The National Association of County and City Health Officials

Research Brief

Preliminary Draft April 2006

Large Local Health Department Technical Biosurveillance Capacity

Introduction

Public health surveillance is the ongoing, systematic collection, analysis and interpretation of health-related data essential to the planning, implementation and evaluation of public health practice. Surveillance is closely integrated with the timely dissemination of these data to those responsible for prevention and control.

While there is no commonly accepted definition of biosurveillance, it typically refers to automated monitoring of existing health data sources to identify trends that may indicate naturally occurring or intentional disease outbreaks. Such data may supplement traditional surveillance and disease reporting methods. The Centers for Disease Control and Prevention and many local and state public health departments are also gathering data to provide situational awareness to augment existing surveillance sources during a public health emergency.

Methodology

NACCHO invited three hundred forty-four local health departments (LHDs) with a population greater than 200,000 to participate in a brief internet-based survey about biosurveillance capacity. The survey was released in April 2006 and was in the field for only one week due to outside time constraints

Summary of Results

Ninety-three LHDs responded to the survey within one week, with a response rate of 27%. This response rate was higher than expected due to the short time that the survey was in the field. Respondents came from twenty-six (26) states.

Table 1. Number of Respondents by Type	Number of Responses	Response Ratio
City	12	13%
Metropolitan area	3	3%
County	67	74%
Suburban area	3	3%
Town or township	0	0%
Region	11	12%
Other, Please Describe	5	6%

The majority of health departments have capacity for initial event detection, situational awareness, and outbreak management. Approximately half of the respondents reported having response management support capabilities.

Table 2. Percent LHDs with current capacity (or will have the capacity in the next 6 months, to accept electronic data in standard message formats (i.e., HL7, OASIS, X12) coming from clinical care to meet the following biosurveillance capacities:	Number of Responses	Response Ratio
Initial Event Detection (i.e., syndromic surveillance and environmental monitoring, pharmacy, and OTC data)	59	68%
Situational Awareness (i.e., monitor an ongoing event through clinical data such as diagnoses, lab orders, lab reports, other diagnostic tests)	53	61%
Outbreak Management (i.e., case investigations, identification of clusters and other activities to support an outbreak investigation)	53	61%
Response Management Support (i.e., contact tracing, tracking of prophylaxis, treatment and immunization distribution to individuals, and isolation and quarantine)	41	47%
My local health department has no biosurveillance capacity	14	16%

While 72% of respondents indicated that they are receiving syndromic surveillance data from clinical care setting in any format, only 56% of respondents indicated they currently have the capability to receive initial event detection data in standard electronic formats, or plan to have the capability within the next six months.

Local Biosurveillance Software

The majority of LHDs are using applications developed by State Health Agencies (SHA) to collect and analyze biosurveillance data. Software developed by CDC and locally-owned commercial off-the-shelf software are used less frequentl, however, they are also widely used for initial event detection and situational awareness. In-house applications are more commonly used for outbreak management and response management support.

Table 3. Type of application being used Initial Event Detection	Number of Responses	Response Ratio
Don't know	3	4%
Not applicable	5	7%
CDC-provided software	23	31%
Software developed in-house	12	16%
State developed systems	31	41%
Commercial Software (Please Identify)	28	37%

Table 4. Type of application being used Situational Awareness	Number of Responses	Response Ratio
Don't know	2	3%
Not applicable	8	11%
CDC-provided software	15	20%
Software developed in-house	14	19%
State developed systems	38	51%
Commercial Software (Please Identify)	17	23%

Table 5. Type of application being used Outbreak Management	Number of Responses	Response Ratio
Don't know	3	4%
Not applicable	9	13%
CDC-provided software	19	27%
Software developed in-house	21	30%
State developed systems	30	42%
Commercial Software (Please Identify)	12	17%

Table 6. Type of application being used Response Management Support	Number of Responses	Response Ratio
Don't know	5	7%
Not applicable	13	19%
CDC-provided software	12	17%
Software developed in-house	19	28%
State developed systems	26	38%
Commercial Software (Please Identify)	15	22%

Capacity to Collect Biosurveillance Data

Many local health departments have put resources into developing syndromic surveillance capacity, which is reflected in the fact that 77% of respondents indicated capability to electronically receive chief complaint data. Almost as many respondents (73%) indicated an ability to electronically receive laboratory results, while only 22% have the capacity to receive laboratory test orders. No information was collected concerning which laboratory results can be collected. More than half of respondents have the ability to collect utilization data (60%), and nearly half indicated capacity to collect diagnostic data. Very few respondents (11%) have the capacity to collect vital sign data.

