data not readily available

II.   Are there ways to improve the method of data collection?

III.   Questionnaire
   a. What questions will be asked (think ahead and plan templates)? Questions should be simple and actionable

IV.   Training
   a. How to identify people to be part of interview team (draw from different disciplines) and what are effective training methods?

V.   ICS Framework
   a. How to request resources

VI.   Other
   a. There is a need to document public health response and how results were used to inform public health decision-making – tell our stories
   b. Can CASPER be linked with other data systems/ results?
   c. There may be reluctance from jurisdictions to request CASPER because it may identify unmet needs. Additionally, there may be an expectation that needs will be met.
   d. Evaluation is needed (short, medium, long term); produce longitudinal data from CASPER studies and build evidence base that this is needed in the immediate, medium, and even long term
   e. CASPER is an assessment tool, not an intervention tool
   f. Can also use CASPER to identify needs after an intervention has been put in place
   g. KY, NC, TX, IA, MS, and American Samoa have done CASPER assessments

VII.   Recommendations
   a. Send information to states and territories on how CASPER can be useful (get the word out!!).
   b. Marketing is important because there is a knowledge gap. Explain what value this provides in a local community. Use new CASPER toolkit as a marketing tool.
   c. Close gap of information between assessment team and intervention team
   d. CDC has training on disaster surveillance. Get the word out.
   e. Can CDC do a quick and dirty collection of success stories?
   f. Present CASPER to PIHOA (pacific island health officers association) so that other territories can be trained

VIII.   Barriers to use in states?
   a. It is a good complimentary tool but capacity is not there
   b. Threshold evidence would be good especially when states typically deal with smaller disasters or very few disasters.
   c. Is this useful in other situations (non-emergent issues)? Give examples (CDC/ academia can provide this)

IX.   How does epidemiology better integrate into the ICS structure overall?

Surveillance
(Lindsay Oweida)

Yes, we should be doing some kind of surveillance post-disaster. How do we do this?

Different situations warrant different responses, although there are commonalities across disasters. Can we identify these common trends to provide recommendations?
Communication

- How the surveillance is done and what is collected needs to be communicated through ICS structure. PH needs to provide this info (data AND findings/recommendations) in a useful format.
  - What questions are ICS asking you? Counts? Rates? Summary?
- Headline test – can the information pass?
- Can we identify key pieces of information

Overall objectives:
- Differ depending on situation
- Detecting individual outbreaks
- Assessing impact of disaster in terms of health impact. What kinds of health impacts have there been?
- Characterizing the population (descriptive statistics)
- Injury surveillance
- Quantifying trends
- Looking at mortality surveillance data, shelter surveillance (when applicable)
- Do we have thresholds (or recommendations) for when each type of surveillance activity is used? At what time?
  - Acute v. chronic (ex. Mental health could be both)
    - State by state decision
    - What kinds of surveillance techniques are available to help states make these decisions?
  - Multiple/complex event? How does it change surveillance needs/activities?
  - Is there regular reporting from existing systems? Do you need to implement special surveillance? Over what time frame?
    - How can you use the existing source during particular events?

Evidence base to support surveillance activities is needed. Literature is missing expected disaster outcomes and how these inform surveillance. Data requests may be unfounded (media driven, hype driven); rumor control overtakes actual surveillance.
- Can CSTE facilitate academic linkages to help support the development of such an evidence base?
- For academics, this is difficult without cooperation from state/local HDs. What are the bigger questions?   What data can you make available or collect?
  - Can we track people in these surveillance systems? Can link to other available data.
    - Registries?
      - Time and effort needed to establish a registry; in a disaster situation, not able to set one up quickly
      - Intake forms in shelters?
      - If you need the information, creation of a registry after the fact is very difficult.

