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Part 1: The Rationale for Sentinel Surveillance to Monitor Seasonal and Pandemic Influenza

Participant Guide

This section should take 3 hours

Instructions

During this session the moderator will lead you through questions to consider when developing or enhancing sentinel influenza surveillance systems in your country. For some of this first part of the session, the facilitator will present some key concepts and the rationale for sentinel surveillance. In some instances you will work with one or two of the people seated next to you to answer questions, and then the facilitator will bring the large group back together to discuss the answers.

Background Information (also presented as slides from facilitator)

Global influenza surveillance has historically focused on virologic data collection for vaccine strain selection with very limited epidemiologic data collection. Lack of international standards for the collection of epidemiologic data on influenza-related illness has limited our ability to make comparisons across national and regional boundaries. As a result, gaps remain in our understanding of the epidemiology of influenza, the social and climatic factors that influence community transmission, influenza's true global burden, and variation in severe respiratory disease occurrence between countries.

Slides 1-13 — Presentation: Introduction to sentinel surveillance (slides from the facilitator)

Discussion with the group

1) What are the virologic and epidemiologic objectives of sentinel inpatient and outpatient surveillance systems? Discuss these objectives separately for seasonal influenza surveillance and for pandemic surveillance. Use the following table for your notes.

Sentinel surveillance in outpatient *and* inpatient settings:

	Seasonal surveillance	Pandemic monitoring
Virologic Objectives		
Epidemiologic Objectives		

Slide 14

2) Roles and responsibilities in the surveillance system.

Slides
66-77

The facilitator will now give a short presentation the respective roles of the sentinel site focal point, the national virologic focal point, and the national epidemiologic focal point in the surveillance system. This presentation will focus on routine reporting requirements and regional/global reporting requirements as well.

Notes:

 Discussion with the group: Organization of sentinel systems

How are sentinel systems organized in your country?

Notes:

3) Case definitions – SARI and ILI.

The facilitator will now quickly summarize the surveillance case definitions using the pocket guide that was provided to the class.

Pocket Guide

> **SARI:** Severe Acute Respiratory Infection
> **ILI:** Influenza-like Illness

Use the space below for your notes on the surveillance case definitions for SARI and ILI:

As time is limited in this session, the facilitator will then present the clinical strengths and weaknesses of these surveillance case definitions, and then open the discussion to questions.

Clinical strengths and weaknesses of ILI and SARI case definitions:

	ILI	SARI
Strengths	• Less resource intensive as a case definition than SARI	• Captures hospitalized component of influenza. • Will capture cases with exacerbations of chronic conditions, not just those with pneumonia.
Weaknesses	• Fever requirement may overlook persons without fever, such as elderly and immune-compromised. • Not ideal if being used to monitor viral respiratory pathogens other than influenza.	• Will overlook those that do not present with fever such as elderly and immune-compromised. • Will overlook those that do not seek care at a hospital. • Fever requirement makes it more specific, less sensitive

■ Discussion with the group.

4) What are the benefits and drawbacks of establishing pathogen-based sentinel surveillance (involving laboratory confirmation of influenza) for ILI and SARI? Use the following table for your notes.
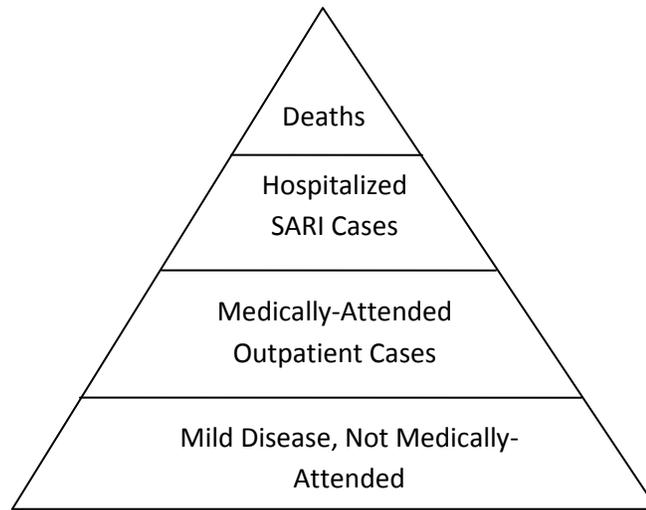
Benefits and drawbacks of ILI and SARI sentinel surveillance:

	ILI Sentinel Surveillance	SARI Sentinel Surveillance
Benefits for seasonal surveillance/pandemic monitoring		
Drawbacks for seasonal surveillance/pandemic monitoring		

Slide 36 >

Influenza Burden Pyramid

Slide 17

Additional Notes:

From your experience, how can severity and virulence be tracked during a pandemic in a timely way? Why is this important to us? Please draw on examples from your own influenza surveillance system.

