

# Research Brief

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## How the Hospital-Based Public Health Epidemiologist Program Benefits Local Health Departments

In 2003, the North Carolina Division of Public Health (NC DPH) established the hospital-based public health epidemiologist (PHE) program to enhance state and local preparedness and response. Eleven PHEs are based in the state's largest hospitals, covering approximately 39% of general/acute care beds and 30% of emergency department visits. PHEs are responsible for:

- 1) Surveillance, detection, and monitoring of community-acquired infections and potential bioterrorism events;
- 2) Assisting local health departments (LHDs) with public health investigations;
- 3) Educating clinicians regarding diseases of public health importance;
- 4) Enhancing communication among clinicians, hospitals, and the public health system; and,
- 5) Conducting special studies.

The North Carolina Preparedness and Emergency Response Research Center (NC PERRC) at UNC Gillings School of Global Public Health conducted a descriptive study of the PHE program. The study design applies Handler's conceptual framework (2001)<sup>1</sup> for measuring public health system and program performance. The first critical step in determining how well a program achieves its desired outcomes is the systematic and comprehensive measurement of the program's structural capacity (e.g., resources) and functions (e.g., services provided). Here, we present findings from one aspect of the study that focused on services PHEs provide to LHDs, as reported by communicable disease (CD) and TB control nurses.

NC PERRC staff interviewed PHEs regarding their roles and responsibilities during May and June, 2010. Two roles related directly to working with LHDs. On average, PHEs reported spending 20% of their time assisting LHDs with public health investigations (24% during the H1N1 epidemic). Additionally, they reported spending 13% of their time enhancing communication among clinicians, hospitals, and the public health system (11% during H1N1).

Established in 2003, the public health epidemiologist (PHE) program in NC placed epidemiologists in the state's 11 largest hospitals to serve as liaisons between hospitals and state and local public health with the goal of increasing public health surveillance and preparedness. PHEs report dedicating a significant portion of their time to working with local health departments (LHDs). This brief summarizes the support and services LHDs receive from PHEs.

To gather information on the services PHEs provide to LHDs, an electronic survey was sent to lead CD nurses and TB control nurses. The survey asked respondents about their interactions with PHEs.

The survey was completed by 119 CD and TB control nurses for a response rate of 87.1%, representing 74 (88.2%) of the state's 85 LHDs. Respondents indicated they had been in their current positions for an average of 7 years (range, 2 months - 42 years).

## LHD Interaction with PHEs

Eighty-eight respondents (73.9%) indicated that they had interacted with a PHE in the past year. They were located at 66 (77.6%) of the state's 85 LHDs. Of those who interacted with PHEs, 56 (63.6%) interacted with a single PHE, 20 (22.7%) interacted with 2 PHEs, and 9 (10.2%) interacted with 3 PHEs. Two respondents reported interacting with 4 PHEs, and 1 respondent interacted with 5 PHEs. Respondents most frequently reported interacting with PHEs located at the University of North Carolina Hospital (31.8% of respondents), Mission Hospitals (20.5%), Pitt County Memorial Hospital (20.5%), Duke University Medical Center (17.0%), and Carolinas Medical Center (15.9%).

On average, PHEs interacted with 10 different LHDs (range, 2 – 20).

## Importance and Frequency of Services

LHDs were asked to rate the importance (very, somewhat, not at all important) of communicable disease reporting and investigation services provided by PHEs. Additionally, they were asked how frequently they received these services. Five services, ranked as “very important” by over 90% of respondents, stand out as being essential to LHDs. Three of these were received from PHEs always/sometimes over 90% of the time with the remaining two received always/sometimes more than 75% of the time. (See Table 1.)

Table 1. Frequency of Services Received by LHDs from PHEs

Service	Always/ Sometimes Received	Rarely/ Never Received
<i>Services rated as “very important” by more than 90% of respondents:</i>		
Report cases of communicable disease at their hospital to my LHD for patients that reside in my county or health district.	94.3%	5.7%
Respond directly to my (or my LHD's) requests for information needed from a patient's medical record for reporting or investigation purposes.	94.0%	6.0%
Facilitate my (or my LHD's) access to physicians or others at their hospital who can provide information needed from a patient's medical record for reporting or investigation purposes.	91.5%	8.5%
Refer patients (or family members of patients) with a communicable disease to my LHD for follow-up services, as needed.	79.4%	20.6%
Proactively inform me (or someone else at my LHD) of unusual cases/clusters of communicable disease at their hospital.	76.9%	23.1%
<i>Services rated as “very important” by less than 90% of respondents:</i>		
Provide regular reports on influenza cases at their hospital during flu season.	72.5%	27.5%
Provide regular reports on communicable disease in my county or health district.	70.1%	29.9%
Conduct interviews with patients and/or their family members at my (or my LHD's) request.	64.5%	35.5%
Pass on new or timely information from NC DPH, their hospital, and/or CDC regarding diseases of public health importance.	63.9%	36.1%
Meet regularly (either in person or by phone) with me or other staff at my LHD to review reportable cases, provide updates, and/or share information.	43.6%	56.4%
Meet with my LHD's Epi Team to review cases, provide updates, and/or share information.	34.8%	65.2%

## Impact of PHE Program

Four indicators were used to measure the impact of the PHE program on communicable disease reporting by LHDs. Over 85% of respondents that interacted with a PHE indicated that the program had either greatly or somewhat enhanced the following:

- Communication between hospitals and local public health with regard to communicable disease reporting and investigation. (94.6%)
- Completeness of communicable disease reporting in the community. (89.1%)
- Timeliness of communicable disease reporting in the community. (88.0%)
- LHD's ability to be more efficient in reporting and investigating cases/clusters of communicable disease in the community. (85.4%)

## Conclusions

Strategically placed at the state's largest hospitals, the 11 PHEs provide services to the majority of North Carolina's 85 LHDs. Respondents consider these services important to communicable disease reporting and investigation. PHEs serve as a liaison between the health care system and local public health and provide LHDs with a dedicated point of contact within hospitals. The majority of respondents interacting with PHEs report that the program has somewhat or greatly enhanced communication between hospitals and local public health, the timeliness and completeness of communicable disease reporting, as well as increasing LHD's efficiency in reporting and investigating communicable disease in the community.

## References

1. Handler A, Issel M, Turnock B. A conceptual framework to measure performance of the public health system. *Am J Public Health*. 2001; 91 (8): 1235-1239.

## Authors & Acknowledgements

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