- CDC disaster registry forms cannot be filled out immediately post disaster (too long); few essential questions (where were you, how can we reach you, where are you staying)
- Event-based, severe outcome surveillance
  - The information may be there but is not being captured
- Maybe you don't need this information; is it worth investing the resources to collect information you never use?
  - If you don't use personal identifiers, information may be obtained more efficiently and presented more quickly
  - Registries vs. long-term surveillance of health effects
    - What information do we get from a registry and how do we put this information into action?
    - Can epidemiologic studies work better?
- Ask if we can contact participants later? Is this possible?
- Can we include a disaster-related question in other surveillance activities? How should this question be worded? Surveillance over time, rather than only post-disaster
- Surveillance needs to be efficient, how do we balance the needs for efficient surveillance with effective surveillance?
- Population-based relevant surveillance is essential
- After-action reports
  - Is this information biased? Is it useful? Who gets it?
  - Guide decision making, understand decision trees – can we evaluate this to develop recommendations and practices?
  - Do they list what data sources were used and how effective they were?
- Define a goal: what is the goal of surveillance during a disaster? Should be standard.
  - What kind of outcomes do you expect? Acute/long-term?
  - Are the existing surveillance systems working? In a major disaster they might (probably) not be. Do you have any understanding of what is going on? Can you make predictions?
  - Might need new methods of reporting (or different outcomes)
  - Disaster situation is different than normal surveillance, but can (and should) be informed by regular surveillance activities
  - Goal of surveillance (not RNA or CASPER):
    - What happened to whom? Where? When? Why?
    - Need reasons and purposes for data
    - Example: CO surveillance
      - Time, place, person
      - Can we take action?
      - Do we get data to fill information gap and better prepare for next disaster?
      - Might come up with different info every time/disaster

- Used to focus prevention to high-risk groups

Methods:
- Syndromic surveillance
  - What should this be called? "Syndrome" surveillance? ED information may be useful, but what other sources can we look at?
  - Shelter surveillance? Yes/no? Why?
    - Regular/ongoing? Passive? Specific case definitions (defined prior to disaster?)
    - When should we use active shelter surveillance? Does shelter size factor in to this? Time spent in shelters?
- Need to identify settings where each method is applicable/useful
- How do you implement these systems? What resources do they take? How much information do you want vs. how much can you actually collect in the field?
- Biggest question: what data do you want? Can we standardize this (or establish minimum data elements)?
  - Can we articulate the multiple, specific objectives to determine a more comprehensive objective
  - Example:
    - Single most important objective: provide situational awareness in an acute setting to inform public health action
      - Is this true in later stages or just an immediate need?
      - Is it different from RNAs?
      - Are you neglecting pertinent populations? What data are you getting (pre-diagnosis, diagnosis, etc)?
      - Ask states
        - What did you implement?
        - What was the acute setting?
        - Was it useful or not? Why?
        - Can you think of something better post disaster?
        - Measure of resources needed to carry out various activities?
      - Might be helpful to define where to look (poison control, etc) and what data to pull from those existing systems
        - These systems might not be operating due to the magnitude of the disaster. What then?
  - Still missing EVIDENCE-BASED approaches in the literature
  - Pick-list items
    - What kind of things can states do (catalogue)
    - Needs to be informed by research to see what has and hasn't worked
    - Where are forms sent? Timelines? Can we standardize what needs to be included?
- What other objectives are there?
  - Vulnerable population identification? Differing risks?

- o Can this be a secondary use of surveillance to affect planning for the next disaster?
- o Laboratory component of surveillance
  - When can it be used?

