

North Carolina Preparedness & Emergency  
Response Research Center (NCPERRC)

## Local Variation in Public Health Response to H1N1: Evidence from NC

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Preparedness Summit

February 18, 2010



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## Acknowledgements

- Funded by CDC grant to NC Preparedness & Emergency Response Research Center
- Collaboration from RWJF NC Public Health PBRN
- Coauthors and Collaborators
  - Glen Mays, PhD, UAMS
  - John Wayne, PhD, UAMS
  - Cammie Marti, MPH, UAMS
  - James Bellamy, MPH, UAMS
  - Mary Davis, DrPH, NC Institute for Public Health
  - Brittan Williams Wood, MPH, NC Institute for Public Health
  - Edward L. Baker, MD, MPH, NC Institute for Public Health
  - North Carolina Division of Public Health
  - Local health department leaders and staff

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## Goal

Use H1N1 event to gather  
data for After Action Reviews  
in Local Public Health  
Jurisdictions in NC

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## Objectives

- Describe the nature and timing of the public health response to H1N1 outbreak in NC
- Test for differences in local response between accredited and non-accredited health agencies
- Identify factors that facilitated and inhibited H1N1 response activities
- Use findings to create After Action Reports (AARs) and identify improvement areas for public health agencies

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## Process

1. Developed method to evaluate response using Homeland Security Exercise Evaluation Program (HSEEP) Framework
2. Selected LHDs to invite to participate in study
3. Pre-site visit conference call to discuss site visit schedule and send data collection tools
4. Site visits
  - a. Day 1 (AM): Meeting with Preparedness Coordinator (and others based on HD preference)
  - b. Day 1 (PM): Focus group/hotwash with partners
5. Write After Action Reports (AARs)

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## Evaluating Response: Homeland Security Exercise and Evaluation Program (HSEEP)

- Provides a framework for exercise development, evaluation and improvement planning
- Evaluation based on actions taken versus pre-determined metrics
- Improvement planning based on lessons learned from performance gaps observed during exercise and documented in After Action Report (AAR)

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## Process Used for H1N1

1. Selected Desired Capabilities based on TCLs, State and Federal Public Health Guidance
2. Developed Event Evaluation Guide (EvEG) with metrics to evaluate response and data collection tool to gather data on timeline of events and response activities
3. Sent EvEG and timeline tool to Health Department 1-2 weeks prior to site visit
4. Conducted site visit and hotwash
5. Compiled data and wrote AAR

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## Study Design & Methods

- Case-control study of 9 communities selected to contrast accreditation status
- Structured interviews capture key elements of the nature & timing of investigation & response
- Factor analysis used to group survey items into domains and construct composite measures of **scope** and **timing**
- Multivariate models used to test for differences by accreditation status, controlling for domain and community fixed effects

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## Study Communities



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## Survey Items

DOMAIN	NUMBER OF ITEMS	
	SCOPE: was activity performed?	TIMING: Days since outbreak*
Planning	45	--
Communication	105	14
Incident command	9	4
Investigation	21	6
Response and mitigation	27	13
<b>Total</b>	<b>207</b>	<b>37</b>

\*Outbreak onset defined as 15April2009

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## Example Survey Items

Item	Pct/Mean
<b>Planning:</b> local plan is in place for enforcing isolation and quarantine orders	89%
<b>Communication:</b> physician guidelines were disseminated about acquisition of supplies	44%
<b>Incident command:</b> local EOC was activated	43%
<b>Investigation:</b> days to initiation of hospital case-finding activities	16.5
<b>Response:</b> health alert network notification	33%
<b>Mitigation:</b> contact notification initiated	67%

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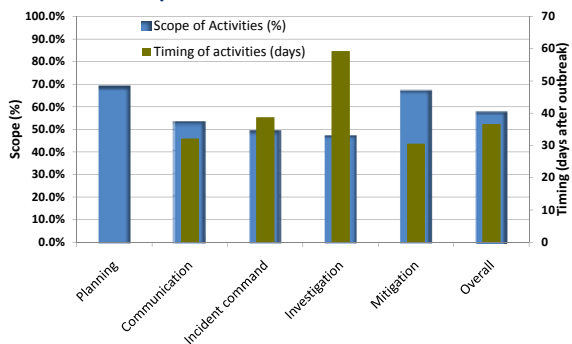
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**Scope and Timing of H1N1 Response Activities:  
Composites from All 9 Communities**