Notes:

5) What additional data or information systems will be needed in a pandemic, and why?

2 Part 2: Country examples of sentinel surveillance for ILI and SARI

This section should take 45-60 minutes

In this session, there will be three 10-15 minute country presentations on the implementation of sentinel SARI/ILI surveillance.

The presentations should focus on:

- The extent of general practitioner surveillance and the establishment of baselines
- The process of adding pathogen-based SARI surveillance
- Integration of the sentinel surveillance into a national reporting system
- The plans to continue/enhance these systems to support pandemic monitoring
- Perceived challenges and strategies to overcome these challenges

3

Part 3: Practical aspects of surveillance implementation: Interactive session.

This section should take 3 hours

Instructions

During this session the moderator will continue to lead you through questions to consider when developing influenza surveillance systems in your country. You will work with one or two of the people seated next to you to answer questions, and then the moderator will bring the large group back together to discuss the answers.

Background Information

To review: A sentinel surveillance system is formed by one or more designated health care facilities that routinely collect epidemiologic information and laboratory specimens from patients presenting with an illness consistent with a specified case definition. Sentinel site surveillance systems provide an efficient way to obtain high-quality data on relatively common conditions from a manageable number of locations. In this way, the objectives of influenza surveillance can be met more easily, and at lower cost, than with universal surveillance.

For the sake of discussion, let's consider the selection of sentinel sites that will include both inpatient (i.e. hospitalized SARI) components. While many ILI sentinel systems select just a few cases from many geographically dispersed sites, SARI surveillance is a little different. It is preferable to collect data and specimens from all or most SARI cases from a few facilities rather than a small sample of SARI cases from multiple facilities. In addition to being more logistically feasible this will reduce bias in the selection process.

Brainstorm (Sentinel sites and sentinel site placement)

1) **Choose a partner or two from among your neighbors and quickly brainstorm 2-3 ideal attributes of**
    1) a sentinel site, and
    2) 2-3 important criteria to consider for sentinel site placement.

 In addition, list some reasons why each attribute is important (10 minutes). You may use the table below to organize your thoughts.

Attributes of the Site	Explanation
Attributes of Site Placement	

Slides
31-45

The facilitator will present a short set of slides summarizing attributes of good sentinel sites and criteria for placement.
What sites would you choose for SARI surveillance in your country, and why?

Notes:

2) Sampling cases at sentinel sites.

Assume you are establishing ILI and SARI surveillance at 4 sentinel inpatient/outpatient facilities around their country. Working with your partner(s), rank the "feasibility" and "desirability" of each sampling method below separately for both ILI and SARI (10 minutes).

Ranking system:

    3 = most feasible   2= somewhat feasible   1 = least feasible
    3 = most desirable   2=somewhat desirable   1= least desirable

NOTE: A high desirability rating can be given even if you think that a particular approach is not feasible.

A. Selecting samples from all cases
B. Selecting every Xth case
C. Selecting samples from cases only on a certain day (or days) of the week
D. Selecting the first x cases on a certain day of the week

Use following table to present your rankings:

	SARI		ILI	
	Feasibility	**Desirability**	**Feasibility**	**Desirability**
A. Selecting all cases for testing				
B. Selecting every Xth case				
C. Selecting samples from all cases on certain days of the week				
D. Selecting the first x cases on a certain day of the week				

Slides
46-53

⊕ *10 minute break*

3) Epidemiologic data collection at sentinel sites.

Work with your partners to answer each of the following questions.