CSTE recommendations:
- Develop disaster-specific evidence-based algorithms that can be used by states/cities/counties
- Provide different kinds of standard data forms (that can be modified when necessary)
  - o Some are already available through states and CDC, but can CSTE increase awareness of availability of these forms among states?
- Means to effectively share data across states
  - o How should this be shared? What format?
- Developing guidelines about when certain kinds of surveillance should be implemented and what kinds of surveillance should be implemented?
- Registries? When are these useful?
- Initiate discussions and figure out the best way to coordinate with volunteer-type organizations (such as ARC); can CSTE make these recommendations? Position statement potential?
- Form a workgroup to address disaster surveillance specific issues
- Position statement recommendations for outcomes in the disaster settings
  - o Cautious of "standards"; capabilities required to meet standards
    - If a state doesn't meet the standard, what happens?
  - o Common data elements might be better than standardized forms
    - Compatibility

(Erin Simms)

I. Where do we want to spend our time and efforts and what should be done?
II. Different events warrant different surveillance, however we should focus on the common threads
III. Communication is important (how it is collected and what surveillance is done)
   a. Provide findings and results in a useful way; summarize effectively
IV. Surveillance objectives are difference depending on each event, therefore it would be useful to determine thresholds for when to implement different types of surveillance
   a. Surveillance to identify health effects
   b. Injury surveillance
   c. Mortality
   d. Quantifying trends
V. What needs to be summarized during acute vs. long term surveillance? We could work to synthesize what type of data is currently available for disaster surveillance and forward this to states. Also, create guidelines on the type of surveillance currently available and the kinds of events in which they could be implemented.
VI. How do we utilize and identify existing data sources during an event?
VII. Surveillance should be efficient.
VIII. Methods
   a. Syndromic and emergency department surveillance have been very useful
IX. Recommendations

a. Develop disaster specific evidence based algorithms
b. Create standardized data collection forms that are modifiable and make people aware that they are available and promote standardized use of them
c. Create standardized questions
d. Provide recommendations on how to effectively share data across states: what format and guidelines on how this could be done
e. Create guidelines on when surveillance should be implemented and what type
f. Tracking individuals over time – Find a way to track people in surveillance systems then link individuals across systems. Not being able to link individuals across data systems could be more of a structural issue of the current surveillance systems.
g. Provide recommendations on how to do follow up
h. What is the evidence base for disaster registries? What are the pros and cons?
i. What is the evidence base for prioritizing surveillance? What research needs to be done? This could help create disaster surveillance programs within health departments.
j. How do you start operational research? What should be included? How is it done operationally in the field?
k. Can we use after action reports for evaluation and therefore providing recommendations?
l. Survey states – asking questions about surveillance: was it useful; why; in what settings did you use this information?
m. CSTE position statement on outcomes for the disaster surveillance settings
   i. Wary on providing "standards" – what if states cannot meet them? Guidelines or common elements are better terms
n. Create a set of pick list items for other surveillance objectives
o. Collect body of knowledge available for what has and has not worked in disaster settings = lessons learned

Epidemiologic Studies
(Lindsay Oweida)

- Disaster epi was a new idea to many

Opportunities for research – potential role of academics
- Evaluation and efficacy studies
- Nation-wide surveillance systems – how can we be more involved?
- Johns-Hopkins developed models for post-disaster surveillance

Topics
- Research vs. public health practice
   o Need for standard definitions
      ▪ Different entities have different concepts of what these are (local PH, academics, emergency response, etc)
   o How do we engage stakeholders? How do we get the information to them in a timely manner?
      ▪ Immediate needs vs. longer studies – differing timelines
   o What questions are we trying to answer?

- - - Event-specific, location-specific, population-specific?
- Gathering identifiers – what do we need for PH side vs. what we need for longer-term studies?
  - Partnerships?
- Engaging with non-traditional partners
  - Mortality studies; can we get to data gathered by first responders
  - Pre-disaster partnership development
- IRB issues
  - Ethical considerations
  - How do you justify collecting data for epi studies when basic needs aren't being addressed in the population?
- Cataloguing
  - Each group has its own experiences; can we catalogue this data?
- Funding and resources
  - Identify where funding is available?
  - How can we share resources?
  - What skill sets are needed?
  - Availability of personnel?
    - Within state, across jurisdictions, federal
  - Trade-offs of bringing in outside partners? Benefits vs. costs
- Assessments done pre-disaster
  - Can we assess expectations in a community before a disaster hits
  - Can we get information about community knowledge, needs, and expectations before we get into a response situation?
- Need to develop partnerships prior to disaster situation!