Table 7. Number of LHDs currently electronically receiving (or will have the capacity in the next 6 months) following types of biosurveillance data:	Number of Responses	Response Ratio
Utilization (i.e., available hospital beds)	44	60%
Chief Complaint Data (i.e., syndromic surveillance)	56	77%
Vital Sign Data (i.e., temperature, blood pressure, etc.)	8	11%
Diagnostic Data (i.e., ICD9 codes)	34	47%
Laboratory Test Results	53	73%
Laboratory Test Orders	16	22%

Local and State Responsibility for Biosurveillance

Respondents indicated that there is a considerable amount of collaboration between SHAs and LHDs around biosurveillance. Forty percent (40%) of respondents indicated that biosurveillance systems in use at the local level are managed by both the SHA and LHD. Fewer than a quarter of respondents (21%) manage all of their biosurveillance applications locally, while slightly more (25%) indicated that the SHA manages all applications in use at the local level.

A similar division of responsibilities was reported concerning the extent that SHAs depend upon LHDs to participate in and perform biosurveillance activities. Nearly half of the respondents indicated that they share the responsibility for data collection and share information regarding biosurveillance. A quarter of respondents indicate that they LHD collects biosurveillance data under the direction of the state, while nearly as many report that they collect data with no guidance from the SHA. Only five LHDs reported that the SHA has exclusive responsibility for biosurveillance.

Table 8. Entity Managing Biosurveillance Systems in Use at LHDs	Number of Responses	Response Ratio
My local health department	16	21%
State department of health	19	25%
Both	30	40%
Neither	1	1%
Another entity (Please Describe)	9	12%
Total	75	100%

Table 9. Extent state health department relies on LHD participate in and perform biosurveillance	Number of Responses	Response Ratio
Local health department collects own data without guidance from the state health department.	16	21%
Local health department performs biosurveillance under guidance of state health department.	18	24%
State health department and local health department share responsibility and exchange information.	35	46%
All biosurveillance is conducted directly by the state health department, with data coming to the state health department from clinicians, hospitals, labs, and other sources.	4	5%
Other relationship, please describe	3	4%
Total	76	100%

Table 10. LHDs with sufficient staff to fully implement short-term biosurveillance plans	Number of Responses	Response Ratio
Yes	36	47%
No	27	36%
Not sure	14	18%

Table 11. My local health department has sufficient funding to implement our short-term biosurveillance plans.	Number of Responses	Response Ratio
Yes	28	37%
No	32	42%
Not sure	16	21%

Table 12. How have these biosurveillance systems been funded?	Number of Responses	Response Ratio
Direct federal funding	9	12%
Federal funds passed through state health agency	52	68%
State funds	24	32%
Local funds	21	28%
Other (Please Describe)	8	11%

LHD Biosurveillance Resources

Nearly 60% of respondents reported receiving federal funds for biosurveillance passed through SHAs. Thirty-two percent of respondents reported receiving state funding for biosurveillance and nearly as many (28%) reported receiving local fund as well. Twelve percent of respondents received direct federal funding and 11% indicated receiving funds from other sources.

Nearly half of respondents (47%) indicated sufficient staff to fully-implement short-term (6 months) biosurveillance goals, while 38% reported having insufficient staff, and 18% were not sure. Only 37% percent reported having sufficient funds to implement short-term biosurveillance needs, while 42% percent report having insufficient funding and 21% were unsure.

LHD Relationship with Clinical Partners

Respondents indicated that they are working very actively with providers in their jurisdictions around preparedness and biosurveillance. Virtually all respondents (98%) indicated an active relationship with private providers around preparedness planning. Ninety-one percent (91%) of respondents indicate that they have an active relationship with clinical partners to receive disease reporting in any format. Seventy-two percent reported that they receive syndromic surveillance data from local providers in some format, including paper, e-mails and electronic reporting. However, only 31% indicated that they have the capacity to accept, process, and use data from clinical care for biosurveillance. In contrast, 68% indicated that they could accept data from clinical partners for initial event detection, 61% for situational awareness, 61% for outbreak management and 47% for response management support. The reason for this discrepancy is not clear, but it can be inferred that the ability to accept data does not necessarily mean that LHDs

have the capacity to process and use the data. There could also have been some confusion over the exact definition of biosurveillance.

Very few respondents responded to the question about the number of providers in their jurisdiction currently sending biosurveillance data electronically. Only 27 respondents provided information about hospitals, 22 about ambulatory care centers and 23 reported about community health centers. With an average of 9.2 hospitals per jurisdiction, 7.2 are reporting biosurveillance data electronically. With an average of 112 ambulatory care settings per jurisdiction, only 7.1 are reporting biosurveillance data, and with an average of 8.2 community health centers, an average of 3 are reporting biosurveillance data in standard electronic formats.