Pocket Guide

A. List the data elements that should be collected from ILI cases selected for laboratory testing.

>   *Discussion should include:*
>   - *Unique identification number*
>   - *Patient demographics*
>   - *Minimal clinical information including relevant dates of onset and clinical symptoms*
>   - *Pre-existing medical conditions (for SARI only)*
>   - *Vaccine and antiviral use*

B. What, if any, additional elements should be routinely collected from SARI cases?

>   *Suggested answer:*
>   - *At a minimum, pre-existing medical conditions*

*This may become a complicated discussion. Questions that will arise may involve how to define pre-existing conditions, and whether obesity should be included on the form. Also, outcome indicators (death, ICU admission etc..) may also be suggested. It is important to drive the discussion towards what can efficiently and rapidly be collected during **seasonal** surveillance, and what should be the focus of a targeted **epidemiologic investigation** (such as of the "1ˢᵗ 100" casesinvestigation in a country). Sentinel surveillance should be used as a basic way to monitor the progression and clinical characteristics of severe cases during an influenza season. In the case of this pandemic, it can also serve as a first set of information, or to "flag", those patients requiring more detailed clinical/epidemiologic follow-up.*

Slides
54-60

The facilitator will present slides about SARI and ILI swab forms

Notes:

4) Data reports and analyses.

Slides 61-63   **The facilitator will present slides about SARI and outpatient aggregate data.**

A. Break into pairs for 10 minutes to review the contents of the aggregate data forms you have been given. How are these forms similar or different to the reporting that is currently ongoing? Do you agree or disagree with any of the data elements?

B. Imagine that you are a sentinel site coordinator. You have compiled the data below for week 41 at your site. Using these data, work with your partners to fill in the weekly reporting form given below (10 minutes).

Patient ID	Case Definition	Age	Gender	Specimen Collected	Status
ER1546	SARI	42	F	No	Admitted
IN4390	SARI	38	M	No	Admitted
IN3828	SARI	65	M	Yes	Admitted/Died
ER4929	ILI		F	No	Released
IN3983	SARI	8	F	No	Admitted
IN8953	SARI		M	No	Admitted
IN1264	SARI	71	F	No	Admitted
ER6753	ILI	55	F	Yes	Released
ER8231	ILI	12	M	No	Released
IN4319	SARI	27	F	Yes	Admitted
IN8347	SARI		M	No	Admitted
IN4820	SARI	19	M	No	Admitted

IN stands for inpatient, ER stands for emergency room. To keep this data she should also assume that there were 38 total new inpatient admissions during the week. Of these 5 were aged 0-4, 5 were aged 5-14, 5 were aged 15-29, 15 were aged 30-64, 5 were aged 65+, and 3 did not have any age recorded.

Sentinel SARI Surveillance: Aggregate Data Form - Week #____, Year _____

ID Number of Sentinel Site:

Age Group in Years	0-4 Years	5-14 Years	15-29 Years	30-64 Years	> 65 Years	Total
Number of New SARI Cases During Week						
Number of New Inpatients During Week						
Number of SARI Cases Selected for Influenza Testing						
Number of SARI Deaths During Week						

ID Number of Sentinel Site Focal Point: XXXXX

* Includes two patients without known age

** Includes three patients without known age

Please retain a copy of this form for record at hospital and send a copy to the national surveillance centre

The facilitator will present a few slides that cover reporting by national surveillance authorities.

Key points:
Weekly report requirements are not dissimilar to what is expected of sentinel sites, but includes laboratory results and appropriate stratification of results where appropriate:

1. For <u>SARI surveillance</u>, these are the data that the national surveillance centre should report <u>weekly</u> to relevant partners:
   - Number of new SARI cases during previous week
   - Number of total new hospital admissions
   - Number of SARI cases selected for influenza testing during previous week
   - Percent of tested SARI cases positive for influenza, by influenza type and subtype
   - Number of inpatient deaths due to SARI during previous week
   - Number of sentinel SARI sites reporting

2. For <u>outpatient surveillance</u>, these are the data that the national surveillance centre should report <u>weekly</u> to relevant partners

   - Number of new ILI cases reported during previous week
   - Number of total outpatients seen at ILI sentinel site
   - Number of ILI cases selected for influenza testing during previous week
   - Percent of tested ILI cases positive for influenza, by influenza type and subtype

3. Mention that because data are aggregated at the national level, they can be stratified further, such as by:
   - Age
   - Gender
   - Laboratory confirmation
   - Sentinel site

5) Conclusion
The facilitator will discuss the diagram below.

Diagram of the flow of data, specimens, and reports for influenza sentinel site surveillance in humans.