What can CSTE do?
- Coordinate academic-state partnerships
- Produce standard definitions
- MOUs and MOAs – agreement in place for use of data and associated expectations; sharing data
  - How do we convince doctors to mark the right box and report in a timely manner?
  - How do we get emergency management and others to understand what epi is? How do we more effectively market epi abilities? Where should epis be located in ICS?
    - Different languages/understanding – need for common definitions
    - What partnerships do we need to develop?
      - Among public health
      - Among other players in emergency management system
      - Develop forum to ensure that epis are trusted among the EOC/ICS etc. Partnerships are important not only for disasters, but also for research planning and other community activities.
      - Can CSTE help with this?

- Help identify knowledge gaps? What lessons have been learned and by whom? Who are the experts (domestic/international/academics)? What literature is available? Journals? Topic areas? Where do we look?
  - Catalogue CDC resources (what agency is overseeing which topic?)
- States look to CSTE to provide guidance on how to set up relationships with academic partners
  - How should data be shared?
  - Complications of providing identified information?
  - Are there standardized data collection tools?
  - Reduce study participant burden?
  - Data utilized by researchers takes a long time to come to publication; the communities have an immediate need – how do we get this info to them in a timely manner?
- Advocate
  - Need to collect data at all (general consensus that we know we need info, although we may not be able to agree on what)
    - Can't recreate data without partnerships with state/local HD
  - Public needs to know why the PH workforce is out after a disaster – to make the field work more accepted
- Public health competencies do not mention disasters; can CSTE work to include this?
  - Embed in public health education
  - Professional development program
  - Revised competencies do include disaster epi and response
  - At a master's level, curriculum is being developed
    - Availability in schools may vary
- Advocate for internships within disaster epi to promote awareness which may make students want to learn and universities provide training
  - Generate epi capacity
  - Can we increase workforce development? What programs are available?

Disaster epi is a tool to generate public health info that emergency managers can use to improve the situation (research, applied research, evaluation, may be different)
Need for integration of disaster epi with public health emergency preparedness.
- Education and professional training opportunities
- Do classroom products need to be resurrected and updated? What's out there? What do we want to teach?
- Outside speakers with PH practitioners, emergency management personnel, etc.
- Focus on multi-disciplinary activities (in addition to PH needs in disaster)
- Can we create interest among students and shepherd them into disaster epi jobs/internships? More opportunities.

Need for after-action assessments to evaluate what was useful and what still needs to be done in further epi studies.
- Are we there yet? Can we do this or do we need further understanding in other areas?
  - Can't afford to wait

- o If we think about it, we can get better
- Need to build capacity
  - o State/local HD establishing relationship with academic institutions to foster development of this
    - Local HD are struggling to assess population they have (ex. MA)
    - What minority populations? How are they affected? Etc.
    - Can academics help meet these needs and share the info with the local HD? Can academics help develop standard tools? Even for community based surveillance prior to disasters? Need for practical information – if immunization coverage is low, tetanus boosters may need to be provided (effective disaster relief requires an understanding of the community)
    - Barriers
      - Logistics: most universities want relationships to be funded; state/local HD may not have this 'extra' funding
      - HD may be able to collect data the university doesn't have; universities have students willing to work (theses/practicum) and academics who may be interested in data
        - o EpiSurge training
        - o Does CSTE really need to take a position on funding issues?
  - o Difficult to build relationships during a disaster – need to be in place prior to emergent situation
- Academic settings are good for evaluation, but they are somewhat removed from the situation
  - o Can we improve theoretical knowledge within the field among professionals?
  - o How can academic settings help you? Tell them what you need.
  - o Can you translate their recommendations into action?

