

NC DETECT Disaster Modules Facilitate Efficient Population Monitoring

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OBJECTIVE

The value of syndromic surveillance during and after disasters has been documented.¹ We describe a new approach for comprehensive, efficient, all hazards monitoring using disaster modules in NC DETECT.

BACKGROUND

NC DETECT provides near-real-time statewide surveillance capacity to local, regional and state level users across NC with twice daily data feeds from 119 (99%) emergency departments (EDs), hourly updates from the statewide poison center, and daily feeds from statewide EMS runs, select urgent care centers and veterinary lab data. The NC DETECT Web Application provides access to aggregate and line listing analyses customized to users' respective jurisdictions. Several reports are currently available to monitor the health effects of disasters but require multiple points of access and require manual work to create a comprehensive view.

METHODS

In 2008, the NC Division of Public Health (NC DPH) formed the Disaster Epidemiology Workgroup (NC DEW) to provide a comprehensive, integrated approach to disaster response. NC DEW has facilitated discussions regarding ways to perform needs assessments more efficiently, to leverage existing surveillance systems during and after disasters, to integrate all-source epidemiologic information during a disaster, and to use this information effectively to inform response. As a first step, the NC DEW surveillance subgroup has worked to develop all-hazards NC DETECT reports, for events such as chemical explosions, heat waves, hurricanes and wildfires. These keyword and ICD-9-CM-based reports are tailored to the specific disaster; e.g. acute illness reports in the hurricane module include respiratory and gastrointestinal illness as well as water and food safety threats, while acute illness reports in the heat wave module include dehydration and heat-related illness. In addition to injury and acute illness, the disaster modules incorporate specific monitoring for chronic diseases, relief workers and behavioral health. Table 2 shows what comprehensive monitoring during hurricanes and severe floods may look like.

RESULTS

Both aggregate and record level reports will be deployed in disaster modules in fall 2009. Report information can be used to assess levels of healthcare utilization in the affected communities, evaluate control and prevention efforts, monitor the safety of re-

lief and recovery workers, facilitate planning and inform the overall response. The NC DEW surveillance subgroup has also standardized active surveillance forms for use in shelters and field hospitals; discussions regarding how and when to incorporate these data into NC DETECT are ongoing. While the disaster modules are still under development, monitoring of recent events using NC DETECT continues, such as during a chemical explosion at a Wake County factory in June 2009. Retrospective analysis has shown that while the majority of the ED disaster-related visits for this event were trauma-related injuries, the scope, severity and type of visits were quite varied and included lacerations, fractures, closed head injuries, eye and ear pain, inhalation exposures, burns, shortness of breath, and abdominal pain. In addition, most disaster-related healthcare seeking behavior is not explicitly identified as such, so estimating the true healthcare burden and outcomes of disasters using secondary data is challenging.

Table 2: Hurricanes/Severe Floods Disaster Reports

Acute Illness	Injury	Chronic Disease	Other
Respiratory	MVC & other severe trauma	Cardio	ED Census
GI Severe	Drowning	Diabetes	Medication Refills, dialysis, etc.
Meningo-encephalitis	Burn/electrocution	Chronic Respiratory	Relief Workers
Jaundice	Carbon Monoxide	Seizure	Behavioral Health
Food & Water Safety Threats	Bite/sting		

CONCLUSIONS

The NC DEW surveillance subgroup has facilitated the development of efficient, comprehensive disaster modules. These modules have yet to be tested in a real-world disaster and will require continuing, iterative development.

REFERENCES

[1] Hope K et al. The public health value of emergency department syndromic surveillance following a natural disaster. *Commun Dis Intell* 2008;32:92-94.