

Practical Evaluation of Electronic Disease Surveillance Systems for Local Public Health

Hamilton County
General Health District



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Objectives:

- Evaluate available electronic surveillance products
- Determine which system best supports a regional infrastructure for a population of over 1.6 million people
- Increase knowledge of syndromic surveillance capabilities within multiple public health agencies.



Background:

- Multiple syndromic surveillance products have been introduced by academia and the private sector
- Public health is the end user of these products
- Many local health jurisdictions do not have the capacity for developing or using sophisticated surveillance tools.

Local Ohio Health Jurisdictions in Southwest Ohio:

- Counties: Adams, Brown, Butler, Clermont, Clinton, Hamilton, Highland, and Warren
- City Health Departments: Cincinnati, Hamilton, Indian Hill, Middletown, Norwood, Saint Bernard, Sharonville, and Springdale.

Reference:

Karras BT, Lober, WB, Smith, GT. *Evaluating the New Electronic Disease Surveillance Systems*. Northwest Public Health, Fall/Winter 2002.

Methods:

- A work group from LHD's was introduced to early warning systems with a synopsis of the current literature
- Seven viable systems were identified
- Each system was evaluated according to Karras, et al.'s criteria:
 - vendor
 - reliability
 - validation
 - notification
 - flexibility
 - usability
 - expandability
 - security
 - operation
 - compatibility
 - timeliness
 - supportability
- Systems were rated as acceptable (1) or unacceptable (0)
- A total score was assigned
- Scores were adjusted (+1, 0, -1) according to feasibility of local implementation.

Systems Evaluated:

- ESSENCE II
- FIRST WATCH
- RODS
- RED BAT
- SSIC-KC
- TASSS
- WSARE



Results:

Scores ranged from 2 to 12, with a median score of 8. Systems that provided for direct data streaming through HL-7 language were rated higher than systems that required downloading. Notification of alerts with reliable statistical algorithms also rated favorably.

Results of Syndromic Surveillance System Ratings

System	Criteria Score	Adjustment	Total Score
A	11	0	11
B	9	-1	8
C	7	0	7
D	9	+1	10
E	9	-1	8
F	7	0	7
G	11	+1	12

Conclusions:

- Group process increased LHD's knowledge about the benefits of early warning indicators and facilitated discussion on viable systems
- The Realtime Outbreak and Disease Surveillance system (RODS) was identified as superior for its independence from local jurisdictions, academic credibility, easy access, low cost, simple graphic interfaces, and spatical statistics at a local level
- The state of Ohio will implement RODS state-wide with the Southwest region as the pilot.

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