Can we provide more training on how to do analytical studies in disaster settings? From whom?
- Academic institutions?
- Inventory on questions that need to be answered from state/local HDs that academics could use
- Workforce development!

Popular comments:
- Who's at risk
- Learn lessons
- Collect body of knowledge
- Identify vulnerable populations

Can we integrate disaster epi studies into strategic planning prior to disaster?

(Erin Simms)

I. Need standard definitions on research vs. practice. Disaster epidemiology is a tool to create public health information NOT research.

II. Disaster epidemiology needs to be integrated into the public health preparedness community AND it needs to be embedded into public health education curriculum. We should work to professionalize disaster epidemiology with competencies.
III. Set standards for what questions we are trying to answer and how to gather identifiers for short term and long term surveillance
IV. How do we engage with non-traditional partners
V. States are looking to CSTE to provide guidance on how to interact with universities and how to share data. Additionally, how do you facilitate web resources between states and academic institutions? Discuss needs and common issues.
VI. How do you reduce study participant burden? How do you gain access to communities?
VII. Recommendations
   a. CSTE should advocate the need to collect data in all disaster settings and let the public know why.
   b. CSTE should coordinate activities to promote state-academic partnerships
   c. Create a repository for MOUs and MOAs and other agreements for data sharing
   d. CSTE should advocate for disaster epidemiology fellowship positions
   e. CSTE could facilitate working partnership between academia, preparedness community, and disaster management system.
VIII. Areas for research
   a. Provide training on analytical studies during disasters
   b. Resurrect course curriculums on disaster epi in academic institutions → need workforce development (Columbia univ., UCLA, and UC Berkeley have disaster epi courses)
   c. Assess vulnerable and minority populations – helping local health departments who are within these populations
   d. Identify how the community reacts to public health information and how they get information related to health
   e. Create an inventory of questions within disaster settings of questions that have been asked in rapid needs assessments and epi studies

Wrap Up and Final Comments

Who else should be included?
- City/local epis
- Other associations interested in disaster epi (ex: state's alliance)
- ATSDR, NACCHO, APHA
- Dept. Homeland Security?
- Association of PH prep directors (PHEP directors)
- National association of state PH veterinarians (pets involved in disasters)
- Other HHS entities (ASPR)
- Red Cross?

Future directions:
- Will develop a white paper report to see if there is useful information for a publication
- Establishing minimal guidelines – something to think about and hopefully produce workable options

What topics are missing?

- Natural disasters: HVAs from local HD
- Using geospatial tools and information in decision making
- New way CDC preparedness will be funded – target capabilities and skills needed

Closing Remarks – Tom Sinks, CDC

I.   Surveillance during disasters is necessary – think of it as situational awareness. People want data and they need to know what the issues are.

II.   What was not brought up at this meeting is laboratory surveillance (infectious disease disaster component and exposure)

III.   Think of the scenario of the white house situational room during an earthquake or hurricane. The president meets with the cabinet secretaries and they each have 3 minutes. Will the secretaries use the information we are collecting as part of that briefing? If what we are doing does not shuffle up the ICS chain, then is what we are doing useful?

IV.   We should provide consensus recommendations regarding minimum guidelines – this is when we do surveillance, what are the boundaries, how do we provide this information up the chain.

V.   Is the work that you want to do so relevant that administrators would want to include a budget line for your activity?

VI.   We can disseminate information on what disaster events may occur in different states

VII.   Work to include disaster epidemiology in the ICS framework and in emergency response

VIII.   Research is usually hypothesis driven, so develop these hypotheses before the event occurs and develop the planning steps. Develop strategies and complete IRB beforehand.

IX.   3 things were missing: mental health; because public health is local, hazard vulnerability assessments are useful; how do we use GIS tools in our decision-making?

X.   CDC will be funding preparedness in a new way (target skills and capabilities are needed). Make the case for epidemiology loud and clear.