Syndromic Surveillance Quick-start Guide for Local Health Departments

STARTING POINT

Getting Started

Let's assume you've been asked to start a syndromic surveillance project for your health department. Some basic questions might occur to you:

- Just what is syndromic surveillance, anyway?
- Why do we want to implement syndromic surveillance?

To answer the first question, you might look at what's available online. For a somewhat esoteric topic, there's a surprising amount of accessible information. A Google search conducted in summer 2012 for "syndromic surveillance" now yields almost 350,000 hits, up from about 200,000 about six years ago[3]. You can plow through many of those, if you have time, but it'd be efficient to focus on two articles that, while a bit dated now, are still germane:

- Kelly J. Henning of the New York City Department of Health and Mental Hygiene does a fine job of answering, "What is Syndromic Surveillance?" You should read in its entirety this September, 2004 article[4], which carries that question as its title.

- Daniel M. Sosin, former director of the Division of Public Health Surveillance and Informatics at the Centers for Disease Control and Prevention (CDC), and others wrote another sentinel article[5] called "Framework for Evaluating Surveillance Systems for Early Detection of Outbreaks" which you should also read.

The Henning and Sosin articles show why it's important to make some attempt at gaining consensus among your stakeholders on a definition of syndromic surveillance as a starting point for your project. If you cannot agree on such a definition, you're much more likely to experience one or more of several undesirable outcomes:

- **Confusion:** If you don't study the various definitions of syndromic surveillance, list your specific requirements for a successful system (with those being driven by your agency's broad surveillance goals), and agree on a method for evaluating solutions against your requirements (with Sosin's framework being a place to start), you could get confused by the various buzzwords and oblivious to the significance of what you don't know.

(Remember that "free" is a myth, but "you get what you pay for" isn't gospel, either.)

- **Delays.** You'll spend more time with false starts and evaluating solutions than implementing them if you fail to first define key terms in light of who your stakeholders are and what they want to accomplish. Paralysis by analysis is an oft-cited term for this; it can be fatal if you're under pressure from your funding sources to generate results within any rapid timeframe. So don't rush to judgments about specific solutions, but do get on with your due diligence process; quality time you invest up front will pay off later.

- **Disappointments.** The system you ultimately implement may not provide the benefits your stakeholders anticipate. That will happen if, for example, you deliver a system mostly oriented to providing alerts to epidemiologists based on real-time or near real-time health data, but your epi team or other key stakeholders want a system oriented to trend analysis based on health data that's not as timely but perceived as more clinically valid.

As you assess varied definitions of syndromic surveillance, ask yourself how each translates to the perceived purpose of your system. Is it narrow or broad and how does that compare to your objectives? If you have broad objectives but adopt a narrow syndromic surveillance definition or vice versa, the mismatch is likely to lead to some of the negative consequences mentioned above. Consider, too, the sources behind each definition that you might adopt. Look especially carefully at any definitions provided by companies or individuals who have a vested interest in painting the picture their way.

NEEDS ASSESSMENT FOR SYNDROMIC SURVEILLANCE

Determine what's driving the demand for syndromic surveillance and whether implementation will support your agency's goals. This requires, of course, knowing what those goals are and whether your agency is reassessing or reprioritizing them. So, as you contemplate a syndromic surveillance initiative, be sure you've adequately identified and evaluated all other relevant sources of surveillance data. Do current data gathering and dissemination efforts meet user needs? What works well? What are the gaps? Is there an alternative approach to syndromic surveillance that's equally or more effective? Perhaps you don't need a syndromic surveillance project if your community is well and thoroughly served via existing passive or active surveillance methods.

Some additional questions to consider are:

- How large, complex and diverse is your community? Who are the stakeholders both within your agency and in the rest of the community or jurisdiction? The greater your community's size, complexity and diversity, the more vulnerable

you may be to various covert threats and the more important it then becomes to consider and establish a syndromic surveillance capability.

- Where does your community stand today in terms of emergency preparedness and monitoring of population health conditions? Have public health or other community leaders completed comprehensive threat and readiness assessments? If so, what findings seem applicable to the consideration of a syndromic surveillance system?

- What additional types of data are needed? Is that data available? How important is it? How can other active surveillance and notifiable disease surveillance processes be integrated or complement syndromic surveillance?

- Are there any policy concerns associated with syndromic surveillance and how substantial are they? Is it an appropriate focus for your agency to provide a syndromic surveillance system?

Readiness

The selection, implementation and development of a syndromic surveillance capability isn't an elementary school science project and shouldn't be treated as such. Before you launch your project, take methodical steps to accurately profile your agency's capacity to implement a syndromic surveillance system.

Here's a list of eight key areas to explore[7]:

1. **Staffing**: Your project won't succeed without enough human horsepower. Both the quality and quantity of staffing must be addressed. Does your agency have the necessary expertise to support this type of data and technology initiative? The amount of staffing you need is a difficult variable to pinpoint. The Tarrant County APC is unaware of any guidelines on determining staffing levels for a syndromic surveillance project, but can offer limited guidance based on its experience. The Tarrant County APC has had two staff members (Surveillance Coordinator and Surveillance Database Manager) who are fully devoted to the project and a Center Manager who, as team leader, also spent considerable time on it. Given those resources, the APC has developed a regional reporting network that, as of this updates (summer 2012), has nearly 60 acute-care hospitals contributing data. So, if your goals are to get more than a handful of hospitals online in a year or two, consider having two or three individuals involved in the project to fulfill the roles of team manager, surveillance coordinator, and technical lead.

2. **Funding:** Before starting the project, fully analyze all implications and costs associated with development, adoption, or purchase of a system. If you lack the expertise to perform such analyses, get help from strategic partners or other experienced public health agencies. Some of the many cost considerations include staffing, hardware, software, maintenance, and the potential use of the

federal meaningful use incentives to attract and retain data providers because those incentives help cover their costs. Your hardware and software costs may be none or minimal if you can access a health surveillance system such as BioSense 2.0 in a cloud-based platform.[8] This would mean you don't have to maintain your own hardware and software, and you may or may not still need to work with providers to help them share their data. You'll likely be involved, at a minimum, in encouraging them to do so. First-year costs for the APC syndromic surveillance program may therefore not be relevant for your situation, but they nevertheless appear later in this document — at the end of the "Tarrant County APC Experience" section.

3. **Training:** Once your system is established, you can't just set up user accounts and get the results you desire. Training is required to introduce users to system features and benefits as well as details on how to use it. Training for both technicians and users is needed, covering how to configure the system for maximum benefit — both in general use and in instances where a specific threat(s) is known or anticipated.

4. **Anticipated agency and community support:** Even proponents of your syndromic surveillance capability will have their own priorities and those may not align neatly with yours. How much clout do your supporters have in your agency? What's the image and stature of your agency in the local medical community? If you anticipate some resistance (a safe assumption even with meaningful use incentives), begin to think about the nature of potential objections to your project and how you might overcome them.

5. **Level of operational and technical standardization:** If your agency follows a consistent process for identifying, investigating and responding to emerging disease threats, it's well positioned to benefit from syndromic surveillance. If it handles each disease threat inconsistently – with different staff members pursuing data in their own ways, using analytical tools haphazardly or not at all, and acting on their findings in dissimilar ways – you'll face considerable challenges in generating anticipated benefits. The leading syndromic surveillance software systems such as ESSENCE follow common IT standards and case-definition standards, so your agency will need to train and understand the standards to apply them, or customize the surveillance systems to meet your needs.