Table 13. Types of information exchange that exists LHDs and State Health Agencies for routine surveillance?	Number of Responses	Response Ratio
Passive surveillance of reportable diseases reported by paper only	15	20%
Passive surveillance of reportable diseases reported electronically	46	62%
Active surveillance of reportable diseases reported by paper only	9	12%
Active surveillance of reportable diseases reported electronically	21	28%
Active surveillance of reportable diseases and other health data reported by paper only	11	15%
Active surveillance of reportable diseases and other health data reported electronically	27	36%
No information exchange	1	1%
Other, please describe	7	9%

Table 14. LHDs with active relationship with clinical partners for local preparedness planning	Number of Responses	Response Ratio
Yes	86	98%
No	1	1%
Not sure	1	1%

Table 15. LHDs with active relationships with clinical partners to receive disease reports in any format (i.e., paper, e-mail, electronic reporting).	Number of Responses	Response Ratio
Yes	80	91%
No	4	5%
Not sure	4	5%

Table 16. LHDs with active relationships with clinical partners to receive syndromic surveillance in any format (i.e., paper, e-mail, electronic reporting).	Number of Responses	Response Ratio
Yes	63	72%
No	22	25%
Not Sure	3	3%

Table 17. Number of providers sites in LHD jurisdictions

	Hospitals	Ambulatory Care Centers	Community Health Centers
mean	9.2	112	8.2
median	5	20	2

Table 18. Number of provider sites participating sending biosurveillance data to LHDs in standard electronic format

	Hospitals	Ambulatory Care Centers	Community Health Centers
Count	27	22	23
Mean	7.2	7.3	3
Median	5	0	0

Table 19. LHDs with capacity (or will have the capacity in the next 6 months) to accept, process and use data in standard electronic message formats from clinical care.	Number of Responses	Response Ratio
Yes	28	31%
No	34	38%
Not sure	28	31%

Table 20. LHDs receiving (or plan to receive in the next six months) data in standard electronic message formats from the following:	Number of Responses	Response Ratio
Poison Control	11	13%
Pre-hospital Admission	13	15%
Long Term Care Facilities	2	2%
Veterinary Facilities	4	5%
None of the above	57	67%
Other (Please Describe)	8	9%

Local Interest in Participation in National Biosurveillance Initiative

Forty-one percent (41%) of respondents indicated that they are very interested in participating in a national biosurveillance program, while 26% percent indicated that they were interested, and 24% that they were somewhat interested. Only 2% indicated no interest.

Sixty-eight percent (68%) of respondents believe that they will need additional funding to participate in biosurveillance initiative, while 51% considered their current technology infrastructure to be a barrier to participation. Forty-eight (48%) indicated that they believed that private providers' inability to participate is a significant barrier, and 45% indicated that concerns about privacy and security pose a significant barrier to their participation in a national initiative. Forty-one percent (41%) indicated that sufficient trained technology staff posed a barrier to participation, and 33% indicated that sufficient staff to perform data analysis would be a significant barrier to participation.

Table 22. Obstacles to LHD participation in national biosurveillance program	Number of Responses	Response Ratio
Trained personnel - Information Technology	36	41%
Trained personnel - Epidemiologists, Data Analysts, Statisticians	29	33%
Technology Infrastructure	44	51%
Hospitals unable to provide data	26	30%
Hospitals unwilling to provide data	20	23%
Providers unable to provide data	40	46%
Providers unwilling to provide data	27	31%
Concerns about privacy and security of data	39	45%
Insufficient evidence of efficacy of biosurveillance to warrant investment	32	37%
Concerns about national data analysis plan	26	30%
Concerns about capacity to respond to suspect alerts	32	37%
Concerns about disrupting current relationships with providers	21	24%
Would need additional funding to participate	59	68%
None of the above	1	1%
Other, Please Specify	19	22%

LHD Participation in RHIOS

Only 19% of respondents indicated that their LHD is participating in RHIO. However, 55% of those respondents indicate that they are considering gathering biosurveillance data through a RHIO. The majority of funding for LHD participation in RHIOs is coming from federal grants and local funding.

Table 21. LHD level of interest to participate in an early implementation of a national biosurveillance program	Number of Responses	Response Ratio
Not interested	2	2%
	6	7%
	21	24%
	22	26%
Very interested	35	41%
Total	86	100%

Table 23. LHD participation in Regional Health Information Organization (RHIO)?	Number of Responses	Response Ratio
Yes	17	19%
No	73	81%
Total	90	100%

Table 24: Sources of funding being used to support LHD involvement in RHIOs

Federal grants	State funding	Local funding	Foundation grants	Other
12	6	10	3	2

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