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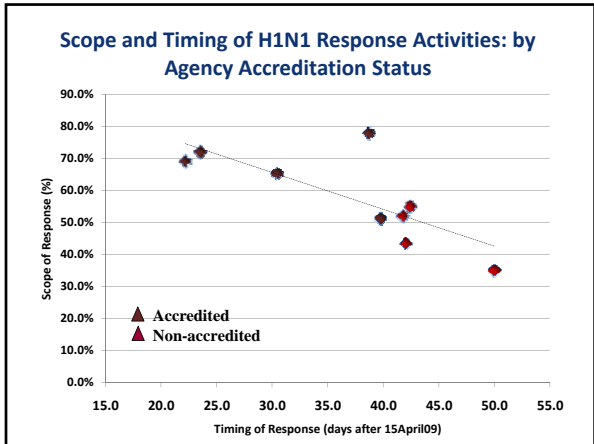
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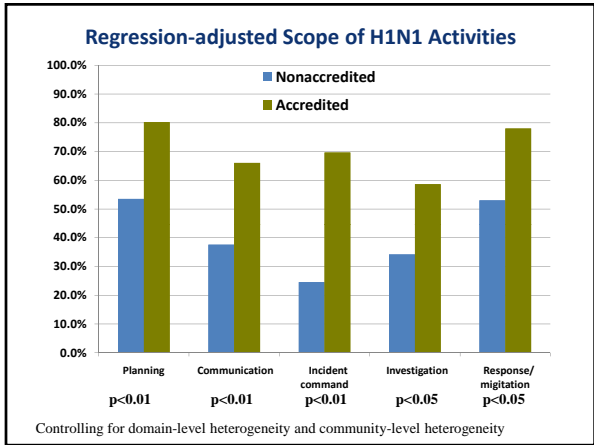
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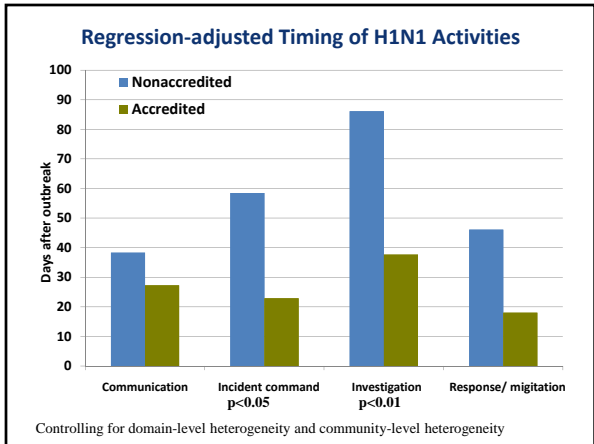
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## Conclusions and Implications

- Wide variation in the scope and timing of local public health responses to H1N1
- Accredited agencies implemented a broader scope of responses
- Accredited agencies implemented IC and investigation activities more rapidly
- Accreditation may confer and/or detect enhanced capacity for H1N1 response



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## Observations on Process

1. Documentation for detailed response timeline data was usually available but in many formats and locations
2. Recall was challenging given time elapsed since initial event response (3-4 months)
3. Lack of information on local response before hand, evaluators were unsure of applicable TCLs to measure against, leading to an EvEG that was too long
4. Outside facilitation/evaluation reduced bias

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## Recommendations for the Future

1. Have a central location and format for documenting response activities that can be accessed and updated electronically by all involved
2. Use standardized data collection tool during an event to reduce recall bias and incorporate in process described in #1
3. Obtain specific response timeline data at least one week before site visit to allow for a more targeted approach to evaluation during site visit
4. Recruit outside facilitators and evaluators

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## Keys to Project Success

- Established and implemented processes
  - Research & Translation Committee
  - LHD Association committee
  - LHD Association liaison
  - Communications processes
- Coordinated activities among 4 projects
- Asked questions that are timely & meaningful
- Collected only essential new data
- Offered to assist state division of public health with data analysis

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